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In Reply Refer To:
AESO/SE
22410-2010-F-0442

December 15, 2010

Memorandum

To: Field Office Manager, Kingman Field Office, Bureau of Land Management, Kingman, Arizona

From: Field Supervisor

Subject: Biological Opinion for the Proposed Greenwood Community Grazing Allotment Permit Renewal

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated June 30, 2010, and received by us on July 6, 2010. At issue are impacts that may result from the proposed renewal of the grazing permit for the Greenwood Community Allotment near Wikieup, Mohave County, Arizona. The proposed action may affect the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and its critical habitat.

In your memorandum, you requested our concurrence that the proposed action is not likely to adversely affect the southwestern willow flycatcher. We concur with this determination. Our rationale for concurrence is detailed in Appendix A.

This biological opinion (BO) is based on information provided in your June 20, 2010, memorandum and biological assessment (BA); telephone conversations with your staff; field visits; and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

CONSULTATION HISTORY

The following details the history of the consultation pertaining to this project:

March 30-31, 2009:	We participated in a site visit with Kingman Field Office Bureau of Land Management (BLM) and Arizona Game and Fish Department (AGFD) personnel to the Greenwood Community Allotment to assess the suitability of southwestern willow flycatcher habitat and its associated critical habitat.
March 4, 2010:	We provided comments on a draft BA to BLM.
March 24, 2010:	We provided the BLM with our comments on another version of the draft BA.
July 6, 2010:	We received BLM's request for initiation of formal consultation.
November 2, 2010:	We requested a 30-day extension to complete the consultation.
November 8, 2010:	You approved our request for a 30-day extension to complete the consultation.
December 2, 2010:	We provided a draft biological opinion to the BLM.
December 2, 2010:	We received comments on the draft biological opinion from the BLM.
December 6, 2010:	We received additional comments on the draft biological opinion from the BLM.

BIOLOGICAL OPINION

Description of the Proposed Action

The Proposed Action consists of three parts: renewal of the grazing permit, construction of range improvements needed to implement the grazing plan, and construction of a five-acre exclosure.

Permit Renewal

The BLM proposes to renew the grazing permit for the Greenwood Community Allotment for a period of 10 years with terms and conditions intended to improve overall range conditions, minimize effects to southwestern willow flycatcher critical habitat, and report actual use for monitoring purposes. For this permit, 42 cattle will be permitted annually. Because this is a community allotment, there are two permittees; however, the second permittee does not wish to renew his permit, opting to leave cattle off of the allotment. If at any time the second permittee wishes to renew his permit and graze livestock on this allotment, a separate consultation with our office will be required.

The grazing plan will be based on a seasonal rotation between the two pastures (upland and riparian). In general, livestock will graze in the uplands, out of the riparian areas, from the beginning of February through the end of September of each year. Livestock will be allowed to graze in the riparian areas along the Big Sandy River and Burro Creek while they are in the riparian pasture. Scheduled upland pasture moves will be adjusted each year to be earlier than September 30th if monitoring shows overutilization by livestock; however, these rotations will not occur any later than September 30th. Similarly, if monitoring demonstrates overutilization of key species in the riparian pasture, livestock will be removed from this pasture earlier than January 31st, but not later than January 31st. When livestock are removed from a pasture the permittee will utilize his own private pastures or other private pastures until the next scheduled move date into the correct BLM pasture. The permittee will provide the BLM with actual use from the prior grazing fee year by March 15 of each year detailing the number of livestock and the periods (dates) of use for each pasture in accordance with current BLM regulations (BLM 2010). The BLM will also check these stocking rates occasionally as they are monitoring utilization rates on key forage species.

Range Improvements

Range improvements on public land will be authorized under a cooperative range improvement permit. Range improvements on private land will be funded by the permittee in partnership with the FWS Partners for Fish and Wildlife Program (PFW) and the AGFD. The permittee will be responsible for maintenance of range improvements on public and private land.

Range improvements will consist of the construction of two interior upland fences, totaling approximately 2.5 miles on public land and one mile on private land (Map 1 in the BA and supporting PFW documents). Additionally, range improvements will include the installation of two cattle guards on public land and one on private land (Map 1 of the BA and supporting PFW documents). These fences and cattle guards will establish the upland and riparian pastures. Fences will be designed to facilitate the movement of wildlife. All fencing will meet mule deer requirements as described in the BA (BLM 2010). Cattle guard installation will be designed to allow Sonoran desert tortoises and other ground-dwelling wildlife to escape from underneath them.

Vegetation along the fence lines will be hand cleared. Any cacti, yucca, ocotillo, nolina, etc. will be avoided or transplanted adjacent to the fence line. Materials will be transported to the fence line with an ATV or pack animals, and any motorized tracks would be raked upon completion of the fence where travel is off-road. Fences will be constructed between September 1 and February 28, outside of the southwestern willow flycatcher breeding season to prevent impacts to nesting birds. If conditions or schedule require that the fences be constructed during the breeding season (March 1 through August 30), a biologist would conduct a nest survey within 150 feet of both fence lines before beginning fence construction.

