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In Reply Refer To:

AESO/SE
2-21-95-F-399
2-21-95-F-500
2-21-92-F-732

May 28, 1998

Mr. Bruce Greco
District Ranger
Peaks/Mormon Lake Ranger Districts
5075 North Highway 89
Flagstaff, Arizona 86004

Dear Mr. Greco:

This memorandum amends the October 28, 1997, biological opinion on the Windmill Grazing Allotment on the Coconino National Forest. That opinion considered the effects of the preferred alternative F on the Arizona cliffrose (*Purshia subintegra*), and razorback sucker (*Xyrauchen texanus*) and its designated critical habitat. In addition, the opinion provided concurrences with determinations of "may effect, not likely to adversely affect" for the southwestern willow flycatcher (*Empidonax traillii extimus*), Mexican spotted owl (*Strix occidentalis lucida*), spikedace (*Meda fulgida*), loach minnow (*Tiaroga cobitis*), and Gila trout (*Oncorhynchus gilae*). The opinion also provided concurrence with determinations of "may effect, not likely to adversely affect" critical habitat for the southwestern willow flycatcher, the MSO, and the spikedace.

CONSULTATION HISTORY

The Forest Service requested an amendment to the October 28, 1997, Windmill Allotment biological opinion in a letter dated December 5, 1997, for *Purshia subintegra* due to a minor change. On March 18, 1998, the Forest Service provided a biological assessment and evaluation (BAE) and requested an amendment for the Yuma clapper rail (*Rallus longirostris yumanensis*) and for modifications to the monitoring plan. The Forest Service became aware of the possible existence of the Yuma clapper rail in an area adjacent to the Windmill Allotment after completion of the October 28, 1997, biological opinion.

CONCURRENCES

Southwestern willow flycatcher

The following paragraph is added to this concurrence section:

Coconino National Forest will survey the following suitable habitat for the southwestern willow flycatcher occupancy every year for the life of the permit: Sheephead, Stagestop, Red Rock Crossing, Winter Cabin, Tapco, and any potential habitat that becomes suitable during the life of the permit. Should any suitable sites become occupied, Coconino National Forest will assist and cooperate with Arizona Game and Fish Department in order to monitor for nesting success and cowbird parasitism. Coconino National Forest will coordinate with personnel conducting on-going research regarding monitoring as well. For non-Forest occupied habitat at Tuzigoot and Tavasci, Coconino National Forest will cooperate and assist as possible with survey efforts. If these sites are determined to have breeding flycatchers, Coconino National Forest will either 1) initiate cowbird trapping as outlined in the Service's September 27, 1995, Windmill Biological Opinion immediately upon occupancy regardless of whether assistance can be gained from Arizona Game and Fish Department, or 2) immediately remove cattle from the Windmill pasture(s) located with a five mile radius of southwestern willow flycatcher location(s) and reinitiate consultation with the Service to determine an adequate site-specific solution. Flexibility with the five mile radius will be used if current research or direction indicates that a different radius would be more appropriate.

Mexican spotted owl

The following paragraph is added to paragraph 11 (page 7) of this concurrence section:

These areas will be used as the key area monitoring points for the Mexican spotted owl and northern goshawk guidelines in the Coconino National Forest Plan. The exact locations and key species will be determined in the future and maybe moved if necessary to better meet monitoring objectives.

The following paragraph is added to paragraph 12 (page 7-8) of this concurrence section:

Dry Beaver Creek, Jacks Canon and Dry Creek are the only riparian areas easily accessible to cattle and these areas will also be monitored by permanent photo points. If cattle grazing is determined to be detrimental to the long-term health of these grazed riparian sites, grazing management will be further adjusted to reduce grazing effects, or these areas will be excluded from cattle grazing.

The following section is added to the concurrence portion of this opinion:

Yuma Clapper Rail

The Forest Service's BAE (March 18, 1998), determined that the proposed alternative F of the Windmill Allotment "may effect, but is not likely to adversely affect" the Yuma clapper rail. Yuma clapper rails were first reported in Tavasci Marsh in November 1997.

