

**United States Department of the Interior
U.S. Fish and Wildlife Service
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November 28, 1994

In reply Refer To:
AESO/SE
2-21-94-F-013

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 July 12, 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 Santa Cruz Allotment Management Plan (AMP). This action would take place on the Sierra Vista Ranger District of the Coronado National Forest in Santa Cruz County, Arizona. The listed species of concern is the endangered Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*). The 90-day consultation period began on July 20, 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

It is my biological opinion that the implementation of livestock grazing on the Santa Cruz allotment under the proposed AMP is not likely to jeopardize the continued existence of the Pima pineapple cactus.

BACKGROUND INFORMATION

Consultation History

In a letter dated October 4, 1993, the FS requested FWS concurrence with a list of threatened or endangered species that might be found on the Santa Cruz allotment. The FWS concurred with

the list and provided a list of candidate species that might also be in the project area. The Pima pineapple cactus did not appear on either list.

The biological evaluation transmitted by the FS to the FWS on May 12, 1994, did include the Pima pineapple cactus in the evaluation. At the time this document was prepared, there were no known individuals or habitat present on the allotment. Subsequently, information from the Arizona Game and Fish Department (AGFD) Nongame Data Management System was obtained by the FS that indicated a small population of Pima pineapple cactus was located near, but not on, the Santa Cruz allotment. Surveys of the area located one plant. Based on the type of habitat occupied by this individual, the FS determined that there was potential Pima pineapple cactus habitat in one pasture on the Santa Cruz allotment. This information was provided to the FWS in an attachment to the original biological evaluation. The FS requested that the FWS concur with a finding of may affect, not likely to adversely affect. On June 15, 1994, the FWS informed the FS that they could not concur with that finding. As a result, surveys were scheduled by the FS on the potential habitat area. During the June 23, 1994, survey, one Pima pineapple cactus was located in Wild Hog Pasture. On June 27, 1994, the FWS advised the FS to request initiation of formal section 7 consultation. The FS requested formal section 7 consultation in a letter to the FWS Regional Director dated July 12, 1994.

Description of the Action

The proposed action is the implementation of a new AMP for the Santa Cruz allotment. The new AMP continues changes to the livestock operation that began in 1990 that are intended to improve range conditions. The permit is for 380 cattle year-long, however, due to range conditions from 1989 surveys, there is a memorandum of understanding for 100 head of non-use until March 1998. This non-use level may be decreased before December 1995 as range improvements are completed and management improves. The proposed AMP documents and includes the changes in management since 1990.

The allotment has six pastures and was used for a cow/calf operation. The permit holder may also graze yearling cattle in conjunction with the cow/calf operation. Under the proposed AMP, the cattle would be kept in one herd and rotated through the pastures in a deferred rotation system. Of the six pastures, Guajalote would be used only in the winter with Shamrock and Bull used only in the summer. The remaining three pastures, Soldier Basin, Wild Hog and Paloma could be used in any season. Use in Paloma would be timed to avoid damage to the riparian areas there. Rotation of the herd through the pastures would be set each year with dates given for use of designated pastures. However, if when utilization is reaching the preset levels, the herd would be moved regardless of the date. In riparian areas the level is a maximum of 30 percent tree sprouts and seedlings and a maximum of 50 percent on browse species including riparian plants beyond the seedling stage. On key forage grasses, the level is a maximum of 45 percent of the annual production in key grazing areas. The use of salt, herding and supplements to move cattle around in a particular pasture and prevent overuse of some areas and non-use of others is part of the AMP.

There are several range improvements that are part of the proposed AMP. These are water developments/improvements and some limited fencing. There are no major changes to the layout of the existing pastures.

Monitoring of seasonal use of forage would be done by the permittee. The FS would annually inspect the allotment at least during the first years of operation. Utilization would be measured

by grazed plant counts, utilization cages and ocular estimates in riparian areas. Additional monitoring of riparian areas would be implemented if needed to assess effects.

Until 1990, Wild Hog pasture was part of the Paloma pasture and was used during the summer and fall. Wild Hog was not grazed in 1990 or 1994. It was grazed for six weeks in 1991 (April 1 to May 15) and 1992 (May 21 to June 30) and for two weeks in 1993 (June 1-15). Under the new AMP, this pasture would be grazed during May and June the first year, June and July the second year and March and April the third year.

Description of the Project Area

The Santa Cruz allotment is in southern Santa Cruz County in Arizona and consists of 12,560 gross acres with 11,806 acres having full or partial capacity for grazing. Significant overuse of forage resources by livestock under pre-1990 management has been documented. Topographically, the allotment ranges in elevation from 3,800 feet to 6,600 feet and contains a variety of terrain.

Vegetation is largely Upper Sonoran grassland with areas of mesquite woodland in the lower drainages and evergreen oak and juniper woodlands at higher elevations. Past overgrazing has significantly affected species composition of the grasslands. Perennial grasses have been eliminated from portions of the allotment and replaced by annual grasses and non-native species such as Lehmann lovegrass (Eragrostis Lehmanniana). Other grasses found on the allotment include several species of grama (Bouteloua spp.), Texas bluestem (Andropogon cirratus), and plains lovegrass (Eragrostis intermedia). There are several drainages containing riparian communities in the allotment.

