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December 22, 1994

In Reply Refer To:
AESO/SE
2-21-94-F-437

Mr. Charles W. Cartwright, Jr.
Regional Forester
USDA Forest Service
517 Gold Avenue SW
Albuquerque, New Mexico 87102-0084

Dear Mr. Cartwright:

This responds to a request dated June 27, 1994 from the Southwestern Region of the Forest Service (FS) to the Fish and Wildlife Service (FWS) for formal section 7 consultation pursuant to the Endangered Species Act (Act) of 1973 (as amended), on the Apache Trout Habitat Improvement Project (Project). This action would take place on the Alpine and Springerville Ranger Districts of the Apache-Sitgreaves National Forest (ASNF) in Apache and Greenlee counties, Arizona. The listed species addressed in the FS biological evaluation (BE) are the endangered bald eagle (Haliaeetus leucocephalus), peregrine falcon (Falco peregrinus anatum), the threatened Apache trout (Oncorhynchus apache) and Mexican spotted owl (Strix occidentalis lucida). Listed, proposed and candidaate species known to be in locations adjacent to the proposed project area were also included in the BE. The proposed endangered Southwestern willow flycatcher (Empidonax traillii extimus) and its proposed critical habitat were also addressed in the BE. The 90-day consultation period began on July 5, 1994, the date your request was received in the Arizona Ecological Services Office (AESO).

This biological opinion was prepared using information contained in the biological evaluation, data in our files, data in the published or grey literature, and other sources of information.

BIOLOGICAL OPINION

This biological opinion is for actions contained in the preferred alternative included in the BE dated June 14, 1994. It is difficult to segregate the Project from the continuing operation of the livestock grazing program. To that end, this opinion does briefly address the present livestock management on the affected allotments. However, this analysis is not in depth and does not constitute consultation under section 7 of the Act for the permitting and management of livestock grazing on the ASNF. Since the ASNF has scheduled all the involved Allotment Management Plans (AMPs) for revision during 1994-2004, the current management should be considered as interim and not representing the long-term strategy for livestock on these allotments. Consultation on these and other FS actions will be required as each action is developed.

Similarly, this biological opinion does not cover any Federal actions that would be subject to separate consultation. Management of elk (Cervus elaphus) herds in the project area has a federal nexus that provides for separate consultation. Recreational take of Apache trout is

allowed under a special rule contained in the final rule designating this species as threatened. This is direct take, not incidental take. The presence of elk and recreational taking of Apache trout are considered only as part of the environmental baseline for this consultation.

It is my biological opinion that the implementation of the proposed Apache Trout Habitat Improvement Project is not likely to jeopardize the continued existence of the Apache trout. Within the narrow confines of the proposed action, i.e. the placement of fences around certain critical reaches of Apache trout streams, the FWS concurs with the finding of "may affect, not likely to adversely affect" for the bald eagle, peregrine falcon, and Mexican spotted owl.

BACKGROUND INFORMATION

Consultation History

In the ASNF Forest Plan Amendment 1, a commitment was made to revise all AMPs that contained Priority 1 streams by 1990. When it became clear that this commitment would not be met, the ASNF formed an Interdisciplinary Team (ID Team) in September 1992 to review the status of Priority 1 Apache trout streams, determine those not in satisfactory habitat condition and provide recommendations that would allow these streams to contribute to the recovery of the Apache trout. The ID Team met periodically through early 1994 reviewing existing information and identifying those stream reaches where management of livestock would not likely provide adequate protection for the aquatic and riparian habitats. In those areas, livestock exclosure fencing would be recommended.

It is important to recognize that this Project was not intended to validate the existing livestock management on the affected allotments. The plan developed would not replace the need to consult on each AMP containing Priority 1 Apache trout streams. The actions proposed in the Project are interim efforts to attempt to accelerate the recovery of the most degraded stream reaches while the consultations on livestock management are completed. In and of itself, the Project does not represent all actions that would likely be necessary to provide for the recovery of the Apache trout on the ASNF.

Several Priority 1 Apache trout streams on the ASNF were not covered under the Project because the AMPs for those streams have been revised in accordance with the commitments in the ASNF Forest Plan and Amendment 1 and formal consultation on the new AMPs hass been completed. These streams include Boggy, Centerfire and Wildcat Creeks on the Westfork Allotment and Boggy, Centerfire, Hayground, Home and Stinky Creeks on the Reservation/Hayground/Burro Creek allotments. Aquatic habitat improvements on Mineral Creek underwent consultation, however, the AMP itself was not included in that consultation. Creeks in satisfactory habitat condition were also not included in this effort (Snake Creek and portions of Home Creek).

Grant and KP Creeks do not have General Aquatic Wildlife System (GAWS) surveys completed so the information needed for analysis under the Project was not available. These two streams will be analyzed using Project criteria and appropriate actions recommended once the GAWS reports are completed. Although Lee Valley Creek is included in the Project, the proposed action for this stream is to rest the affected pasture areas until the ongoing revision of the AMP is completed. Additional consultation on actions proposed for these three streams may be needed.

