



United States
Department of
Agriculture

Forest
Service

Tonto
National
Forest

2324 E. McDowell Rd.
Phoenix, AZ 85006
Phone 602.225.5200
FAX 602.225.5295
V/TTY 602.225.5395

File Code: 2670

Date: June 21, 2000

Mr. Dave Harlow
Arizona Ecological Services Field Office
US Fish and Wildlife Service
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951

Dear Mr. Harlow:

Enclosed is an amendment to the March 31, 1999 biological assessment for 25 allotments on the Tonto National Forest. This amendment assesses the effects of changes in on-going management on 13 allotments, as presented in our February 25, 2000 letter. It also assesses the effects of changes in on-going management subsequent to the February 25, 2000 letter. These changes in management are presented below. The amendment determines the effect of these changes on listed species with focus on the southwestern willow flycatcher (*Empidonax traillii extimus*).

Current On-going Management

7/K ALLOTMENT

Livestock have been removed from the allotment through administrative action. An environmental assessment (EA), biological assessment and evaluation (BA&E), and consultation will be completed prior to restocking the allotment. Key areas and a monitoring plan will also be developed during the EA process.

A+ ALLOTMENT

The permittee has been directed to remove livestock from the allotment and the permit has been canceled, pending appeals or litigation. All of the livestock have not been removed from the allotment at the time this amendment was prepared. Due to severely damaged rangelands on this allotment, it will be rested until the range has had sufficient time to recover. An EA, BA&E and consultation will be completed prior to restocking. Key areas will be selected and a monitoring plan will be completed during the NEPA process.

BOHME ALLOTMENT/SLEEPING BEAUTY ALLOTMENT/BELLEVUE ALLOTMENT

Livestock have been removed from these allotments due to drought conditions and will not be restocked until range conditions have recovered.



On restocking, management for the allotment will combine livestock from Bohme Allotment, Sleeping Beauty Allotment and Bellevue Allotment into one herd (193 head of adult cattle plus 110 head of yearlings grazed from 1/1 through 5/31) that is rotated through the three allotments. The current proposal includes grazing of Bohme Allotment from October 15 through March 30, Bellevue Allotment from April 1 through April 25, and Sleeping Beauty Allotment from April 26 through October 15.

Utilization limits on Pinto Creek below the fenced spill area will be 20% on woody and herbaceous vegetation and 10% allowable bank alteration. Use on Pinto Creek on Forest lands above the spill area will be managed to limit use on riparian vegetation below 35% and bank alteration below 10%. Prior to restocking, key areas will be established and a monitoring plan developed for Pinto Creek and upland areas on the allotment. Use on uplands on the three allotments will be no more than 35% on designated key areas.

The duration of this action is expected to be three years at which time an EA, BA and formal consultation will have been completed.

BRONCO ALLOTMENT

Once livestock return to the allotment, the proposed action is to graze the west pasture containing Cave Creek from November 15 till mid-February or before use limits are exceeded; then move livestock to the eastern pastures until May 15 or before use limits are exceeded. Use limits on riparian vegetation on Cave Creek have been revised from current levels to 20% use on current year's growth on woody vegetation, 20% on herbaceous vegetation and 10% bank alteration. Maximum allowable use on uplands is set at 35% under the proposed action.

Based on the Forest monitoring strategy, a monitoring plan and selection of key areas should be completed before livestock return to the allotment in November 2000; however this is not currently part of the proposed action by the District Ranger.

The duration of this action is expected to be three years at which time an EA, BA and formal consultation will have been completed.

CARTWRIGHT ALLOTMENT

The permittee has been directed to remove livestock from this allotment due to drought conditions, pending appeals or litigation. The allotment will not be restocked until range conditions have recovered.

An EA and BA&E are being completed for this allotment and the proposed alternative will go through formal consultation. The management alternative should be selected and implemented by the time livestock return to the allotment. This should include development of a monitoring plan and selection of key areas.