BLM will construct a five-acre exclosure on the same ecological site type as Key Area # 1 in order to monitor impacts of the grazing plan. The fence will be designed to facilitate the movement of wildlife and will meet mule deer requirements per BLM Manual Handbook H-1741-1.

The BLM in consultation, coordination and cooperation with the permittee, other agencies, and interested publics will:

- Monitor apical bud utilization on cottonwood and willow seedlings and saplings and adjust management practices to maintain a range of 30 percent to 50 percent use with a three-year average of 40 percent. Monitor maintenance and recruitment of riparian vegetation with fixed photo points and tree height measurements within riparian habitat to ensure that trees are reaching and exceeding the browse line every year for the first three to four years and then every two to four years after that.

- Monitor utilization of current year's growth of upland key forage species (e.g. big galleta) to maintain an average desired use level of 40 percent. (Technical Reference 1734-3 1999. Utilization and residual measurements).

- Monitor key area cover, frequency, and composition. (Interagency Technical Reference, TR1730-002 1999. Sampling Vegetation Attributes).

Actual use/utilization data would be collected over a period of years along with trend data to determine if changes in management practices are necessary to meet resource condition objectives. In the short-term, pasture move dates would be based on previous year's livestock actual use and utilization data. Estimation of utilization on key species in key areas would aid in short-term decision making until a pattern of use can be established.

Utilization data for the riparian pasture would be collected as soon as livestock are removed from the pasture and trees have leafed out to aid in identification, and if use objectives were exceeded, the season of use would be shortened for that pasture the following year. This adjustment could occur each year, but eventually the BLM would determine a season of use that meets utilization objectives most years. Utilization data for the uplands pasture would occur in the fall of each year at the end of the upland vegetation growing season and adjustment would occur in a similar manner as with the riparian pasture.

Conservation Measures

Conservation measures to minimize effects to flycatcher critical habitat have been incorporated into the proposed action and include the utilization monitoring, seasonal livestock use, and seasonal restrictions on fence and cattleguard construction described above. In addition, regular surveys (every two to four years) for the willow flycatcher will occur throughout the life of the permit. Surveys will include habitat assessments that monitor the parameters essential to maintaining the primary constituent elements of critical habitat (particularly tree height and stand density of riparian vegetation). These survey and habitat monitoring data will be used to help establish the adaptive management program and ensure that effects to critical habitat as well as critical habitat that becomes occupied are minimized.

STATUS OF THE SPECIES

Southwestern Willow Flycatcher Critical Habitat

Designation of Critical Habitat
The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (USFWS 1995). Critical habitat was later designated on July 22, 1997 (USFWS 1997a). A correction notice was published in the Federal Register on August 20, 1997 to clarify the lateral extent of the designation (USFWS 1997b).

On May 11, 2001, the 10th circuit court of appeals set aside designated critical habitat in those states under the 10th circuit's jurisdiction (New Mexico). The FWS decided to set aside critical habitat designated for the southwestern willow flycatcher in all other states (California and Arizona) until it could re-assess the economic analysis.

On October 19, 2005, the FWS re-designated critical habitat for the southwestern willow flycatcher (USFWS 2005a). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain.

A final recovery plan (Recovery Plan) for the southwestern willow flycatcher was signed by the FWS Region 2 Director and released to the public in March 2003 (USFWS 2002). The Plan describes the reasons for endangerment, current status of the flycatcher, addresses important recovery actions, includes detailed issue papers on management issues, and provides recovery goals. Recovery is based on reaching numerical and habitat related goals for each specific Management Unit established throughout the subspecies range and establishing long-term conservation plans (USFWS 2002).

Primary Constituent Elements
The primary constituent elements of critical habitat are based on riparian plant species, structure and quality of habitat, and insects for prey. A variety of river features such as broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, fine sediments, etc. help develop and maintain these constituent elements (USFWS 2005). The primary constituent elements are:

1. Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) that comprises:

    a. Trees and shrubs that include, but are not limited to, willow species, box elder, tamarisk, Russian olive, cottonwood, stinging nettle, alder, ash, poison hemlock, blackberry, oak, rose, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut.

    b. Dense riparian vegetation with thickets of trees and shrubs ranging in height from 2 to 30 meters (m) (6 to 98 feet (ft.)). Lower-stature thickets (2 to 4 meters or 6 to 13 feet tall) are found at higher elevation riparian forests, and tall-stature thickets are found at middle- and lower-elevation riparian forests;

c. Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub level, or as a low, dense tree canopy;

d. Sites for nesting that contain a dense tree and/or shrub canopy (the amount of cover provided by tree and shrub branches measured from the ground) (*i.e.*, a tree or shrub canopy with densities ranging from 50 percent to 100 percent); or

e. Dense patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/sparser vegetation that creates a mosaic that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac).

2. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees; dragonflies; flies; true bugs; beetles; butterflies/moths and caterpillars; and spittlebugs. (USFWS 2005).

Past Consultations

Since listing in 1995, at least 182 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range. This list of consultations can be found in the administrative record for this consultation. Since flycatcher critical habitat was finalized in 2005, at least 26 formal opinions have been completed in Arizona (within and outside designated critical habitat). While many opinions were issued for the previous (1997) critical habitat designation, the stream reaches and constituent elements have changed.