The BAE indicates that since Tavasci Marsh contains suitable nesting habitat and Yuma clapper rails were present during the winter months, the birds may stay to breed. Surveys conducted in May 1998 by the Service have failed to confirm the presence of Yuma clapper rails at Tavasci Marsh. Monitoring is currently continuing. Although the presence of Yuma clapper rails at Tavasci Marsh would be unusual due to its isolation and distance from other known populations on the Colorado and Gila River,. An isolated population of the subspecies is known from Picacho Reservoir, so a new population at Tavasci Marsh is possible, particularly given the presence of high quality habitat at this location.

Tavasci Marsh is located approximately 1/8 mile outside of the Duff Flat Pasture within the Windmill Allotment. Livestock associated with the Windmill Allotment cannot access the Marsh due to fencing, therefore there will be no direct impacts or disturbance to the Marsh. Grazing within the Duff Flat Pasture has the potential to impact the watershed in which the Marsh is located. The grazing schedule for the Duff Flat Pasture included in the proposed project description indicates that Mill Park Winter Herd will graze this pasture (North and South) for 8 to 20 days. A year-long rest is incorporated in each pasture in a two to six year rotation, and the maximum livestock numbers will be 675. The proposed grazing schedule is a change from that currently used, and will result in the same amount of cattle in a smaller area for a shorter time frame, with a longer period of pasture rest.

Additional activities currently occurring at Tavasci Marsh include birdwatching, hiking on trails/viewing platforms, and cowbird trapping. Two roads access the site with one gated to general public use. The Forest Service indicates that recreational use is not expected to impact Yuma clapper rails and their habitat as the vegetation within the Marsh is dense and access is limited or difficult. Water levels at Tavasci Marsh appear to be primarily influenced by what is happening at Pecks Lake. Consultations with the Environmental Protection Agency and the Corps of Engineers regarding potential direct and indirect effects to this marsh have occurred in the past and are currently on-going.

Improvements scheduled for the Duff Flat Pasture include 2 miles of pipeline, 3 drinkers, 2.75 miles of fence, and one cattle guard. Improvements which benefit/protect resources areas such as riparian, watershed, and threatened and endangered species habitats, such as those within Duff Flat, are expected to be constructed within the first five years. Proposed improvements will not effect the Yuma clapper rail or its habitat due to distance and topography, but will assist in reducing negative watershed effects.

Suitable unoccupied Yuma clapper rail habitat is present within the Windmill Allotment at Sheepshead Spring. The upper 1/2 mile of Sheepshead Spring has been fenced from cattle for the past 10 years. An additional 1/2 mile of fence was constructed in the summer of 1997 to expand the area of cattle exclusion. No direct impacts to this potential habitat will occur due to exclusion. The Forest Service indicates that this habitat is expected to be inventoried within the next year. The Forest Service indicates that if Yuma clapper rails are detected, consultation will be reinitiated.

Suitable unoccupied habitat is present off the Windmill Allotment associated with Dry Beaver Creek near Stagesop. Livestock grazing associated with the Apache Maid Allotment occurs in and around Dry Beaver Creek from January to April each year. In consultation in 1995, the Forest Service and Fish and Wildlife Service agreed upon certain measures to exclude livestock around suitable southwestern willow flycatcher habitat. This enclosure will also protect Yuma clapper rail habitat. The Beaverhead-Grief Hill Sheep Driveway crosses sheep on the Verde River and Dry Beaver Creek. Current use within the riparian areas is limited to 1-2 days of partial use by three bands of sheep. Stopping is not permitted with 1/4 mile of water.

The Stagesop dispersed recreation site is north of this potential rail habitat. No trails are present in the potential habitat, and the vegetation is dense, thus the Forest Service indicates that very few recreationists use this habitat. This recreation site is included in the Sedona Forest Plan Amendment analysis, and the Forest Service (Sedona District) made a determination of "no effect" for the Yuma clapper rail.

Because no livestock associated with the Windmill Allotment will access either occupied or suitable unoccupied habitat, and because impacts to the watershed from grazing on the Duff Flat Pasture are expected to be insignificant and discountable, and implementation of pasture improvements will occur within the first five years, the Service is able to concur with the Forest Service's determination of "may effect, not likely to adversely affect" the Yuma clapper rail.