If livestock remain on the allotment or restocking of the allotment occurs prior to completion of the EA, BA and formal consultation, use on riparian woody vegetation will not exceed 20% on woody and herbaceous vegetation and 10% bank alteration on all

identified potential flycatcher habitat on Cave Creek and its tributaries and Lime Creek and its tributaries. Riparian vegetation on Camp Creek will be excluded from grazing. In riparian areas upstream of potential flycatcher habitat, use on riparian woody and herbaceous vegetation will not exceed 40% and 35%, respectively, during the dormant season (December-February), 20% during other months of the year, and 10% bank alteration. Use on uplands will not exceed 35%.

H-4 ALLOTMENT

This allotment is currently destocked and restocking is not proposed until at least 2002. Prior to restocking an EA, management plan and consultation will be completed. A monitoring plan and key areas will be selected during the EA process.

MILLSITE ALLOTMENT

Potential/suitable willow flycatcher habitat within the Hewitt Pasture will be excluded from livestock through fencing. Hewitt Pasture will not be used until fence construction is completed.

A cattleguard will be installed to prevent Millsite Allotment livestock from accessing habitat. With the assistance of the Fish and Wildlife Service, the Mesa District will work with the Corps of Engineers and State Lands to resolve trespass and other issues in the Whitlow Dam area.

Use on upland forage will be limited to 35% and will be monitored through designated key areas.

OW ALLOTMENT

Actions on this allotment have not changed from those described in the BA. The allotment is presented here because of a revision in the determination of effect on the southwestern willow flycatcher based on new information.

PINTO CREEK

Livestock have been removed from the allotment due to drought conditions and the allotment will not be restocked until range conditions have recovered.

Prior to restocking, a monitoring plan for the allotment will be prepared and implemented and key areas for monitoring both riparian and upland use will be selected.

Due to high herbaceous use and bank alteration during winter during the 2000 grazing season, this pasture will be closed until the 2003 grazing season. Subsequent excessive use on Pinto Creek will result in a two year closure of the riparian pasture.

Use on Pinto Creek within this allotment will not exceed 15% on woody and herbaceous vegetation and banks will not receive more than 10% bank alteration. Use on tributaries to Pinto Creek will not exceed 40% use on woody vegetation, 35% use on herbaceous

vegetation and 10% bank alteration. Upland use will not exceed 35%. All use will be measured in established key areas.

POISON SPRING ALLOTMENT

The permittee has been instructed to remove livestock from this allotment, pending appeals and/or litigation. Prior to restocking, an EA, BA&E and formal consultation with the FWS will be completed. A monitoring plan will be completed and key areas will be selected during the EA process.

SIERRA ANCHA ALLOTMENT

This allotment is grazed in conjunction with the Poison Spring Allotment and the permittee has been instructed to remove livestock, pending appeals or litigation. Prior to livestock returning to this allotment an EA, BA&E and formal consultation will be completed. A monitoring plan will be completed and key areas will be selected during the EA process.

SUNFLOWER ALLOTMENT

The permittee has been directed to remove livestock due to drought conditions, pending appeals or litigation. The allotment will not be restocked until range conditions have recovered.

Prior to restocking the EA, BA&E for the proposed action, and formal consultation will be completed for Cottonwood and Cline Units of this allotment. Utilization limits will be established, a monitoring plan will be completed, and key areas for riparian and upland monitoring will be selected during the EA process.

On the Dos S Unit, the Sycamore Creek Fence will be completed and livestock will be excluded from this riparian area, as well as portions of Mesquite Wash. The management plan for the allotment will be implemented. The utilization limit on uplands will be 35%. Use in riparian areas outside the Sycamore enclosure will not exceed 40% on woody vegetation, 35% on herbaceous vegetation and 10% bank alteration. A monitoring plan will be prepared and key areas selected prior to restocking.

TONTO BASIN ALLOTMENT

Permittees have been directed to remove livestock from this allotment, pending appeals or litigation. Prior to restocking of the allotment, an EA, BA&E, and formal consultation will be completed for this allotment. Utilization limits will be established, a monitoring plan will be completed, and key areas for riparian and upland monitoring will be selected during the EA process.

In addition, to the BA amendment, a monitoring strategy, that will be implemented as time and priorities allow, is attached. The methodology used in identifying potential southwestern willow flycatcher habitat is also attached. The methodology incorporates comments received from species experts.