We concluded in our biological opinion for the Southwestern Regional Land and Resource Management Plan (LRMP) (USFWS 2005b, #2-22-03-F-366) that ongoing upland grazing associated with Management Area 6J (Code 1423) of Tonto Creek on the Tonto National Forest would cause a sub-lethal response (-2) to the flycatcher. The conclusion in the LRMP was that continued grazing can facilitate decreased bank stabilization, increased run-off, increased sedimentation, increased erosion, and reduced capacity of soils to hold water. These factors would reduce the occurrence, longevity, and quality of the habitat-based primary constituent elements of flycatcher critical habitat. The LRMP was completed prior to the U.S. Forest Service adopting a policy of rangeland adaptive management in Chapter 90 of Forest Service Handbook 2209.13.

Activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Introduced tamarisk-eating leaf beetles were not anticipated to persist within the range of the southwestern willow flycatcher. However, they were detected within the breeding habitat (and designated critical habitat) of the flycatcher in 2008 along the Virgin River near St. George, Utah. In 2009, beetles were also detected defoliating habitat within the range of the flycatcher in southern Nevada, along the Colorado River in the Grand Canyon, and near Shiprock in New Mexico. Stochastic events also continue to change the distribution, quality, and extent of flycatcher habitat.

Conservation measures associated with some consultations and habitat conservation plans have helped to acquire lands specifically for flycatchers on the San Pedro, Verde, and Gila rivers in Arizona and the Kern River in California. Additionally, along the lower Colorado River, the U.S. Bureau of Reclamation is currently attempting to establish riparian vegetation to expand and improve the distribution and abundance of nesting flycatchers. A variety of tribal management plans in California, Arizona, and New Mexico have been established to guide conservation of the flycatcher. Additionally, during the development of the 2005 critical habitat rule, management plans were developed for some private lands along the Owens River in California and Gila River in New Mexico. These are a portion of the conservation actions that have been established across the subspecies' range.

ENVIRONMENTAL BASELINE

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

The action area for this proposed project includes the entire Greenwood Community Allotment. Although grazing in uplands above riparian systems can have effects on flycatcher habitat downstream, we do not anticipate that the proposed grazing program in the large upland pasture will result in any measurable effects to critical habitat in the riparian pasture. Therefore, our effects analysis below will be limited to the effects of grazing within critical habitat along the Big Sandy River in the riparian pasture.

A. Status of Southwestern Willow Flycatcher Critical Habitat Within the Action Area

The Greenwood Community allotment is a perennial-ephemeral allotment located about 50 miles south-southeast of Kingman and 12 miles south of Wikieup, Arizona. The land ownership in the northern portion of the allotment consists of alternating sections of private and public land. The southern half of this allotment is primarily public land.

Critical habitat along the Big Sandy River is in the Bill Williams Critical Habitat Management Unit. The 3.9 miles of critical habitat within the action area accounts for approximately 21 percent of the 19 miles in the management unit. Recent habitat evaluations and site visits with BLM staff have indicated that the primary constituent elements of critical habitat occur throughout the allotment; however, four areas (patches) of suitable nesting habitat have developed in several areas over the years. Many of these trees are older and these are well established patches of habitat. The 2005 floods along the Big Sandy River likely contributed to the development of these patches as well, scouring the floodplain and removing plants such as cattails to allow for willow and cottonwood trees that have further enhanced the suitability of these patches for nesting flycatchers. As the primary constituent elements continue to develop in areas along the river, these patches of high-quality habitat will continue to be important to both

migratory flycatchers and, potentially, breeding flycatchers. Additionally, there are several areas along the Big Sandy River that do not contain critical habitat. These areas are typically very narrow stretches of river where the Sonoran desertscrub upland vegetation is immediately adjacent to the river with little or no floodplain, thus not allowing the primary constituent elements of critical habitat (riparian habitat) to develop. Nesting flycatchers are known to occur both 5.5 miles and 7 miles north of the allotment on the Big Sandy River and 19 miles south of the allotment at the confluence of the Big Sandy and the Santa Maria rivers (Alamo Lake) (See Map 1 of the BA).

Of the 3.9 miles of the Big Sandy River within the Greenwood Community allotment, approximately 1.4 miles is located on public land (BLM) and the remaining 2.5 miles are on private land. Within the allotment, approximately one mile of the Big Sandy River has perennial surface flow and 2.9 miles is intermittent. The flow within the public land portion is sub-surface most of the year. On the private land portions of this allotment, flows are intermittent for 1.5 miles and perennial for one mile. Additionally, approximately 2.7 miles of Burro Creek flows through the allotment with 0.9 miles located on public land and the remaining 1.8 miles on private land. Within the allotment, Burro Creek has intermittent surface flow. Scattered pools with very little vegetation provide the only perennial surface water. There is subsurface water that is available to riparian vegetation in most areas along Burro Creek, but it appears to be too deep for part of the year to support establishment of dense patches of cottonwoods and willows. Riparian vegetation found within the allotment consists of Gooding's willow, Fremont cottonwood, tamarisk, seep willow, desert baccharis, sedges, rushes, and cattail.