BIOLOGICAL OPINION AMENDMENT

This amendment does not change the species descriptions and status, the environmental baseline, or cumulative effects sections of this opinion. This amendment does not change the findings made for the Arizona cliffrose and the razorback sucker and its critical habitat in the Conclusion section of this opinion.

DESCRIPTION OF THE PROPOSED ACTION

The monitoring portion of this section is amended to read as follows:

Monitoring on the Windmill Allotment over the next 10 years will include: compliance, allotment inspections, range readiness, forage production, rangeland utilization, condition and trend, soil and riparian condition, and threatened and endangered species:

Compliance: Throughout each grazing season, compliance monitoring will be done by Forest Service personnel to determine accomplishment of the terms and conditions of this permit, Allotment Management Plan, and annual operating instructions.

Allotment Inspections: Allotment inspections are a written summary done each fall by Forest Service personnel to document compliance monitoring and to provide an overall history of that year's grazing. This document may include weather history, the year's success, problems, improvement suggestions for the future, and monitoring summary.

Range Readiness: Each spring before cattle move above the Mogollon Rim range readiness will be assessed by Forest Service personnel to determine if vegetative conditions are ready for cattle grazing. The range is generally ready for grazing when cool season grasses are leafed out, forbs are in bloom, and brush and aspen are leafed out. These characteristics indicate the growing season has progressed far enough to replenish root reserves so that grazing will not seriously impact these forage plants.

Forage Production: Production surveys in the Munds Pocket area will be done within the first five years to resolve the area's capacity issues. Cattle numbers will be maintained or lowered as a result of evaluating these figures.

Rangeland Utilization: Utilization monitoring is an estimate of the available forage by weight consumed or trampled through grazing and is expressed as a percent of current years biomass removed. Utilization monitoring is designed to assess key forage utilization levels by cattle and elk during the year and from year to year. Key forage species for this allotment include western wheatgrass, blue grama, squirreltail, and Arizona fescue in the summer range, and needlegrass, blue grama, black grama, sand dropseed, and sideoats grama in the winter range. Utilization monitoring will be conducted by the permittee and spot checked by Forest Service personnel throughout the year in every grazed pasture. This monitoring will calculate an overall utilization value for a pasture 1) before cattle go into a pasture, 2) within five days after cattle leave a pasture, and 3) at the end of the growing season in the fall. Utilization will be averaged into the following five categories: no use (0-10%), light (11-20%), moderate (21-50%), high (51-70%), and extreme (71%+). The goal for utilization will be 50% or less by cattle throughout the year with this intensive livestock grazing system. In addition, key site and key species monitoring will be conducted at a minimum of one per herd in each of the following habitat types: pine (oak), riparian, mountain meadow, and aspen, if these habitat types are grazed by cattle. Utilization monitoring will also occur in selected pastures rested from cattle grazing by Forest Service and/or Arizona Game and Fish Department personnel.

Condition and Trend: Watershed and vegetation trend monitoring will help determine the effectiveness of the new Allotment Management Plan. Two types of transect monitoring techniques will be used for this analysis: Parker 3-step and paced transects and paired nested rooted frequency and cover transects. Both these transects will include photo points.

Parker 3-step and paced transect monitoring points were established throughout this allotment in the 1950-60's. These transects are one of the best historic records of range

condition and trend. The photo points and vegetative ground cover data show how the site has changed over time. Sixty transects above the Mogollon Rim and 60 below the Mogollon Rim currently exist throughout the allotment. From all these transects, the Forest Service will select at least 15 transects that are located in key areas that represent various TES soil units currently in unsatisfactory condition or within threatened, endangered or sensitive species habitat, such as mountain meadows, pine-oak, pinyon-juniper, and desert grassland. Forest Service and ranch personnel will update the vegetative ground cover data or at least retake the photo points at these sites every three years to help determine long-term trend throughout this allotment. In key areas where the Parker 3-step and paced transects don't currently exist new vegetative ground cover transects, with 300 points, will be established using TES ground cover definitions.