I think that the revised proposed actions and BA address the questions posed in your May 19, 2000 memo. If you have additional questions, please contact Eddie Alford, 602 225-5220 or ealford@fs.fed.us. I hope that we can rapidly complete this consultation with the information we have provided.

Sincerely,


THOMAS J. KLABUNDE
Acting Forest Supervisor

Enclosures

cc: District Rangers
E. Alford
M. Ross



**Amendment
to the
Biological Assessment
of the Affects of Ongoing Grazing Management on 25 Allotments
Tonto National Forest**

June 2, 2000

CONSULTATION HISTORY

This is an amendment to the Biological Assessment submitted to the USDI Fish and Wildlife Service (FWS) on March 31, 1999 for formal consultation. Concerns over the effects of ongoing management on potential, suitable and occupied habitat for the southwestern willow flycatcher required revisions in ongoing management in order to take positive steps toward recovery of the species. Changes in ongoing management were first described in the February 25, 2000 letter from Charles R. Bazan, Forest Supervisor to Dave Harlow, Field Supervisor. Subsequent to the January letter, drought conditions and other concerns regarding range resources prompted District Rangers to direct the removal of livestock from some allotments under consultation. This amendment describes the additional revisions in allotment management and assesses the affects of all revisions in ongoing management on listed species. All other information in the original biological assessment, as amended by the July 9, 1999 letter and the February 25, 2000 letter remains unchanged.

Allotments with management revisions or new species information include:

- 76
- 7/K
- A+
- Bohme
- Bronco
- Cartwright
- H-4
- Millsite
- OW
- Pinto Creek
- Poison Spring
- Sierra Ancha
- Sunflower
- Tonto Basin

In addition to the biological assessment, a monitoring strategy for these allotments, as well as others on the Forest, is attached to this document. This strategy is necessary to implement the proposed utilization limits and achieve the desired protection measures for range resources and habitat for species, such as the southwestern willow flycatcher.

Also included is a description of the methodology used to identify potential southwestern willow flycatcher habitat.

PROPOSED ACTIONS

Proposed actions on these allotments include some or all of the following: 1) removal of livestock from all/part of the allotments or reduction in numbers due to drought or habitat protection needs; 2) establishment of forage utilization limits on potential/suitable habitat, other riparian areas and uplands that will move potential flycatcher habitat toward suitability and protect existing or developing suitable habitat; 3) selection of key areas for monitoring utilization; 4) return of livestock to the allotments only after range resources have recovered from current drought conditions, monitoring plans have been developed, and key areas have been selected; and 5) implementation of a forest monitoring strategy on these and other allotments. The following section describes current ongoing management for each allotment.

76 ALLOTMENT

Livestock are excluded from Tonto Creek on Forest administered lands. Private lands are not waived under this permit, so will not be excluded.

Livestock use, as measured in key areas riparian areas outside Tonto Creek, use on riparian woody and herbaceous vegetation will not exceed 40% and 35%, respectively, during the dormant season (December-February), 20% during other months of the year, and 10% bank alteration.

A rest rotation grazing system will be implemented on this allotment and pasture moves will be made based on monitoring of key areas. Annual operating instructions will be developed based on drought conditions, pastures and use limits. Livestock use, as measured in designated key upland areas, will not exceed 35%.

A monitoring plan will be prepared and key upland and riparian areas will be selected for monitoring prior to the 2001 grazing season.

7/K ALLOTMENT

Livestock have been removed from the allotment through administrative action. An environmental assessment (EA), biological assessment and evaluation (BA&E), and consultation will be completed prior to restocking the allotment. Key areas and a monitoring plan will also be developed during the EA process.

A+ ALLOTMENT

The permittee has been directed to remove livestock from the allotment and the permit has been canceled, pending appeals or litigation. Livestock have not been removed from the allotment (and adjoining allotments) at the time this amendment was prepared. Due to severely damaged rangelands on this allotment, it will be rested until the range has fully recovered, estimated to require 10-20 years (Warren pers. com.). An EA, BA&E and consultation will be completed prior to restocking. Key areas will be selected and a monitoring plan will be completed during the NEPA process.

BOHME ALLOTMENT/SLEEPING BEAUTY ALLOTMENT/BELLEVUE ALLOTMENT

Livestock have been removed from these allotments due to drought conditions and will not be restocked until range conditions have recovered.