Description of the Action

The Project consists largely of placing exclosure fences around certain critical stream reaches on nine streams identified as Priority 1 streams in the ASNF Forest Plan Amendment 1. All these streams have been identified as necessary to achieve the recovery plan goal of having 30 self-sustaining discrete populations of pure Apache trout throughout its historic range. Three streams (Coleman, Lee Valley and Soldier Creeks) were included in the analysis but no specific physical actions were proposed. There were no critical reaches on Mamie Creek; however, it is included in the riparian pasture proposed for Coyote Creek and is thus included as having a physical action under the Project. The following is a summary of the physical actions proposed. All fences are for livestock exclosure only unless otherwise stated.

Bear Wallow Creek: 1.0 mile of fence on 0.5 mile of reach 5
Conklin Creek: one mile livestock and elk exclosure around 40 acres of cienega and 3.2 miles of fence on 1.5 miles of reaches 2 and 3
Corduroy Creek: 0.8 miles of fence around 20 acres of meadow and 4.0 miles of fence on 3.3 miles of reaches 2 and 3
Coyote Creek: 0.3 mile of fence around 5 acres containing a spring, development of the spring to provide water to a tank outside the fence, 2.5 miles of fence around 1.3 miles of reaches 4 and 6, 1.5 miles of fence to create a riparian pasture in reaches 5 and 7, close 2 acres of existing road in reaches 6 and 7, and build 0.3 miles of drift fence in reach 7
Double Cienega Creek: 6.4 miles of fence around 3.0 miles of reaches 1, 2, and 3
Fish Creek: 10.5 miles of fence around 10 miles of reaches 3 and 4, 0.5 miles of fence around 15 acres of Ackre Lake, 0.5 miles of drift fence in reach 1, removal of 2 miles of existing fence
Hannagan Creek: 2.4 miles of fence around 1.2 miles of reaches 1 and 2
Lee Valley Creek: no livestock use of stream area until AMP revision is completed
Mamie Creek: 1.5 miles of fence to create a riparian pasture (same project as in Coyote Creek)
Mineral Creek: relocate 1.0 mile of fence around existing riparian pasture, remove undetermined amount of existing fence around riparian pasture, build 1.0 mile of fence for a travel corridor along Forest Road 404 and eliminate existing travel corridor south of FR 404

Maintenance of the Project features will be required as part of the Project and this must be included in the analyses of effect. There are no structural improvements, barrier structures, renovation projects, restocking efforts or other actions that might be used in Apache trout management included in the Project. Those actions will require separate consultations as detailed plans are developed.

The FS planned to completely implement this Project in 1994 to 1995. Due to the time required for environmental compliance, no on the ground work has been done in 1994. The FWS assumes the Project would be completed in 1995 to 1996. Fences and other improvements that are part of the Project would remain in place until satisfactory habitat conditions had been reached. The streams would then be evaluated to determine the type of livestock management, if any, that could be allowed without causing resource degradation. Consultation on the revision of an AMP for any allotment could also result in a change in the Project actions for the affected stream. To monitor the progress of the Project, new GAWS surveys would be done on all Project streams between 1996 and 2000.

There are eleven allotments that contain portions of the Priority 1 streams covered by the Project. Existing AMPs were developed between 1972 and 1989 and are proposed in the Project for

revision between 1994 and 2004. Brief summaries of the existing management for each allotment is provided below.

Sprucedale Reno: This allotment uses a three pasture rest rotation system with 300 head of cattle from May 15 to October 15 for a total of 1500 head months (HMS). There is also a winter use period from November 01 to May 15 in alternate years with 47 horses for a total of 305 HMS. The cattle and horse pastures are separate. Range condition is fair or better. The existing AMP was written in 1981.

KP: This allotment is grazed year long by 215 head of cattle and 10 horses (2700 HMS) with an additional 160 head of yearling cattle from January 01 to May 15 (720 HMS). There are summer and winter use pastures. The Project would affect one of the summer use pastures which is grazed by 100 cattle from May 15 to October 15 (500 HMS). Winter range is in poor condition, summer range is in fair. The existing AMP was written in 1986 but was not fully implemented until 1993.

Hannagan: This allotment is grazed June 01 to October with 219 head of cattle (1095 HMS) under a five pasture deferred grazing system. Most of the range is in fair or better condition. The existing AMP was written in 1973.

Foote Creek: This allotment is grazed by 224 head of cattle under a ten pasture deferred grazing system. There are approximately 1120 HMS allowed, with approximately 300 HMS in the pasture containing Priority 1 streams. The range is in fair or better condition. The existing AMP was written in 1981.

Fish Creek: This allotment is divided up and used in conjunction with two other allotments. There are two pastures, one of which is subdivided into two sections. The western half of Hoodoo Pasture is grazed by 219 head of cattle on a deferred grazing system from June 01 to July 15 (328 HMS). The Lost Lake Pasture is used on a deferred grazing system with 219 head of cattle for 30 days each year (219 HMS). The eastern half of Hoodoo Pasture is grazed under a three pasture rest rotation system with 180 head of cattle from 6/1 to 7/20 (305 HMS). Most of the allotment is in fair or better range condition. The existing AMP was developed in 1973.