Because of the dynamic nature of rivers through flooding and drought, and the subsequent response of vegetation, the riparian plant species described as a primary constituent element will increase and decrease in their distribution on the landscape over time. At least some of the primary constituent elements of critical habitat previously described occur throughout the entire 3.9 miles of river in this allotment; however, there are currently only four patches of habitat that contain the density, abundance, and structure of riparian habitat to be considered nesting habitat for flycatchers. Riparian vegetation and food sources (insects) occur throughout the all 3.9 miles of river in this allotment and likely provide suitable migratory habitat. Because nesting flycatchers have been documented upriver from this allotment, all of the riparian habitat along the Big Sandy River, including within this allotment, provides important habitat for migration and dispersal. Although riparian habitat along the river outside of the four patches of suitable nesting habitat may not currently contain habitat suitable for nesting flycatchers, it is possible that, over time, this habitat will develop the necessary structure, density, and abundance to become suitable nesting habitat. Conversely, due to the dynamic nature of rivers, the four current patches of suitable nesting habitat could also change in quality over time and become unsuitable for nesting by southwestern willow flycatchers. The four patches of suitable nesting habitat and recent survey data are described below.

Suitable nesting habitat patch one (Patch 1) is located on private land on the west side of the Big Sandy flood plain just north of Signal Road's most southerly crossing of the Big Sandy River. It is approximately 200 meters wide by 600 meters long and is composed almost entirely of tamarisk with an occasional cottonwood or willow. No surface water currently occurs in this patch, but sedges occur in open areas indicating that water is close to the surface. Surface water

is approximately 250 meters to the east of Patch 1. Tamarisk is quite dense, but livestock have created numerous trails through the patch making it more open underneath the canopy. Surveys in 2009 and the first four surveys in 2010 indicated that Patch 1 was not occupied by southwestern willow flycatchers.

Suitable nesting habitat patch two (Patch 2) is located to the east of Patch 1 on private land, in the center of the Big Sandy floodplain. The patch is approximately 25 meters wide by 400 meters long and is dominated by tamarisk with seep willow, Gooding's willow, and cottonwood occurring at lower densities. The nearest surface water is 150 meters east, within the floodplain. Similar to Patch 1, the tamarisk is very dense but is broken up by cattle trails underneath the canopy. Surveys in 2009 and the first four surveys in 2010 indicated that this patch was not occupied by southwestern willow flycatchers.

Suitable nesting habitat patch three (Patch 3) is located half on private and half on public land, east of the middle Signal Road crossing of the Big Sandy River. This patch is approximately 90 meters wide by 350 meters long and is a mix of tamarisk and seep willow. Many of the plants are young (less than three meters tall) and the canopy is not as dense as Patches 1 and 2. Surface water runs immediately adjacent to the patch. Patch 3 will likely mature and become denser, further developing the primary constituent elements and serving a conservation role for the species. It is possible that this patch began to develop after the severe floods of 2005, which scoured many parts of the river. The surface water shifted to the north bank of the river and, apparently, allowed for the survival of many of the tamarisk seedlings in this patch. This patch was surveyed three times during 2009. Surveys were conducted on June 12, June 22, and July 1 in 2009. Although these surveys were not conducted within all of the periods needed to be in accordance with flycatcher survey protocol, the three surveys occurred when willow flycatchers would likely have had territories set up if they were nesting in these patches. Surveys in 2009 and the first four surveys in 2010 indicated that this patch of suitable nesting habitat was not occupied by nesting southwestern willow flycatchers.

Suitable nesting habitat patch four (Patch 4) is located on the Big Sandy River above its confluence with Burro Creek and is split between the Greenwood Community Allotment and the Artillery Range Allotment. The patch is almost entirely composed of tamarisk with an occasional willow or cottonwood. The river flows on the surface for part of the year through this patch. By June 29, 2010, the river was subsurface within this patch. Patch 4 measures approximately 118 meters wide by 900 meters long; however, 700 meters of the patch are on the Artillery Range Allotment. In 2009, the portion of this patch located on the Greenwood Community Allotment was surveyed two times. Surveys were conducted on June 22 and July 1, 2009 when willow flycatchers would have had territories set up if they were nesting in these patches. Surveys in 2009 and the first four surveys in 2010 indicated that that this patch of suitable nesting habitat was not occupied by nesting southwestern willow flycatchers.

East of Patches 1 and 2, surface water and suitable conditions occur for willows, cottonwoods and tamarisk to develop along the east side of the floodplain. Most of the vegetation is narrow (only two or three trees wide), but there is potential for further development of riparian vegetation into a denser stand that could serve a conservation role for the flycatcher. Currently, the Greenwood Community Allotment is grazed by livestock year-long; however this is

unauthorized grazing that BLM is working to resolve. Some young trees have grown above the browse line and are developing a taller growth form, but many of the seedlings have been browsed repeatedly and may not be able to grow above the browse line. In 2008 a survey to determine Proper Functioning Condition of this segment of the Big Sandy showed 73 percent use on Gooding's willow and 20 percent use on cottonwoods using the apical meristem method. BLM attributed this high utilization rate to trespass livestock grazing along the river year round. The average utilization rate was approximately 47 percent, which is within the annual average allowable use; however the utilization rate for willow trees was higher than the maximum allowable use level of 50 percent. The entire stretch of the Big Sandy River on the Greenwood Community allotment on public land was ranked as "Functional at Risk" with an upward trend. Although the utilization rate for Gooding's willow was high in 2008, this functional status was determined to be appropriate because recruitment of cottonwood and willow trees was still occurring, with both species of trees reaching above the browse line.