On restocking, management for the allotment will combine livestock from Bohme Allotment, Sleeping Beauty Allotment and Bellevue Allotment into one herd (193 head of adult cattle plus 110 head of yearlings grazed from 1/1 through 5/31) that is rotated through the three allotments. The current proposal includes grazing of Bohme Allotment from October 15 through March 30, Bellevue Allotment from April 1 through April 25, and Sleeping Beauty Allotment from April 26 through October 15.

Utilization limits on Pinto Creek below the fenced spill area will be 20% on woody and herbaceous vegetation and 10% allowable bank alteration. Use on Pinto Creek on Forest lands above the spill area will be managed to limit use on riparian vegetation below 35% and bank alteration below 10%. Prior to restocking, key areas will be established and a monitoring plan developed for Pinto Creek and upland areas on the allotment. Use on uplands on the three allotments will be no more than 35% on designated key areas.

The duration of this action is expected to be three years at which time an EA, BA and formal consultation will have been completed.

BRONCO ALLOTMENT

Once livestock return to the allotment, the proposed action is to graze the west pasture containing Cave Creek from November 15 till mid-February or before use limits are exceeded; then move livestock to the eastern pastures until May 15 or before use limits are exceeded. Use limits on riparian vegetation on Cave Creek have been revised from current levels to 20% use on current year's growth on woody vegetation, 20% on herbaceous vegetation and 10% bank alteration. Maximum allowable use on uplands is set at 35% under the proposed action.

Based on the Forest monitoring strategy, a monitoring plan and selection of key areas should be completed before livestock return to the allotment in November 2000; however this is not currently part of the proposed action by the District Ranger.

The duration of this action is expected to be three years at which time an EA, BA and formal consultation will have been completed.

CARTWRIGHT ALLOTMENT

The permittee has been directed to remove livestock from this allotment due to drought conditions, pending appeals or litigation. The allotment will not be restocked until range conditions have recovered.

An EA and BA&E are being completed for this allotment and the proposed alternative will go through formal consultation. The management alternative should be selected and

implemented by the time livestock return to the allotment. This should include development of a monitoring plan and selection of key areas.

If livestock remain on the allotment or restocking of the allotment occurs prior to completion of the EA, BA and formal consultation, use on riparian woody vegetation will not exceed 20% on woody and herbaceous vegetation and 10% bank alteration on all identified potential flycatcher habitat on Cave Creek and its tributaries and Lime Creek and its tributaries. Riparian vegetation on Camp Creek will be excluded from grazing. In riparian areas upstream of potential flycatcher habitat, use on riparian woody and herbaceous vegetation will not exceed 40% and 35%, respectively, during the dormant season (December-February), 20% during other months of the year, and 10% bank alteration. Use on uplands will not exceed 35%.

H-4 ALLOTMENT

This allotment is currently destocked and restocking is not proposed until at least 2002. Prior to restocking an EA, management plan and consultation will be completed. A monitoring plan and key areas will be selected during the EA process.

MILLSITE ALLOTMENT

Potential/suitable willow flycatcher habitat within the Hewitt Pasture will be excluded from livestock through fencing. Hewitt Pasture will not be used until fence construction is completed.

A cattleguard will be installed to prevent Millsite Allotment livestock from accessing habitat. With the assistance of the Fish and Wildlife Service, the Mesa District will work with the Corps of Engineers and State Lands to resolve trespass and other issues in the Whitlow Dam area.

Use on upland forage will be limited to 35% and will be monitored through designated key areas.

OW ALLOTMENT

Actions on this allotment have not changed from those described in the BA. The allotment is presented here because of a revision in the determination of effect on the southwestern willow flycatcher based on new information.

PINTO CREEK

Livestock have been removed from the allotment due to drought conditions and the allotment will not be restocked until range conditions have recovered.

Prior to restocking, a monitoring plan for the allotment will be prepared and implemented and key areas for monitoring both riparian and upland use will be selected.

Due to high herbaceous use and bank alteration during winter during the 2000 grazing season, this pasture will be closed until the 2003 grazing season. Subsequent excessive use on Pinto Creek will result in a two year closure of the riparian pasture.