Coyote-Whitmer: This allotment is grazed by 402 head of cattle from May 15 to October 31 (2211 HMS) in a six pasture rest rotation system. The Priority 1 stream in this allotment was fenced in 1992. Range condition is fair to better over most of the allotment. The existing AMP was developed in 1975.

Lower Campbell Blue: This allotment is grazed May 16 to October 15 with 200 head of cattle (1000 HMS) on a three pasture deferred grazing system. Most of the allotment is in fair or better range condition. The existing AMP was developed in 1972.

Upper Campbell Blue: This allotment is grazed from Jun 01 to October 20 with 268 head of cattle and 4 horses (1269 HMS). The horses are grazed in a two pasture deferred system and the cattle are grazed in a five pasture deferred grazing system that actually has six pastures available. No information on range condition was provided. The existing AMP was developed in 1973.

Harris Lake: This allotment is grazed June 01 to October 15 with 586 head of cattle (2637 HMS) under a double rest rotation system using seven pastures and one riparian pasture. Approximately 60 percent of the allotment is in fair or better range condition. The existing AMP was developed in 1989.

ELC: This allotment is grazed May 15 to October 31 with 678 head of cattle (3729 HMS) on twelve main pastures and two holding traps in a short duration, high intensity, low frequency grazing system. Most of the range is in fair or better condition. The existing coordinated resource management plan was developed in 1989.

Voight: This allotment is grazed June 01 to October 20 with 308 head of livestock (1437 HMS) under a six pasture deferred grazing system. The allotment is in fair or better range condition. The existing AMP was developed in 1976

There is not sufficient information on the management or range conditions on these allotments for the existing AMPs to be included in this consultation. The livestock use of these allotments is included only to the extent that the effects on the watershed from the HMS displaced by the Project will be evaluated as effects of the action. The FS decision to allow grazing on these allotments is not part of the action under consultation.

Description of the Project Area

The Project area is located in the White Mountains of east central Arizona in Apache and Greenlee counties. There are eleven allotments that contain Project actions.

The overall Project area contains several distinct vegetation associations. Pinyon-juniper woodland, ponderosa pine forest, mixed conifer forest and spruce-fir forest are found at different elevations. Grasses within the forest communities are limited, with most of the grassland areas in the riparian corridors, openings resulting from timber operations and natural meadows. Grass and forb species typical of the subalpine and montane meadow grassland communities are present, as are introduced species.

Overall, the condition of the riparian and aquatic communities within the Project area is unsatisfactory. Timber harvest, overgrazing by ungulates, fires, road construction and effects from other human activities have resulted in degradation of these communities since the 1800's. There is debate over what the "historic" condition of the Project area was, especially as regards watershed and stream conditions, riparian development and forest composition. Degraded conditions in the riparian and stream communities have existed for many years and the present state may be viewed as the natural condition or as an improvement over conditions earlier in the century. This debate complicates management decisions that rely on determining what should be the desired future condition for these habitats.

The GAWS surveys provide a technique to measure physical parameters of a stream and riparian system and equate it to an optimal condition. Results of GAWS surveys were used to develop the Habitat Condition Index (HCI) used to determine if stream reaches were in satisfactory or unsatisfactory condition. The ASNF Forest Plan determined that streams or stream reaches with a HCI of less than 60 percent were in unsatisfactory condition. It is recognized that due to baseline physical conditions, some streams or stream reaches may not be able to achieve satisfactory condition. However, the condition of streams and stream reaches that are the subject of the Project can be improved. The following summary of streams in the Project area provides information on unsatisfactory reaches.

Bear Wallow Creek: Reach 5 is in unsatisfactory condition and is the critical reach, comprising 1.2 miles of a total surveyed length of 11.2 miles (approximately 11 percent of the surveyed length).

Coleman Creek: Reaches 3 and 4 are in unsatisfactory condition and are critical reaches, comprising 2.8 miles of a total surveyed length of 4.3 miles (approximately 65 percent of the surveyed length).

Conklin Creek: Reaches 2 and 3 are in unsatisfactory condition and are critical reaches, comprising 2.7 miles of a total surveyed length of 6.5 miles (approximately 41 percent of the surveyed length).

Corduroy Creek: Reaches 2 and 3 are in unsatisfactory condition and are critical reaches, comprising 2.7 miles of a total surveyed length of 3.2 miles (approximately 84 percent of the surveyed length).

Coyote Creek: Reaches 2, 4, 6, and 7 are in unsatisfactory condition and are critical reaches, comprising 3.3 miles of a total surveyed length of 5.2 miles (approximately 63 percent of the surveyed length).

Double Cienega Creek: Reaches 1, 2, and 3 are in unsatisfactory condition and are critical reaches, comprising 3.0 miles of a total surveyed length of 3.0 miles (approximately 100 percent of the surveyed length).

Fish Creek: Reaches 3 and 4 are in unsatisfactory condition and are critical reaches, comprising 4.0 miles of a total surveyed length of 12.0 miles (approximately 33 percent of the surveyed length).

Hannagan Creek: Reaches 1 and 2 are in unsatisfactory condition and are critical reaches, comprising 1.2 miles of a total surveyed length of 4.2 miles (approximately 28 percent of the surveyed length).