At least three new paired nested rooted frequency and cover monitoring transects will be established within the allotment to record statistically how vegetative frequency and ground cover changes over time. These paired transects will compare similar cattle grazed and ungrazed sites as near to each other as possible. Nested rooted frequency plots record ground cover and plant species composition, frequency, and cover data. At each site a permanent one-tenth acre transect will be established. Five random lines will be run out from this transect and 10 plots per line will be read using a standard canopy cover frame. These transects will be read every five years by Forest Service personnel. Likely sites for these plots include the following exclosures: Wheatfield (Wheatfield pasture), Purshia (Purshia pasture), and Yellow Flat (Rogers Lake pasture). These plots will be used to help determine the effectiveness of the new Allotment Management Plan and long-term range and watershed trend.

Precipitation: Precipitation is currently recorded within or near the Windmill Allotment at Sedona Airport, Turkey Butte Fire Lookout, East Pocket Fire Lookout, and Flagstaff National Weather Service Office at Belmont. Additional rain gauges will be established at the winter and summer (Mill Park and Newman Park) headquarters of the Windmill ranch by the Windmill permittee. This data will be recorded throughout the year and summarized in the annual inspection.

Soil and Riparian Condition: The Intergovernmental Agreement between the Forest Service and the State of Arizona that controls water quality and the Clean Water Act requires implementation and effectiveness monitoring. The objectives of monitoring are to: 1) collect data sufficient to assist line officers and resource managers in evaluating effects of management activities on soil and water resources; 2) support changes in management activities to protect soil and water quality. Monitoring will help determine how successfully managers are implementing Guidance Practices and how effectively those practices are protecting soil and water quality. Arizona Department of Water Quality (ADEQ) will continue to monitor water quality in the area.

Evaluating watershed condition can be assessed using information from the monitoring schemes above. Monitoring of plant abundance, ground cover, species diversity and estimates of overall soil condition (using the methods throughout this monitoring section) will indicate whether or not management practices are effectively meeting management goals. Trends toward improvements in species abundance and diversity should indicate that management practices are effectively improving soil condition and by inference, maintaining or improving downstream water quality and complying with water quality standards. Conversely, decreases in plant abundance and species diversity may indicate that management practices are not effective and need to be changed. Environmental factors, especially precipitation, will be considered when evaluating monitoring results.

At the end of ten years, all improvements will be in place. Overall effectiveness of the preferred alternative will be evaluated on a yearly basis and intensively again at the end of the 10-year permit period. The annual operating plans will make adjustments to pasture graze periods, pasture rest periods and cattle numbers to respond to results of the previous year's annual monitoring and as improvements are implemented.

Improving trends for riparian vegetation and stream channel conditions should indicate that management practices are effectively benefitting water quality. Conversely, decreases in riparian vegetation or channel condition indicate that management practices are not effective and need to be changed. Environmental factors, especially flooding, will be considered when interpreting monitoring results. Several Fixed Station, Biocriteria Program, and other water quality monitoring sites are located within or near the allotment. These sites have and are being used to track long-term conditions and trends at critical points in a watershed and to develop biological criteria for stream segments. Information from these sites will be considered in evaluating the effectiveness of management practices, but may be of limited value considering the multitude of influences affecting each monitoring site.

Threatened, Endangered and Sensitive Species: Threatened, endangered and sensitive species monitoring is covered by the preceding monitoring schemes, with some additional monitoring to fully cover specific plant and animal species.

Four 25 x 25 foot exclosures will be placed in pine-oak restricted habitat with permanent photo points. This will give a relative gauge of utilization and species use in areas of moderate forage production. These areas will be used as the key area monitoring points for the Mexican spotted owl and northern goshawk guidelines in the Coconino Forest Plan. The exact locations and key species will be determined in the future and maybe moved if necessary to better meet monitoring objectives.

Riparian habitat will be monitored with permanent photo points within all riparian exclosures. A list of the present and future riparian exclosures include: T-6 Spring, Fain Spring, Willard Springs, Oak Creek, Verde River, Spring Creek, Sheepshead Spring, Coffee

Creek, and Roger's Lake. Dry Beaver, Jacks Canyon and Dry Creek are the only riparian areas easily accessible to cattle and these areas will also be monitored by permanent photo points. If cattle grazing is determined to be detrimental to the long-term health of these grazed riparian sites grazing management will be further adjusted to reduce grazing effects or these areas will be excluded from cattle grazing.