Use on Pinto Creek within this allotment will not exceed 15% on woody and herbaceous vegetation and banks will not receive more than 10% bank alteration. Use on tributaries to Pinto Creek will not exceed 40% use on woody vegetation, 35% use on herbaceous vegetation and 10% bank alteration. Upland use will not exceed 35%. All use will be measured in established key areas.

POISON SPRING ALLOTMENT

The permittee has been instructed to remove livestock from this allotment, pending appeals and/or litigation. Prior to restocking, an EA, BA&E and formal consultation with the FWS will be completed. A monitoring plan will be completed and key areas will be selected during the EA process.

SIERRA ANCHA ALLOTMENT

This allotment is grazed in conjunction with the Poison Spring Allotment and the permittee has been instructed to remove livestock, pending appeals or litigation. Prior to livestock returning to this allotment an EA, BA&E and formal consultation will be completed. A monitoring plan will be completed and key areas will be selected during the EA process.

SUNFLOWER ALLOTMENT

The permittee has been directed to remove livestock due to drought conditions, pending appeals or litigation. The allotment will not be restocked until range conditions have recovered.

Prior to restocking the EA, BA&E for the proposed action, and formal consultation will be completed for Cottonwood and Cline Units of this allotment. Utilization limits will be established, a monitoring plan will be completed, and key areas for riparian and upland monitoring will be selected during the EA process.

On the Dos S Unit, the Sycamore Creek Fence will be completed and livestock will be excluded from this riparian area, as well as portions of Mesquite Wash. The management plan for the allotment will be implemented. The utilization limit on uplands will be 35%. Use in riparian areas outside the Sycamore enclosure will not exceed 40% on woody vegetation, 35% on herbaceous vegetation and 10% bank alteration. A monitoring plan will be prepared and key areas selected prior to restocking.

TONTO BASIN ALLOTMENT

Permittees have been directed to remove livestock from this allotment, pending appeals or litigation. Prior to restocking of the allotment, an EA, BA&E, and formal consultation will be completed for this allotment. Utilization limits will be established, a monitoring plan will be completed, and key areas for riparian and upland monitoring will be selected during the EA process.

EFFECTS ON LISTED AND PROPOSED SPECIES

The following section assesses the effects of proposed or ongoing actions on federally listed species on each allotment. In addition to changes in ongoing grazing actions, several issues have arisen since the BA was completed on March 31, 1999. A warm winter and drought conditions have resulted in damage to riparian areas and high use on uplands due to little or no regrowth on grasses and no annual production. Drought conditions have resulted in livestock grazing impacts which have exceeded thresholds identified in 7(d) statements prepared for this consultation. Livestock removal on several allotments is being implemented through administrative action, but has not been completed at the time of this assessment. The removal of livestock has been and may be further delayed on some allotments due to appeals, lawsuits or other permittee actions. No direction has been established to date on the criteria for restocking of allotments. Several allotments will have new EA's prior to restocking which effectively remove them from this consultation. The many changes in ongoing grazing have made analysis of effects difficult and have delayed completion of the document.

In addition to changes in management, a Forestwide monitoring strategy has been proposed which seeks to insure that upper limits on utilization will be met. The proposed monitoring strategy represents a new approach to management of allotments and may be difficult or impossible to fully implement due to personnel and budget constraints.

This analysis and associated determinations are based on completion of directed removals of livestock due to drought conditions, full implementation of changes in management, and implementation of and compliance with the monitoring strategies and monitoring plans for each allotment. Failure to implement any of the proposed actions will nullify the following determinations for the southwestern willow flycatcher and other species and reverse the determinations to **May Affect, Likely to Adversely Affect**.

The purpose of revisions in ongoing grazing management and establishment of utilization limits on the allotments addressed in this amendment is to improve riparian habitat and upland range conditions. The March 31, 1999 BA described effects of grazing on habitat and reproduction for the southwestern willow flycatcher and other species. Additional information on the effects of grazing as well as changes in management needed to improve or protect habitat has been issued in draft form by the southwestern willow flycatcher recovery team.