Lee Valley Creek: Reach 1 is in unsatisfactory condition and is a critical reach, comprising 0.8 miles of a total surveyed length of 1.6 miles (approximately 50 percent of the surveyed length).

Mamie Creek: No reaches are in unsatisfactory condition. The total surveyed length was 2.3 miles.

Mineral Creek: Reaches 2 and 3 are in unsatisfactory condition and are critical reaches, comprising 1.1 miles of a total surveyed length of 3.1 miles (approximately 35 percent of the surveyed length).

Soldier Creek: Reaches 2 and 3 are in unsatisfactory condition and are critical reaches, comprising 0.7 miles of a total surveyed length of 1.4 miles (approximately 50 percent of the surveyed length).

Species Descriptions

Apache trout

The Apache trout was first described as a subspecies of cutthroat trout (Oncorhynchus clarki pleuriticus) by Cope and Yarrow in 1875 and Jordan in 1891. In the 1950's, Miller combined it with the closely related Gila trout (O. gilae) but in 1972, Miller described the Apache trout as a distinct species from the Gila trout (summarized in Behnke 1992). The Apache trout is native to the headwaters of the Salt (Black and White Rivers), Little Colorado and San Francisco Rivers

(USFWS 1983). The distinctive yellow or yellow-olive coloration of this species clearly differentiates it from the non-native trout species introduced into Apache trout habitats.

Apache trout spawn in the spring (March to mid-June) once the water temperatures reach 8° Centigrade (C) over substrates composed of gravels usually at the downstream end of pools. Water depth and velocity vary (Harper 1978). Nursery areas for young trout include the shallow margins of pools and miniature pools within runs (Wada 1991). Preferred adult habitat appears to consist of deep pools with considerable instream cover and areas of undercut banks (Wada 1991). Both aquatic and terrestrial insects are used by all size classes of Apache trout and predation rates may vary seasonally (Harper 1978).

Other species

Because of the level of potential effects to the bald eagle, peregrine falcon, Mexican spotted owl and southwestern willow flycatcher, we will not provide additional background material on these species in this biological opinion.

Environmental Baseline

Past Actions

As previously noted, the effects of past human activities in the ASNF have been significant. Use of the forest and grasslands for agriculture, livestock grazing, timber harvest, mining and recreational activities has resulted in changes to the landscape that obscure the natural dynamics of the communities. In recent years, the FS has made efforts to control and manage human uses on the ASNF in accordance with legislative, regulatory and policy mandated directives. The implementation of these directives has been gradual, not immediate.

The estimate of historic Apache trout habitat in the White Mountains is approximately 600 miles of stream. By the 1950's, the species was found in only 30 miles of streams (USFWS 1983). A combination of competition and hybridization with non-native introduced trouts and habitat degradation were largely responsible for the decline in populations. The first non-native trout stockings in the White Mountains occurred in 1917. Overuse of Apache trout stocks by settlers for food may also have contributed to the decline of this species.

Species status: Apache trout

Originally listed as an endangered species, the Apache trout was downlisted in 1974 to threatened as a result of the efforts to provide for the survival and recovery of the species taken by the White Mountain Apache Tribe (WMAT) on the Fort Apache Indian Reservation (FAIR) and later by the Arizona Game and Fish Department (AGFD), the FS and FWS. In the downlisting rule, there was a special rule allowing for direct take of the species in accordance with applicable State law. This allowed for the legal development of a sport fishery for the Apache trout.

Apache trout are presently found in portions of 46 streams and small lakes on FAIR and ASNF, totalling approximately 225 stream miles. Of the 46 streams, only 25 contain Apache trout populations considered to be genetically pure. The remaining 21 streams contain populations with varying degrees of genetic contamination from introduced rainbow trout (O. mykiss). Of the pure streams, 16 are on FAIR and nine are on the ASNF. Five of the ASNF streams were stocked with Apache trout from the East Fork of the White River as recovery actions.

Significant Apache trout populations exist in the headwater streams of the White and Black Rivers on FAIR. Based on stream specific work listed as being required for the delisting of the species (USFWS-AZFRO unpublished data), habitat degradation appears to be less widespread in streams on FAIR. Unfortunately, several of these important populations have declined in the last few years, likely due to competition with brown trout (Salmo trutta) that are present in the streams. Stocks of the Flash Creek population are low enough that the leader of the Apache trout recovery team recently suggested moving some of the remaining fish to a hatchery to provide stock for augmentations that might be needed (Novy 1994). Recent survey data clearly show that brown trout are widespread in Apache trout streams (USFWS-AZFRO unpublished data) on FAIR.

On the ASNF, at least six of the 21 Apache trout streams have populations of brown, brook (Salvelinus fontinalis) or rainbow trout present. Fortunately, none of these streams have pure Apache trout populations. Data presented during the planning phase of the Project showed that trout biomass is almost uniformly low throughout the ASNF streams. Habitat improvement is cited as being needed in 16 of the 21 streams (USFWS-AZFRO unpublished data). Of those 16, 10 are streams with actions under the Project.