B. Factors Affecting Southwestern Willow Flycatcher Critical Habitat Within the Action Area

Grazing on private land adjacent to BLM land occurs within the action area. This private-lands grazing does not currently operate under a seasonal use (winter only) grazing system, thus allowing cattle to graze critical habitat during the growing season. Unregulated livestock grazing will continue to diminish the ability of primary constituent elements to develop and, therefore, diminish the ability of the Bill Williams Critical Habitat Management Unit to help conserve and recover the southwestern willow flycatcher.

In addition to unregulated livestock grazing, the area supports a wild burro population that also feeds on riparian and upland habitat. Wild burros foraging on riparian species along the river are also likely to have an effect on the ability of primary constituent elements to develop. The BLM is planning to conduct a census to estimate burro populations along the river. If burro numbers are too high, the BLM will remove some, thus reducing the effects of burros on the primary constituent elements of flycatcher critical habitat. Off-road highway vehicle (OHV) use occurs within the action area, but, according to the BLM, it is limited in these areas and not significantly impacting flycatcher critical habitat. Hunting also occurs in this area; however, it is mostly limited in duration (specific hunting seasons) and also not a threat to flycatcher critical habitat. Wild burros, OHV use, and hunting are not expected to affect this critical habitat's ability to conserve and recover the species.

Ranching and other agricultural activities also occur on private lands adjacent to the action area. Brown-headed cowbirds, which are known nest parasites on flycatchers, are very common in these areas and often associated with the ranching and agricultural practices on private land. While the cowbirds can directly affect the nesting success of individual flycatchers and the population as a whole within the critical habitat unit, the presence of cowbirds within and adjacent to the action area is not an effect to the primary constituent elements within this critical habitat unit.

EFFECTS OF THE PROPOSED ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

We note that this biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service* (No. 03-35279) to complete the following analysis with respect to critical habitat.

Southwestern Willow Flycatcher Critical Habitat

The effects of livestock grazing vary over the range of the flycatcher, due to variations in grazing practices, climate, hydrology, ecological setting, habitat quality, and other factors (USFWS 2002). Also, other stressors affect the flycatcher's habitat to varying degrees, including water management practices, stream channel control, recreational use, and agricultural activities. In some situations, these and other factors may aggravate impacts caused by livestock and are sometimes difficult to separate from grazing effects. Livestock grazing has been a prevalent industry in the region for 150 years or more, but there exists a limited body of rigorous industry records and scientific research that documents livestock grazing effects on the environment (Larsen et al. 1998). Most of the available research has shown negative impacts to a host of biological resources (USFWS 2002).

According to the Recovery Plan, impacts of livestock grazing on southwestern willow flycatchers and their habitat fall into several general categories. The primary impacts are on habitat availability and suitability (USFWS 2002). For this BO, we will discuss how the effects of livestock grazing relate to the primary constituent elements of critical habitat. Because livestock use riparian vegetation for forage, and because riparian plant structure largely defines southwestern willow flycatcher habitat, including critical habitat, grazing can have a variety of effects on flycatcher critical habitat. Information on these impacts exists in a variety of forms and comes from a variety of sources and perspectives (USFWS 2002).

Improper livestock grazing has been a significant factor in the degradation of riparian habitats in arid western North America. Excessive grazing can change watershed hydrology, water quality, aquatic and riparian ecology, and structure and composition of riparian plant communities. In general, excessive grazing results in general drying of riparian areas, reduction in vegetation structure and volume, changes in vegetation composition, soil compaction, increases in sedimentation and water temperature, and other effects (see Bryant et al. 1972, Ames 1977, Carothers 1977, Evans and Drebs 1977, USDA Forest Service 1979, Platts 1982, Knopf and Cannon 1982, Rickard and Cushing 1982, Cannon and Knopf 1984, Kaufman and Krueger 1984, Klebenow and Oakleaf 1984, Skovlin 1984, General Accounting Office 1988, Clary and Webster 1989, Schultz and Leininger 1990, Elmore 1992, Fleisher 1996, Ohmart 1996, Belsky et al.

1999, and others as cited in USFWS 2002). Excessive livestock grazing activities in uplands contribute to changes in surface runoff quantity and intensity, sediment transport, soil chemistry, and infiltration and water holding capabilities of the watershed; flood flows may increase in volume while decreasing in duration, and low flows may decrease in volume and increase in duration (Brown et al. 1974, Gifford and Hawkins 1978, Johnson 1992 as cited in USFWS 2002). However, Larsen et al. (1998) and Rinne (1999) point out that although a significant body of literature on the effects of grazing on riparian ecosystem components exists, very little of that literature is based on credible experimental research (as cited in USFWS 2002).