The thresholds for effects of livestock grazing on riparian vegetation and southwestern willow flycatcher habitat in the Grazing Guidance Criteria are:

- 1) grazing in unoccupied suitable habitat does not reduce the suitability; and
- 2) grazing in potential habitat does not slow the progression of potential habitat towards suitable in that:
 - regeneration or maintenance of woody vegetation is not impaired by trampling, bedding, or feeding, and
 - livestock grazing occurs during the dormant season only, and
 - monitoring is in place and the results show that suitability is being maintained or enhanced and that potential habitat is progressing towards suitable.

In addition to the above criteria, riparian health and development is also affected by utilization levels of herbaceous vegetation, alteration of streambanks, and conditions on the surrounding

uplands (watershed) related to grazing management (Belsky et.al. 1999, Bengueyfield and Svaboda 1998, Clary 1999, Clary and Kinney 2000, Mosely et.al 1997). Monitoring information collected during the winter of 1999/2000 indicate that use of herbaceous forage and streambank alteration was high (80-100%) in riparian areas, while use on woody vegetation (still dormant) was low to moderate. Riparian areas at these use levels are exposed to loss of streambanks from high runoff events, while the ability to catch and hold sediment and build degraded banks and riparian areas is reduced. Streambank and channel stability is one of the most important attributes of a properly functioning riparian system (Clary et.al. 2000)

In addition to herbivory, Ohmart 1996 identifies affects to stands of riparian vegetation by livestock. The grazing guidance criteria list regeneration or maintenance of woody vegetation which is impaired by trampling, bedding, or feeding as impacts which negatively affect flycatcher habitat. These types of impacts can occur even at low to moderate use levels. Monitoring of riparian areas on the Tonto National Forest since 1997 indicates that even at low to moderate levels of use on woody vegetation, trailing and bedding through these stands reduces overall density of the vegetation. In many instances, density of woody vegetation does not recover during rest periods during the rotation. Effects on density and reproduction are intensified if over use occurs for only year or at infrequent intervals and high use for only one year may reverse any gains in improvement made over several years.

Clary et.al (2000) indicate that unstable uplands produce a continuously unstable riparian area. Many widespread uses of watershed, such as livestock grazing, conflict with the riparian-stream systems. Holechek et.al (1999) indicate that 30-35 % use is needed for improvement in rangeland vegetation; however, a number of conditions affect overall stocking rates (Holechek and Pierce). Stocking rates on most allotments on the Tonto are based on higher use figures of 40-60%. Several allotments are in the analysis process for carrying capacity and stocking rates at reduced levels of use. Until capacities and stocking rates are reassessed, problems with utilization levels may continue to be a problem on allotments where ongoing grazing occurs.

Potential or suitable habitat for the southwestern willow flycatcher is or will be utilized by livestock on some of the allotments in this analysis. On allotments where grazing will continue in potential habitat, utilization ranges from 15 to 20% on potential habitat. The level of grazing was decided by each District Ranger based on their comfort level, their estimate of the ability to actually measure a specific utilization level, or their acceptance of the methodology used by the stream analysis team to identify potential habitat.

This discrepancy in allowable use limits poses a problem in analysis of the effects of grazing and determination of effects. The fact that potential habitat is grazed at all will inhibit progress of riparian areas toward suitable (Elmore and Kauffman 1994). The elimination of grazing represents the fastest way to recover riparian vegetation based on literature, but the use levels of 15-20% represent light use and should move potential habitat toward suitability, but at a slower rate than if they were not grazed.

District Rangers agreed to a 35% use level, plus or minus 5%, for uplands. In general, rangelands on some of these allotments are in unsatisfactory condition and this level of use is generally considered too high for soils and rangelands in these conditions. Carrying capacities based on soil conditions, water, slope and other factors will be evaluated for allotments in upcoming EA's. In the interim, grazing use in key areas on allotments with unsatisfactory range conditions should result in utilization limits being rapidly reached and livestock being rotated out of these pastures

or removed from the allotment. Overall, use on allotments with these conditions should receive lighter use.

The following assessments and determinations for each allotment indicate revisions based on new ongoing management proposals for each allotment.

76 ALLOTMENT

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)

Woundfin (*Plagopterus argentissimus*)

Exclusion of livestock from Tonto Creek and limits on use on other riparian areas and uplands within the allotment will improve aquatic habitat in general; however, all other factors addressed in the original BA remain the same.