The size and health of the existing Apache trout populations have not been fully evaluated; however, there is some biomass data available for all streams with a completed GAWS survey. Similar surveys on FAIR have not been completed. There are some records of successful recruitment in Paddy, Corduroy and Double Cienega creeks in 1988 (USFWS-AZFRO unpublished data) and in Firebox and Sun creeks (Wada 1991). Recruitment at some level obviously must occur in the other populations.

In summary, although the Apache trout has made considerable gains since the 1950's, its status cannot be considered to be on an overall upward trend at this time. The decline in core populations on FAIR is of serious concern to the longterm survival of this species. Low population numbers in the many degraded streams containing pure populations are a significant impediment to recovery and eventual delisting. With the completion of the genetic analyses, efforts can be made to preserve the remaining genetic heritage of the species, but without adequate habitat to support self-sustaining populations in the designated recovery streams, recovery will not be attained.

Species status: other species

Because of the level of potential effects to the bald eagle, peregrine falcon, Mexican spotted owl and southwestern willow flycatcher, we will not provide additional background material on these species in this biological opinion.

EFFECTS OF THE ACTION

The effects of the Project fall into two general categories. The first are the effects generated from the placement of the exclosure fences and other specific actions required under the Project. These are of both short and long-term impact. There are also the long-term issues of maintenance that must be considered. The second are those effects generated by the displacement of livestock from the exclosed area during and after the time the Project is implemented. Because the subject of this consultation is not the existing AMPs, the evaluation of the effects of grazing on the Apache trout for this consultation becomes more complex. These effects are discussed in the following section.

Direct and Indirect Effects: Apache trout

Effects of specific actions

The BE for the Project examined several types of effects foreseen to occur during the placement of fences and implementation of other specific actions. These discussions are briefly summarized in this section.

Construction of the fences required would likely necessitate some level of wading across the creeks by the construction crews. This action could result in localized bank damage, disturbance to substrates and benthic invertebrate populations, damage to eggs and fry of the Apache trout if construction takes place during the spawning season, and disturbance to adult trout. The present level of Apache trout populations in the Project streams are low, thus reducing the likelihood of significant effects to individual Apache trout. The Project also proposes to instruct all construction teams to minimize wading in the creeks. This should help to minimize physical effects to the stream itself. These types of effects may be considered to continue through the life of the Project because of the need to maintain the fences.

The purpose of the fences is to encourage the restoration of riparian vegetation and improve physical habitat conditions within the streams. If successful, the effect would benefit the resident population of Apache trout. The magnitude of this effect depends upon several outside factors, only some of which can be addressed by the Project itself. Weather conditions (including high water events), degree of existing damage to the riparian and stream system and the amount of use by elk and other wildlife species will have an influence on the rate of stream and riparian recovery but are not controllable by the Project. Prompt maintenance of the fences and efforts to control livestock and human access to the exclosures can be addressed more easily under the Project. Benefits realized by the exclusion of livestock from the critical stream reached may be negated if livestock are able to access the stream even if the amount of that access is less than that presently allowed.

The Project includes some other small physical actions. Development of the spring near Coyote Creek to provide for water could affect the amount of water in the creek and increase livestock use of the area around the tank. Depending upon the placement of the tank in relation to Coyote Creek, additional sediment may enter the creek during rainfall events and there may be additional crossing of the stream by livestock to reach the tank. There is no information given on the amount of water that would be diverted, or how the spring flow would be captured. Without this information, the magnitude of effects to Apache trout cannot be quantified. Removal of the existing road along Coyote Creek and the new livestock travel corridor at Mineral Creek would benefit these creeks by reducing access that could damage banks or increase sedimentation.

In those critical reaches where livestock access continues (riparian pastures), it is assumed by the Project that the livestock management proposed is sufficient to allow the stream and riparian resources to recover. There is not, however, a system described in the Project detailing the types of monitoring to be done on these pastures, the amount of use they would receive, the level of effects to stream and riparian habitats that would be allowed, or the means by which problems that develop will be addressed. It is therefore unclear what positive effect these pastures would have on Apache trout habitat and what amount of adverse effects would continue.

Displacement of livestock

Full implementation of the proposed Project would result in the exclusion of livestock from certain riparian areas. Fences constructed as part of this project would, according to Project descriptions, be placed within the tree line where possible to minimize visual effects. This placement also allows the entire width of the meadow containing the critical reach to be included in the exclosure. As discussed in the environmental assessment (EA) for the proposed Project, the riparian meadows provide three to four times the forage production per acre than do the forested areas or grasslands not associated with streams. Most of the allotments within the Project area contain large areas of pinyon-juniper, ponderosa pine, mixed conifer and spruce-fir forests where forage production is between 50 and 500 pounds per acre. Forage enhancement projects undertaken as part of timber sales are commonly used to create additional forage in the upland areas. Overuse of some non-riparian upland areas by grazing animals is apparent from an examination of the plant communities dominated by bracken fern (Pteridium aquilinium var. pubescens) and screwleaf muhly (Muhlenbergia virescens). Range conditions of poor to fair or better indicate that some percentage of the available range has been overused. Improvement of rangeland conditions within and away from riparian areas is included in the standards and guidelines of the ASNF Forest Plan.