According to the Recovery Plan, the preponderance of evidence indicates that excessive grazing is harmful to riparian habitats. Key attributes of southwestern willow flycatcher habitat, including the primary constituent elements of critical habitat (dense, abundant, and well distributed deciduous vegetation and high water tables), are among the riparian characteristics most affected by livestock grazing. Thus the evidence indicates that excessive livestock grazing is deleterious to flycatcher habitat (USFWS 2002). Willows can become a principal source of cattle browse as other more palatable forage resources are depleted or as the palatability of the alternate forage decreases (Kovalchik and Elmore 1992 in USFWS 2002). In Oregon most browsing damage to willows occurs in late summer (Kauffman et al. 1983, Smith 1982, cited in USFWS 2002); in the arid Southwest such damage may occur at other times and at greater intensities, because of the more limited availability of alternate forage (Skovlin 1984, Belsky et al. 1999, cited in USFWS 2002). Willow seedlings may be a preferred forage (USFWS 2002).

Along the Verde River in Arizona, livestock use of woody shrubs and trees increased during dry winters when herbaceous forage was limited or upland range conditions were poor (Tonto National Forest, unpubl. data in USFWS 2002). During dry winters, use of woody shrubs and trees increased greatly after bud break, which typically occurred in late February to early March (Tonto National Forest, unpubl. data in USFWS 2002). Cattle display a strong preference for remaining in riparian zones because of the availability of shade, water, and forage. This preference can lead to further habitat degradation that, typically, would not be captured in standard vegetation utilization monitoring. For example, stream bank alteration monitoring by the Tonto National Forest on the Verde River showed that the proportion of alterable stream banks showing degradation (e.g., bank sloughing, compaction, removal of vegetation) reached 100 percent well before use of woody vegetation by livestock reached the established threshold of 40 percent (Tonto National Forest, unpubl. data in USFWS 2002).

Excessive livestock grazing can have a considerable effect on vegetation, resulting in depressed vigor, biomass, and altered species composition and diversity (Bryant et al. 1972, Evans and Drebs 1977, Knopf and Cannon 1982). Excessive grazing pressure in riparian zones can significantly reduce herbaceous vegetation (Kauffman et al. 1983, Marcuson 1977, cited in USFWS 2002) and browse (Kauffman et al. 1983, Knopf and Cannon 1982, cited in USFWS 2002). Within the riparian zone, livestock use of browse is related to availability and palatability of herbaceous vegetation, and the palatability of the available browse (e.g., tamarisk is generally considered to be relatively unpalatable to livestock). In addition, excessive grazing pressure can prevent the establishment of seedlings (Carothers 1977, Glinski 1977 in USFWS 2002). By high-lining (consumption of forage up to the maximum height of the animal) riparian deciduous shrubs or trees, or removing low-level vegetation altogether, browsing reduces the vegetation's

suitability for supporting nests, may increase nest detectability for predators, and reduces foraging options. This may be a greater problem in monotypic, shrubby type habitats than in higher stature habitats. Changes are somewhat insidious as habitat at a gross scale may persist, and condition or trend may require several years to determine under continued livestock management (USFWS 2002).

During the four months (October-January) that livestock will be within critical habitat in this allotment, they will likely continue to use the existing trails through the four patches of critical habitat that currently exist in the allotment. Livestock using these trails will likely continue to keep some of the understory open; however, the proposed action will reduce the stocking rate of this allotment (to a maximum of 42 cattle), and will implement a fall-winter season of use in the riparian pasture that should be effective in reducing the grazing pressure on riparian vegetation. Therefore, the proposed grazing program is not anticipated to significantly alter the understory or the density of the surrounding riparian habitat.

Livestock will cause some mortality of cottonwood and willow seedlings within this allotment; however, livestock management through the seasonal restriction, limited number of cattle, and utilization limit is not anticipated to completely remove primary constituent elements of critical habitat along the river. Vegetative growth is likely to be slowed in some areas if livestock congregate; however, overall riparian shrub and tree density is expected to be maintained, especially since livestock will not be within critical habitat for eight months (February through September), including the growing season. Eight months of rest that includes the growing season will likely give most cottonwood and willow seedlings and saplings time to grow, and combined with the utilization rates and proposed monitoring, allow growth of sufficient vegetation above the browse line. We expect that the four months of grazing that are proposed may slow the growth of vegetation, but we do not anticipate the four month fall-winter grazing program will impede the long-term ability of this critical habitat management unit to contribute to conservation and recovery of the flycatcher.

Under current management, the private land is being grazed year-long. This year-round, unregulated grazing is likely detrimental to the development and maintenance of primary constituent elements of critical habitat. Under the proposed action, the private land will be managed along with the BLM land under the new grazing permit. This will reduce the current level of grazing overall and, therefore, reduce the long-term effects of grazing on critical habitat along the Big Sandy River. We believe the proposed grazing system will be an overall improvement from current practices and compared to current management, will aid in long-term development of primary constituent elements of critical habitat, improving the ability of this critical habitat to aid in conserving and recovering the species.