Effects Determination

The determination remains **May Affect, Likely to Adversely Affect**.

Loach Minnow (*Rhinichthys (Tiaroga) cobitis*)

Spikedace (*Meda fulgida*)

Tonto Creek has been designated as critical habitat for these two species. Exclusion of livestock from Tonto Creek and limits on use on other riparian areas and uplands within the allotment will improve aquatic habitat. These measures will prevent adverse modification of habitat within and downstream of this allotment; however, all other factors addressed in the original BA remain the same.

Effects Determination

Based on grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect the Species**.

Based on exclusion of grazing from Tonto Creek and utilization limits on the remainder of the allotment, the determination is **Not Likely to Adversely Modify** critical habitat.

Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*)

Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)

Upland utilization levels are lowered, but thresholds addressed in the Grazing Guidance Criteria are not met.

Effects Determination

Based on grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect the Species**.

Bald Eagle (*Haliaeetus leucocephalus*)
Mexican Spotted Owl (*Strix occidentalis lucida*)

Exclusion of livestock from Tonto Creek and limits on use on other riparian areas and uplands within the allotment will improve aquatic habitat. Riparian habitat on Tonto Creek will improve quickly, depending on flood events. Potential nesting habitat for the bald eagle will be unaffected by grazing. Progression of riparian vegetation toward multistoried stands will improve wintering habitat and migration corridors for the Mexican spotted owl.

Effects Determination

Based on the guidance criteria, the determination for the Mexican spotted owl and bald eagle is **May Affect, Not Likely to Adversely Affect**.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Tonto Creek within the allotment contains potential/suitable habitat for the southwestern willow flycatcher. The allotment is within the watershed of lower Tonto Creek and is upstream of flycatcher occupied habitat near the confluence with Roosevelt Reservoir. Gun Creek is tributary to Tonto Creek and the upper portions of this creek are within the allotment. The lower part of Gun Creek, including the confluence with Tonto Creek, is on the Del Shay Allotment. Because Gun Creek has not been evaluated in the field, it is unknown whether the portion of the creek on this allotment contains potential habitat for this species. However, due to topography and estimated stream channel characteristics, it has not been classified as potential. Watershed conditions on this allotment have a direct influence on occupied habitat downstream and potential/suitable habitat on Tonto Creek within the allotment. It is estimated that approximately 70% of the soils on this allotment are in satisfactory condition.

The exclusion of livestock from Tonto Creek on Forest Service administered lands will allow for the quickest recovery of riparian vegetation. Utilization standards on riparian areas within the allotment, other than Tonto Creek, should provide for riparian vegetation recovery and protection, although at slower rates. Utilization limits for uplands and a switch to a rest rotation system should improve overall ground cover and plant densities over time.

The development of a monitoring plan and key monitoring sites will provide feedback on forage capacities/stocking rates and will help identify when changes in allotment management are required.

Effects Determination

Based on the guidance criteria, the determination of effects of the revised allotment management is **May Affect, Not Likely to Adversely Affect** for the southwestern willow flycatcher. This is due to the exclusion of riparian habitat along Tonto Creek from grazing, utilization standards for uplands and other riparian areas which improve watershed conditions, and implementation of monitoring.

7/K ALLOTMENT

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)
Desert Pupfish (*Cyprinodon macularius macularius*)
Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)
Cactus Ferruginous Pygmy-owl (*Glaucidium brasillianum cactorum*)
Mexican Spotted Owl (*Strix occidentalis lucida*)
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Removal of livestock from the allotment eliminates effects on listed species that are associated with grazing, grazing management activities and the presence of livestock.

Effects of any future management of livestock on this allotment will be assessed in a future BA and will go through consultation.

Effects Determination

Based on the removal of livestock from this allotment, the determination for all listed species on the allotment is **No Effect**.

A + ALLOTMENT

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)
Desert Pupfish (*Cyprinodon macularius macularius*)
Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)
Cactus Ferruginous Pygmy-owl (*Glaucidium brasillianum cactorum*)
Mexican Spotted Owl (*Strix occidentalis lucida*)
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Removal of livestock from the allotment, when completed, eliminates effects on listed species that are associated with grazing, grazing management activities and the presence of livestock.