Implementation of the proposed action would result in the loss of a total of 102 HMS from the fencing. These HMS are all from the riparian meadows that would no longer be available to livestock. Although against the total number of HMS involved (8281 HMS in the six allotments where fences would be constructed) this loss appears small (approximately 1.2 percent of the total), it must be remembered that these losses are appearing in specific pastures, not spread evenly over the entire allotment. Information on the present HMS use of the affected pastures was not provided for this consultation; however, it is possible to make some general statements on the types of effects likely to occur. The type and magnitude of these effects would vary with the length of use of the pasture by livestock, the condition and accessibility of non-exclosed stream reaches, distribution of livestock on the pasture, and availability of water and forage in other sections of the pasture.

The EA suggests that an additional three to five percent forage utilization (assumed for this opinion to occur within the pasture containing the exclosure) would result from displacing livestock from the exclosures. It is further suggested that this increased use can be accommodated in these pastures without reducing the herd size or the length of time the livestock use that pasture. These assumptions require that livestock be distributed over the entire suitable grazing area contained in the pasture and are not concentrated in a few areas. If livestock do concentrate in certain areas, those areas must have sufficient forage to support the additional use without utilization exceeding the levels set in the ASNF Forest Plan and Amendment 1. If either assumption is not true, there is a potential for overuse that degrades range and watershed conditions, thereby affecting runoff and stream conditions. Depending upon the size and configuration of a specific pasture with an exclosed or partially exclosed stream, there may be a greater or lesser potential for these effects to occur.

The Project does contain a monitoring commitment to examine actual use in pastures so that the use does not exceed the 45-55 percent allowed. Implementation of the Project would likely require that the permittee expend additional effort to keep livestock distributed on the pasture. It must be assumed that if allowed use is exceeded, that livestock would be removed from the pasture or that forage utilization is otherwise controlled.

The presence of livestock in the pasture containing the exclosures, wildlife use of the area and recreation use all contribute to a risk of livestock getting through the exclosure fence into the

riparian area if the fence is breached. The success of the Project directly relates to keeping the fences whole and livestock out of the exclosures. Unless efforts are made to monitor fence condition, the potentially beneficial effects to the streams from the Project would not occur. The Arizona Game and Fish Department (AGFD) has agreed to build and maintain the fences.

Effects to Survival and Recovery: Apache trout

The long or short-term survival of an endangered or threatened species may require implementation of recovery actions as well as protection for individuals and the habitat. In cases of special urgency, actions that contribute to adverse conditions reduce the effectiveness of recovery actions that are or could be taken. Congress was very clear in its defining the purposes of the Act. Section 2(b) states:

> "The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved..."

The definition of "conserve" is found in section 3(3):

> "...to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary..."

As stated in the beginning of this biological opinion, the intent of the Project is to provide an opportunity to begin the restoration process on critical reaches of Apache trout streams while the AMPs are being revised. In this way, required recovery actions can be implemented now without additional delays while waiting for the completion of the analyses of the larger issues.

To date, recovery actions for the Apache trout on both the FAIR and ASNF have stressed closure of areas to people and livestock, placement of barriers and renovation of upstream reaches to eliminate non-native trout, restocking with hatchery bred Apache trout and some limited stream habitat improvement projects. The recent completion of the genetic work on the Apache trout provides a blueprint for future actions in the same categories. The question of habitat quality has not received the same level of commitment from the agencies involved. This Project represents the first cohesive effort to address the problem of degraded habitats.

There are significant potential benefits to the Apache trout recovery program from the successful and complete implementation of the Project. Rehabilitation of the most severely degraded stream reaches would begin in the next two years. Since the stream conditions are not expected to meet the desired future condition for at least 10 years, and full recovery will require that habitats in the 30 recovery streams support self-sustaining populations, prompt implementation of the project could accelerate the recovery process. As stated above, if there is not adequate monitoring of conditions on the watershed and of the integrity of the fences, the benefits of this Project will not occur and the recovery of the Apache trout would be delayed.

It is important to remember that the Project alone does not deal with all the issues that affect Apache trout recovery and represents a first step, not a completed program. The revision of the 11 AMPs in 1994-2004 is equally critical to the recovery effort and must be completed in order to fully address the effects of livestock grazing on the Apache trout and its habitat.

Cumulative Effects: Apache trout

Cumulative effects are those effects of State or private activities that have no Federal connection, that are reasonably certain to occur within the action area of the Federal action subject to consultation.

Virtually all Apache trout habitat is located on either Native American lands (FAIR) or FS (ASNF) lands. There are limited private land holdings within the ASNF that would allow for private actions that had no Federal oversight. In these cases, the prohibitions in section 9 would apply to certain activities that resulted in a taking of Apache trout. Section 9 does not apply to the take of Apache trout if that taking is in accordance with State law. Further, that take has already been allowed under the special rule published by the FWS in the downlisting of the species from endangered to threatened.

Other State activities that might take place on the ASNF include wildlife management, road construction, flood control projects and other activities. In some cases, the Federal government provides permits for such activities under laws such as the Clean Water Act, or may be providing all or part of the funding for the action. In either case, the presence of the Federal nexus requires that section 7 consultation be completed. If there is no Federal nexus, then the protection under section 9 of the Act would apply.