According to the Recovery Plan, southwestern willow flycatcher recovery would be most assured, and in the shortest time, with total exclusion of livestock grazing from those riparian areas that are deemed necessary to recover the flycatcher and where grazing has been identified as a principal stressor. There is also evidence that under the right circumstances, certain types of grazing are compatible with the development of the primary constituent elements of critical habitat and, therefore, recovery. While the data are insufficient to identify specifically what grazing systems are compatible and in which specific circumstances, exploring the levels of

grazing that may be compatible with maintenance of suitable flycatcher habitat, including critical habitat, is warranted (USFWS 2002). The Recovery Plan provides both general and specific recommendations in Appendix G that strive to provide flexibility to grazing operations while remaining within the confines of flycatcher conservation and recovery (USFWS 2002). In addition to the seasonal grazing restrictions (October through January) that are proposed by the BLM, BLM has adopted both the general and specific recommendations provided in Appendix G of the Recovery Plan. The utilization rates proposed for this allotment are intended to meet the conservative recommendations in the Recovery Plan and, along with the conservative stocking rates, are anticipated to allow the primary constituent elements of critical habitat to continue to develop and, therefore, allow flycatcher critical habitat to contribute to the conservation and recovery of the species.

None of the range improvements included in the proposed action will have a negative effect on the primary constituent elements of critical habitat. The construction of pasture fencing along with cattleguards will control livestock within the allotment, allow the implementation of the seasonal rotation grazing system, reduce overall grazing use on riparian woody vegetation and improve development of primary constituent elements of riparian habitat. None of the proposed fences or cattle guards will be placed within the riparian habitat. All range improvements will occur in the uplands adjacent to the riparian habitat along the Big Sandy River and all installation work will be conducted with hand tools.

In addition to the conservation measures described above (seasonal use, utilization monitoring, and timing restrictions on range improvements) and the subsequent analyses on how their implementation will reduce the effects of the proposed action, flycatcher surveys and habitat analyses are also proposed as conservation measures to reduce the long-term effects of the grazing program. Habitat analyses will help determine whether primary constituent elements are developing the overall structure needed (tree height and stand density) for critical habitat to promote the conservation and recovery of the flycatcher, and surveys will be conducted to determine migratory and nesting flycatcher use of this habitat. If habitat analyses determine that primary constituent elements are not developing accordingly, then the BLM can use these data to either reduce the currently proposed utilization rates or, if necessary, reduce stocking rates. In general, species surveys and habitat analyses during the life of the permit will ensure that the BLM has the data necessary to implement adaptive management that will ensure the continued development of all primary constituent elements, thus allowing this critical habitat unit to conserve and recover the species.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Southwestern Willow Flycatcher Critical Habitat

The primary cumulative effects in the project area are continued unregulated livestock grazing on private lands near the action area and continued water consumption from private wells along the Big Sandy River. Unregulated livestock grazing on private lands, without seasonal restrictions or conservative utilization rates, will likely continue to prevent the primary constituent elements of flycatcher critical habitat from developing in those areas that have the ability to develop as critical habitat. As previously described, not all of the 19 miles of critical habitat designated within the Bill Williams Critical Habitat Management Unit contain the primary constituent elements or the ability to develop the primary constituent elements of critical habitat. Because of the dynamic nature of river ecosystems and the large areas that currently do not support critical habitat in this management unit, we do not expect the cumulative effects described above to diminish the ability of this critical habitat management unit's overall ability to conserve and recover the species.

In addition to unregulated grazing, as previously described, the area supports a wild burro population that also feeds on riparian and upland habitat. Wild burros foraging on riparian species along the river are also likely to have an effect on the ability of primary constituent elements to develop. The BLM is planning to conduct a census to estimate burro populations along the river. If burro numbers are too, high the BLM will remove some, thus reducing the effects of burros on the primary constituent elements of flycatcher critical habitat. Limited recreational activities including off-road highway vehicle (OHV) use and hunting also occur within the action area.

Ranching and other agricultural activities also occur on private lands adjacent to the action area. Brown-headed cowbirds, which are known nest parasites on flycatchers, are very common in these areas and often associated with the ranching and agricultural practices on private land. While the cowbirds can directly affect the nesting success of individual flycatchers and the population as a whole within the critical habitat unit, the presence of cowbirds within and adjacent to the action area does not affect the primary constituent elements within this critical habitat unit.

CONCLUSIONS

The conclusions of this biological opinion are based on the project as described in the "Description of the Proposed Action" section of this document. Conservation measures incorporated into the proposed action will further reduce project effects. After reviewing the current status of southwestern willow flycatcher critical habitat and the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that renewing the livestock grazing permit for the Greenwood Community Allotment is not likely to destroy or adversely modify designated southwestern willow flycatcher critical habitat.

We present these conclusions for the following reasons:

1) Critical habitat will only be grazed for four months during the fall-winter (non-growing season) (October through January), and outside of the migration, breeding, and nesting period for the flycatcher. This change from year-round grazing on the private and BLM land within the allotment will significantly reduce the long-term effects of grazing on the primary constituent elements of critical habitat. Rest from grazing for eight months and during the growing season is expected to allow the primary constituent elements of critical habitat to develop over the 10-year life of this grazing permit.