Species Description

The description below is summarized from the final rule designating the species as endangered. For additional information and references, please refer to the final rule.

The Pima pineapple cactus is a hemispherical plant ranging in height from 10 to 46 centimeters (cm) and 7.5-18 cm in diameter. The spine cluster has one usually hooked center spine surrounded by 6 to 15 radial spines. Spines are stout, giving rise to the subspecies name robustispina. Plants can be single stemmed or multi-headed and clusters formed by seed germination at the base of the original plant are also known. The Pima pineapple cactus has yellow flowers after the summer rains (July-August) and sets a green ellipsoid fruit.

Habitat for the Pima pineapple cactus grows in alluvial basins and hillsides in semi-desert grasslands and Sonoran desertscrub. It occurs most commonly on open areas on flat ridgetops or slopes of less than 10 to 15 percent at elevations between 2,300 to 4,500 feet. Other vegetation present is generally sparse.

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 already 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 to provide a platform to assess the effects of the action now under consultation.

Past Actions

Habitat for the Pima pineapple cactus is on Federal, State, Tribal and private lands in southern Arizona. Past actions including land management decisions and urban/suburban development have resulted in habitat loss and fragmentation. These types of actions are continuing to destroy or degrade the remaining habitat areas.

Species status

At least 75 percent of Pima pineapple cactus habitat has been adversely affected by past actions. In addition, adverse effects from changes in vegetation community structure may exist in what habitats remain. There are no estimates of the total amount of habitat historically available and there are no reliable population estimates due to the variance in plant density observed in the wild. That a considerable portion of the remaining habitat is on non-Federal lands contributes to the uncertain future for this species. Listed plant species do not receive the same protections against "take" as do listed animal species on non-Federal lands. The importance of those populations on Federal lands becomes greater as the populations on non-Federal lands decline.

EFFECTS OF THE ACTION

Direct and Indirect Effects

The intent of the proposed AMP is to improve the range conditions on the allotment. If successful, the changes to local vegetation communities may or may not be beneficial to the Pima pineapple cactus.

In the AMP, the use period for Wild Hog pasture ranges from March to July. In documentation provided by the FS, forage utilization in Pima pineapple cactus habitat was approximately 40 to 50 percent. The AMP allows a maximum use of 45 percent in the grasslands on the allotment. It is apparent from this information, that additional livestock use of the habitat area should not be allowed. The efforts to distribute the herd on the pasture during the period of use may change the level of use. Changes to water sources that encourage livestock to move to the upper elevations would also alter distribution. Locations of movement corridors may also change as a result.

Pima pineapple cactus bloom in July and August. Fruit is set in late summer to fall. Under the previous grazing plan, use ran from June or July to November and there was a higher risk of damage to flowers or fruit from livestock. Under the proposed AMP, this risk would be reduced to one month every third year. There may be a reduction in risks associated with trampling from the implementation of the proposed AMP due to the decrease in exposure time. This may be offset by the increased movement of the herd in the pasture and changing the number of animals in the herd (cow/calf versus yearlings).

Improvements in range condition resulting from the proposed AMP create a complex situation. Overgrazed watersheds have changes in microclimate, hydrology, erosion, structural complexity and abundance of the vegetation community and in species composition. These may all have an effect on the suitability of Pima pineapple cactus habitat. At present, known habitat is characterized by a sparseness of vegetation. Historically, the normal structure and species composition of these grasslands likely provided the openings where Pima pineapple cactus could

grow. The present mix of grasses found on the allotment is not the same. Lehmann's lovegrass does not have a growth pattern that allows for this type of openness. If improving range conditions contributes to the spread and health of Lehmann's lovegrass populations, then benefits to Pima pineapple cactus might be reduced.

Effects to Survival and Recovery

The long or short-term survival of 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..."

Continuing to graze livestock in Pima pineapple cactus habitat maintains a level of effects that may or may not create significant problems in conserving this species. Reduction in known overuse is by itself a positive step, although the complexity of habitat responses to the reduction in light of habitat needs makes it difficult to fully assess. There is not sufficient information available to develop a management strategy to deal with this issue. It is, however, important to realize that management that contributes to improving the health of the watershed may provide for future options.

Cumulative Effects

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. The Santa Cruz allotment is on Federal land and most activities that could occur there would therefore have a Federal nexus. There is some recreational use of the area by hikers and hunters, but the level of this use is not significant.

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(1)(a) responsibility for the species.

The FWS recommends the following actions:

1. The areas containing the Pima pineapple cactus and potential habitat be fenced to exclude livestock access.
2. If these areas are not fenced, efforts to redistribute livestock in Wild Hog Pasture should attempt to reduce, or at least not increase, livestock use of areas containing the Pima pineapple cactus or are potential habitat for the species.
3. Monitoring of utilization rates in the Wild Hog Pasture should include stations or transects near the Pima pineapple cactus and potential habitat.

CONCLUSION

This concludes formal section 7 consultation on the Santa Cruz Allotment Management Plan as described in your July 12, 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.

In future communications on this project, please refer to consultation number 2-21-94-F-013. If there are any questions about this biological opinion, please contact Lesley Fitzpatrick or Tom Gatz.

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)