The small towns adjacent to and surrounded by the ASNF are likely to experience some level of growth and development over the next 10 years. There may be shifts in the economic base of the area that would affect land use patterns. It is likely that the existing economic sectors would continue to operate at some level. There are no large, significant new developments likely in the near future for these areas that would have significant effects on the Apache trout that would also not have a Federal nexus.

Interrelated and Interdependent Effects

Interrelated and interdependent effects are defined by the FWS as those effects that either are part of a larger action under consultation and are dependent upon that action for their justification or have no significant independent utility apart from the action under consultation. These effects can be Federal or non-Federal actions.

Implementation of the Project is necessary to address effects to threatened species from the ASNF decision to allow livestock grazing within watersheds containing Apache trout populations. The Project does not itself address the overall issue of livestock grazing, which is the larger action involved in this consultation. The Project is an interrelated/interdependent effect of that larger action, not the reverse. This relationship highlights the need to initiate and complete the revisions of existing AMPs where listed species are affected.

INCIDENTAL TAKE

Section 9 of the Act, as amended, prohibits the taking (harass, harm, pursue, shoot, wound, kill, capture or collect, or attempt to engage in any such conduct) of listed species without a special exemption. The concept of harm includes habitat modification and degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding or sheltering. Case law has affirmed that taking does harm to listed threatened species when there is definable injury or death to individuals. 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 agency action, is not

considered taking within the bounds of the Act, provided such taking is in compliance with the incidental take statement provided in the biological opinion.

The FWS has determined that the Apache trout streams in the Project area have been adversely affected by past and ongoing management of these watersheds. The Project looked at the critical reaches of 13 of the 21 streams on the ASNF determined to be critical to the recovery of the Apache trout and recommended actions be taken for nine streams. Six of the remaining eight have been the subject of previous consultations for the revision of AMPs. The remaining two streams will be evaluated under Project criteria once GAWS surveys have been completed.

Habitat quality in at least 16 of the 21 streams is not satisfactory and these streams cannot support self-sustaining population needed to delist the Apache trout. Unsatisfactory habitat quality interferes with the ability of the Apache trout to breed, feed or shelter in these streams, thus qualifying as harm under the definition of take in the Act.

As in previous biological opinions dealing with Apache trout and livestock grazing, the FWS refers back to the ASNF Forest Plan and Amendment 1. The standards and guidelines in these documents state that Apache trout habitat would be managed for or maintained at least 60 percent of potential habitat capability. The ASNF chose to use the GAWS methodology to measure habitat condition, and while these measurements may or may not be entirely valid for Apache trout habitat, they do represent an acceptable measure of habitat conditions that is measurable and comparable. This is the only data base presently available to assess habitat condition in the ASNF streams.

Apache trout habitat condition in the Project streams is at less than the 60 percent of potential discussed in the ASNF Forest Plan and Amendment 1. In the consultation with the FS on the ASNF Forest Plan, the FWS acknowledged an implicit "taking" of up to 40 percent of potential habitat condition by the management activities proposed by the FS. This level of "take" was determined by the FWS not to jeopardize the continued existence of the Apache trout. Because of the nature of the planning process, specific reasonable and prudent measures and terms and conditions were not included in the biological opinion on the ASNF Forest Plan. Reasonable and prudent measures to reduce incidental take would be included in biological opinions for specific actions.

Since the habitat condition of Project streams is less than 60 percent, the level of "take" implicit in the ASNF Forest Plan and Amendment 1 has been exceeded. The FWS recognizes that the purpose of the Project is to provide a means to begin to restore the habitat conditions in the streams to achieve the standards and guidelines in the ASNF Forest Plan. If the Project is not fully implemented, and/or the management actions that are part of the Project do not result in the timely recovery (as estimated in the EA) of the stream reaches, then the Project will have failed and incidental take will continue to be exceeded.

The very nature of the Project almost guarantees that restoration of habitat quality in the streams will not occur. The variety of compromising factors listed in the EA clearly demonstrate the complexity of the situation. The futility of the limited actions proposed under the Project stresses the need to consider the watershed as a whole when dealing with stream and riparian conditions. The proposed Project is, and must be considered, an interim measure to at least prevent the habitat conditions from getting worse while a comprehensive solution is developed and implemented.

Even though the incidental take for the ASNF-Forest Plan has been exceeded, the FWS will view the Project under its own merits in terms of incidental take. In order to encourage the

development of the comprehensive solution, the FWS considers that the level of incidental take from the Project will be exceeded if any of the following conditions are met:

1. The AMP revision schedule contained as part of the Project and included in the EA must be met in the stated timetable. Progress will be reviewed every 4 years and the timetable must be kept within that period. Recognizing the need for some flexibility, the FWS will consider the timetable met if it is within two years of the stated schedule.

2. The fencing and other specific project actions are not completed by the end of calendar year 1996.

3. New GAWS analyses in between 1996 and 2000 (as called for by the Project) do not show meaningful improvement in those parameters expected to be improved by the exclosure fences unless it can be proved that the improvement was hampered by factors outside the control of the FS (i.e. elk grazing, high water events). Lack of fence maintenance is not a factor that can be used in this condition.