Purshia subintegra monitoring will adhere to the following plan. There will be a minimum of five visits to the grazeable Purshia populations with the objective of detecting early use, mid-use and utilization after cows have left one pasture and before they have entered another. If greater than 20% use by cattle on individual plants is detected (using the twig length measurement method, Interagency Technical Reference 1996), cows will be removed from the pasture or temporary fencing will be installed to prevent further use. U.S. Fish and Wildlife Service will be notified. More than five visits may be appropriate depending on local climatic conditions or local vegetation growth rates.

Coconino National Forest will survey the following suitable habitat for southwestern willow flycatcher occupancy every year for the life of the permit: Sheepshead, Stagestop, Red Rock Crossing, Winter Cabin, Tapco, and any potential habitat that becomes suitable during the life of the permit. Should any suitable sites become occupied, Coconino National Forest will assist and cooperate with Arizona Game and Fish Department (lead agency for monitoring) in order to monitor for nesting success and cowbird parasitism. Coconino National Forest will coordinate with personnel conducting ongoing research regarding monitoring as well. For non-Forest occupied habitat at Tuzigoot and Tavasci, Coconino National Forest will cooperate and assist as possible with survey efforts. If these sites are determined to have breeding flycatchers, Coconino National Forest will either 1) initiate cowbird trapping as outlined in the U.S. Fish and Wildlife Service's September 27, 1995, Windmill Biological Opinion immediately upon occupancy regardless of whether assistance can be gained from Arizona Game and Fish Department, or 2) immediately remove cattle from the Windmill pasture(s) located within a five mile radius of southwestern flycatcher location(s) and reinitiate consultation with the U.S. Fish and Wildlife Service to determine an adequate site-specific solution. Flexibility with the five mile radius will be used if current research or direction indicates that a different radius would be more appropriate.

Rationale: This monitoring program gives this alternative the best data possible to monitor the effectiveness of this new management strategy while staying within the projected Forest Service budget. This is insured mainly because of the cooperation by the Forest Service, Windmill Ranch and the Arizona Game and Fish Department in collecting this information. This approach differs from the monitoring plan previously presented in that it is more collaborative and identifies what can be accomplished given current staffing and funding. It updates procedures and objectives to meet current monitoring needs.

EFFECTS OF THE ACTION

Arizona Cliffrose

The following sentences are added as clarification to the seventh sentence of paragraph 6 (page 29) of the biological opinion:

Use of Arizona cliffrose outside of the Purshia exclosure may occur more frequently than every other year. The Forest Service predicts that very little use of individual cliffrose plants will occur (< 20%). Unless use exceeds 20% or monitoring indicates negative effects to plant vigor or reproduction, the Forest Service does not plan to remove livestock from these pastures or to install fences. All monitoring results will be reported to the Service on an annual basis.

Razorback Sucker

The following paragraphs are added to this section:

Watershed and vegetation trend monitoring will help determine the effectiveness of the new Allotment Management Plan. Two types of transect monitoring technique will be used for this analysis: Parker 3-step and paced transects and paired nested rooted frequency and cover transects. Both these transects will include photo points.

Parker 3-step and paced transect monitoring points were established throughout this allotment in the 1950-60's. These transects are one of best historic records of range condition and trend. The photo points and vegetative ground cover data show how the site has changed over time. Sixty transects above the Mogollon Rim and 60 below the Mogollon Rim currently exist throughout the allotment. From all these transects, the Forest Service will select at least 15 transects that are located in key areas that represent various TES soil units currently in unsatisfactory condition or within threatened, endangered or sensitive species habitat, such as mountain meadows, pine-oak, pinyon-juniper, and desert grassland. Forest Service and ranch personnel will update the vegetative ground cover data or at least retake the photo points at these sites every three years to help determine long-term trend throughout this allotment. In key areas where the Parker 3-step and paced transects don't currently exist new vegetative ground cover transects, with 300 points, will be established using TES ground cover definitions.