2) The reduced number of cattle and season of use (and associated monitoring/management) is anticipated to reduce stressors to primary constituent elements, allowing these features to continue to develop.

3) All range improvements will be constructed outside of the riparian habitat. No primary constituent elements of critical habitat will be directly affected by these activities. Indirect effects will benefit development of riparian woody vegetation.

4) Utilization monitoring and rotating livestock out of the riparian pasture early, if necessary, will ensure that riparian woody vegetation can achieve sufficient growth and density to serve as flycatcher critical habitat.

5) The low stocking rates and conservative utilization rates are consistent with the recommendations provided in Appendix G of the Southwestern Willow Flycatcher Recovery Plan. Following these recommendations is anticipated to help promote the long-term development of the primary constituent elements of critical habitat.

CONSERVATION RECOMMENDATIONS

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

1. We recommend that the BLM consider installing additional fence along the Big Sandy River to exclude grazing from the river on all BLM land.

2. We recommend conducting flycatcher surveys to determine presence/absence, distribution and abundance, and reproductive success.

3. We recommend evaluating stressors that may be altering nesting habitat development/maintenance or reducing reproductive success and implementing measures to remove, reduce, or minimize those impacts.

4. We recommend that BLM coordinate efforts with local private land owners to collaborate on recovery efforts.

5. We recommend that BLM implement other measures described in the Recovery Plan.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

DISPOSITION OF DEAD OR INJURED LISTED ANIMALS

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 West Broadway Road #113, Mesa, Arizona [telephone: (480) 967-7900] within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. If feasible, the remains of intact specimens of southwestern willow flycatchers shall be submitted to the FWS Ecological Services Office in Phoenix. Injured animals should be transported to a qualified veterinarian by a qualified biologist. Should any treated listed animal survive, the FWS should be contacted regarding the final disposition of the animal.

REINITIATION NOTICE

This concludes formal consultation on BLM's proposed Greenwood Community Allotment Permit Renewal within the Arizona BLM Kingman Field Office management area. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. If conservation measures or other aspects of the proposed action are not implemented as anticipated herein, including schedules for implementation, reinitiation may be warranted pursuant to 50 CFR 402.16(b).

Thank you and your staff for helping us complete this formal consultation. Any questions or comments should be directed to Brian Wooldridge (928) 226-0614 (x105) or Brenda Smith (x101) of our Flagstaff suboffice.

/s/Brenda Smith for Steven L. Spangle

cc (electronic):
State Director, Bureau of Land Management, Phoenix, AZ
Wildlife Biologist, Bureau of Land Management, Kingman, AZ (Attn: Ammon Wilhelm)
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Kingman, AZ (Attn: Trevor Buhr)
Assistant Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (Attn: Greg Beatty)

cc: Director, Hopi Cultural Preservation Office, Kykotsmovi, AZ
Program Manager, Tribal Historic Preservation Office, Hualapai Tribe, Peach Springs, AZ
Director, Apache Cultural Program, Yavapai-Apache Nation, Camp Verde, AZ
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------. 2005b. Biological opinion on the Forest Service's continued implementation of the land, resource, and management plans for the 11 southwestern region national forests and grasslands, R2/ES-TE, 02-21-03-F-0366. U.S. Fish and Wildlife Service, Region 2, Albuquerque, New Mexico.

Appendix A

CONCURRENCES

This appendix contains our concurrences with your "may affect, not likely to adversely affect" determination for the endangered southwestern willow flycatcher.

Southwestern willow flycatcher

Conservation Measures

- No livestock grazing will occur in suitable flycatcher habitat during the migration, breeding, and nesting season (April - August). Livestock grazing will only occur from October 1 through January 31 of each calendar year. Utilization rates will not exceed 40 percent of the current year's growth in the uplands and will average 40 percent of apical meristems of woody riparian species. These seasonal use and utilization prescriptions follow the guidelines in Appendix G of the Recovery Plan for the flycatcher.

- No range improvements will occur in riparian habitat along the Big Sandy River.

- Range improvement activities occurring adjacent to suitable habitat along the Big Sandy River will generally occur outside the migration, breeding, and nesting season (April - August).

- If fence construction is required during the flycatcher breeding migration, breeding, and nesting season, a BLM biologist will conduct nest surveys within 150 feet of both fence lines before beginning fence construction. If nests are found, no work will occur during the nesting season.

After reviewing the effects of the proposed action, we concur with your determination that the proposed action may affect, but is not likely to adversely affect the endangered southwestern willow flycatcher. We base this concurrence on the following:

- Most activities will occur outside of the breeding season for the flycatcher, thus avoiding direct effects to flycatchers. Any activities (construction of range improvements) that occur during the migration, breeding, and nesting season (April-August) will require site-specific surveys and monitoring to ensure that no flycatcher nests will be disturbed as a result of those range improvement activities.

- Stocking rates, utilization rates, and monitoring follow the guidelines in Appendix G of the Recovery Plan and are anticipated to ensure that habitat suitable for flycatcher migration, breeding, and nesting will continue to develop and improve.