4. Monitoring as described in the BE and EA and new habitat condition surveys are not completed on schedule.

The Reasonable and Prudent Measures (RPMs) described below are not discretionary and must be undertaken by the FS as part of the implementation of the proposed Project and must also be made a part of any other agreement, permit or plan approved or implemented under FS oversight that would affect the components of the Project.

Reasonable and Prudent Measures

The following RPMs are required to reduce the level of incidental take resulting from the implementation of the proposed Project.

1. Measures will be taken to ensure that fences are in place and in good condition before and during livestock use of the pasture containing the exclosure.

2. Measures will be taken to ensure that all monitoring and surveys undertaken under the Project are adequate to assess changes to habitat conditions inside and outside the exclosures.

3. Measures will be taken to ensure the level of incidental take currently in existence on Project streams does not continue.

Terms and Conditions

The following Terms and Conditions are required to implement the RPMs described above. Implementation of all Terms and Conditions is required to for the FS to be in compliance with section 9 of the Act.

To implement RPM 1:

a. Where possible, exclosure fences should be placed in pastures scheduled for use in 1995 before they are placed in pastures where no livestock use is planned until 1996.

b. All exclosure fences will be inspected and repairs made prior to livestock being turned out into that pasture. Inspections will also be made at regular intervals while livestock are in the pasture. In pastures not used in a particular year, fences will be inspected at least twice a year (spring and fall) and repairs made before any livestock use.

c. The FS, AGFD, the permittee for each affected allotment and FWS will develop a means to report damage to fences and affect repairs to damaged fences. The amount of time livestock were in the exclosure due to failed fences or other means of access will be reported and recorded by the FS.

d. The FS, AGFD, the permittee and FWS will evaluate and revise fencing patterns or types based on the failure rate of specific fences. This will be done as necessary. Fences that fail more than once in a year will require evaluation.

To implement RPM 2:

a. A specific monitoring plan for range condition, livestock use of affected pastures, documentation of uncontrolled events on the watershed, and riparian and aquatic conditions in the Priority 1 streams will be developed and implemented. Much of this monitoring is included, in general terms, in the EA for the Project.

b. The FS will provide reports describing the monitoring done in the previous year and the results of that monitoring to the FWS and other interested parties.

c. The FS will continue to work with AGFD to define the effects of elk use in riparian and aquatic habitats on the recovery of these habitats.

To implement RPM 3:

a. Unless delays are agreed to by the FWS, this Project will be fully implemented by the end of 1996 or before any livestock grazing occurs in 1997.

b. If delays in implementation of any part of the Project are agreed to by the FWS, there will be no livestock grazing use of affected pastures until Project features are put in place in that pasture.

Reporting Requirements

The FS will provide to the FWS and other interested parties a yearly report of fence completion and maintenance, a record of fence failures and days of trespass by livestock, status of the monitoring called for under the Project, records of uncontrollable events that may affect progress of the Project and other relevant information.

If, during the course of the action, the amount or extent of the incidental take is exceeded, the FS must reinitiate consultation with the FWS immediately to avoid violation of section 9 of the Act. 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 Apache trout. The FS must provide an explanation of the causes of the taking.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as FWS suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for the species.

The FWS recommends the following actions:

1. Additional actions included in Alternative 3 of the Project be incorporated into the proposed action.

2. Eliminate use of all riparian pastures by livestock.

3. Explore opportunities to increase the 60 percent habitat capability standard in the ASNF Forest Plan.

SPECIES PROPOSED FOR LISTING

The proposed endangered southwestern willow flycatcher may be found in the vicinity of the proposed Project; however, none have been found in the areas to be exclosed from livestock use. There may be effects to this species from livestock grazing on the ASNF that are beyond the scope of this consultation. For the specific actions under the Project, the FWS does concur with a finding of not likely to jeopardize the continued existence of the southwestern willow flycatcher or destroy or adversely modify its critical habitat.

CONCLUSION

This concludes formal section 7 consultation on the Project as described in your June 27, 1994 request for consultation. As required by CFR 402.16, reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is exceeded, 2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion, 3) the agency action is subsequently modified in a manner that causes an effect to a 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 agency action.

The FWS would appreciate notification of your final decision on this action. We also remind the FS that the Terms and Conditions to implement the RPAs are mandatory and must be implemented and reports provided as required. In order for the FWS to be kept informed of actions that either minimize or avoid adverse effects, or that benefit the listed species or their habitats, the FWS would appreciate notification of the implementation of any conservation recommendations by the FS.

The FWS recognizes and appreciates the endangered species conservation commitments of the ASNF. In future communications on this project, please refer to consultation number 2-21-94-F-437. If there are any questions about this biological opinion, please contact Lesley Fitzpatrick or Ted Cordery at 602/640-2720.

Sincerely,

/s/ Sam F. Spiller
State Supervisor

cc: Director, Arizona Game and Fish Department, Phoenix, AZ
Regional Director, Fish and Wildlife Service, Albuquerque, NM (AES)
Project Leader, Arizona Fishery Resources Office, Fish and Wildlife Service, Pinetop, AZ
Project Leader, Arizona Fishery Resources Office, Fish and Wildlife Service, Parker, AZ

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