At least three new paired nested rooted frequency and cover monitoring transects will be established within the allotment to record statistically how vegetative frequency and ground cover changes over time. These paired transects will compare similar cattle grazed and ungrazed sites as near to each other as possible. Nested rooted frequency plots record ground cover and plant species composition, frequency, and cover data. At each site a permanent one-tenth acre transect will be established. Five random lines will be run out

from this transect and 10 plots per line will be read using a standard canopy cover frame. These transects will be read every five years by Forest Service personnel. Likely sites for these plots include the following exclosures: Wheatfield (Wheatfield pasture), Purshia (Purshia pasture), and Yellow Flat (Rogers Lake pasture). These plots will be used to help determine the effectiveness of the new Allotment Management Plan and long-term range and watershed trend.

The Intergovernmental Agreement between the Forest Service and the State of Arizona that controls water quality and the Clean Water Act requires implementation and effectiveness monitoring. The objectives of monitoring are to: 1) collect data sufficient to assist Forest Service line officers and resource managers in evaluating effects of management activities on soil and water resources; 2) support changes in management activities to protect soil and water quality. Monitoring will help determine how successfully managers are implementing Guidance Practices and how effectively those practices are protecting soil and water quality. Arizona Department of Water Quality (ADEQ) will continue to monitor water quality in the area.

The Forest Service indicates that evaluation of watershed condition can be assessed using information from the monitoring schemes above. Monitoring of plant abundance, ground cover, species diversity and estimates of overall soil condition (using the methods throughout this monitoring section) will indicate whether or not management practices are effectively meeting management goals. Trends toward improvements in species abundance and diversity should indicate that management practices are effectively improving soil condition and by inference, maintaining or improving downstream water quality and complying with water quality standards. Conversely, decreases in plant abundance and species diversity may indicate that management practices are not effective and need to be changed. Environmental factors, especially precipitation, will be considered when evaluating monitoring results.

At the end of ten years, all improvements will be in place. Overall effectiveness of the preferred alternative will be evaluated on a yearly basis and intensively again at the end of the 10-year permit period. The annual operating plans will make adjustments to pasture graze periods, pasture rest periods and cattle numbers to respond to results of the previous year's annual monitoring and as improvements are implemented.

The Forest Service states that improving trends for riparian vegetation and stream channel conditions should indicate that management practices are effectively benefitting water quality. Conversely, decreases in riparian vegetation or channel condition indicate that management practices are not effective and need to be changed. However, the proposed action does not include monitoring for channel morphology or other channel conditions. Environmental factors, especially flooding, will be considered when interpreting monitoring results. Several Fixed Station, Biocriteria Program, and other water quality monitoring sites are located within or near the allotment. These sites have and are being used to track

long-term conditions and trends at critical points in a watershed and to develop biological criteria for stream segments. Information from these sites will be considered in evaluating the effectiveness of management practices, but may be of limited value considering the multitude of influences affecting each monitoring site.

INCIDENTAL TAKE STATEMENT

No change to the incidental take statement, the amount or extent of take, the effect of take, the reasonable and prudent measure or the implementing terms and conditions, or the review requirements of the biological opinion is made by this amendment.

CONSERVATION RECOMMENDATIONS

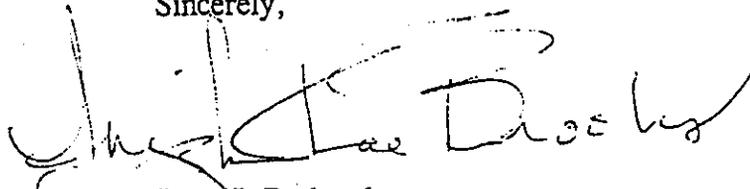
No change to the conservation recommendations is made by this amendment.

REINITIATION - CLOSING STATEMENT

The provisions of the reinitiation statement of the October 28, 1997, biological opinion apply to this amendment.

If we can be of further assistance, please contact Michele James or Bruce Palmer.

Sincerely,



Jerry J. Brabander
Acting Field Supervisor

cc: Regional Director, U.S. Fish and Wildlife Service, Albuquerque, NM (ES)
Field Supervisor, U.S. Fish and Wildlife Service, Albuquerque, NM
District Ranger, Sedona Ranger District, Sedona, AZ
Project Leader, Arizona Fishery Resources Office, Pinetop, AZ

Director, Arizona Game and Fish Department, Phoenix, AZ