Effects of any future management of livestock on this allotment will be assessed in a future BA and will go through consultation.

Effects Determination

Based on the removal of livestock from this allotment, the determination for these species is **No Effect**.

BOHME ALLOTMENT/SLEEPING BEAUTY ALLOTMENT/BELLEVUE ALLOTMENT

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)

Limits on use on Pinto Creek and other riparian areas and uplands within the allotment will improve aquatic habitat in general; however, all other factors addressed in the original BA remain the same.

Effects Determination

The determination remains May Affect, Likely to Adversely Affect.

Cactus Ferruginous Pygmy-owl (*Glaucidium brasillianum cactorum*)
Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuena*)

Upland utilization levels are lowered, but thresholds addressed in the Grazing Guidance Criteria are not met.

Effects Determination

Based on grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect the Species.**

Mexican Spotted Owl (*Strix occidentalis lucida*)

Light use of riparian vegetation and monitoring to insure use limits should move riparian vegetation on Pinto Creek toward habitat conditions more suitable for wintering and dispersal.

Effects Determination

Based on the guidance criteria, the determination for the Mexican spotted owl and bald eagle is **May Affect, Not Likely to Adversely Affect.**

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Pinto Creek contains potential habitat for the species within this allotment. Pinto Creek downstream of this allotment contains both potential and suitable habitat. Riparian condition on this allotment is unsatisfactory.

Livestock have been removed from this allotment due to drought conditions. Removal of livestock due to drought conditions will prevent further damage to riparian and upland areas. The removal of livestock from Forest lands may benefit overall watershed condition; however, livestock may remain on private land with access to Pinto Creek.

When restocking occurs, implementation of a monitoring plan and use restrictions will result in improvement of riparian habitat on Pinto Creek and uplands within the watershed. Effects of the current proposal for one herd on three allotments is unknown, but should improve conditions because livestock rotation between allotments will be based on utilization levels rather than established seasons.

Livestock use at the new utilization levels will allow for progress of potential habitat toward suitability within the Bohme Allotment and improved protection of suitable habitat in the Pinto Creek Allotment (downstream on Pinto Creek). However, grazing is likely to restrict the pace of

progression toward suitability. Monitoring methods and a new rotation system are untested. The length and period of grazing on the Bohme Pasture is long and occurs during fall and early summer periods when overuse of riparian areas can occur rapidly. There are no fences to restrict access to Pinto Creek or otherwise provide for riparian area protection.

Effects Determinations

Based on the grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect** for ongoing grazing for listed species.

BRONCO ALLOTMENT

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Arizona Agave (*Agave arizonica*)

Spikedace (*Meda fulgida*)

Desert Pupfish (*Cyprinodon macularius macularius*)

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)

Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)

Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*)

Cave Creek contains potential habitat for the southwestern willow flycatcher and fish species as identified in the March 31, 1999 BA. Livestock were removed early from this allotment due to drought conditions and high use on Cave Creek. The period that livestock will be off the allotment is unknown. Because restocking criteria have not been developed, they could return to the allotment at the start of the next grazing period.

There are no proposed changes in ongoing management when livestock return to the allotment. Management will be regulated primarily by use levels on riparian vegetation in Cave Creek and surrounding uplands. Riparian habitat in Cave Creek is in unsatisfactory condition due to high levels of use under current management. Since the grazing system will be the same when livestock are allowed back on the allotment, the habitat will only improve through strict enforcement of the new use limits. The 20/20/10 use limits on riparian vegetation/streambanks in Cave Creek may allow for potential recovery of habitat if strict adherence to these limits occur; however, there are no fences and the only method to prevent overuse of riparian vegetation/streambanks is untried monitoring methodology. The use limit on uplands falls within the recommended level for Arizona agave, but grazing still occurs within the bolting season if the rotation used in 1999/2000 continues.

The development of a monitoring plan and designation of key areas prior to restocking of livestock will provide the basis for monitoring. Implementation of the monitoring plan, including annual reports on actual use and effectiveness of grazing requirements, may help habitat progress toward suitable conditions.

Effects Determinations

Based on the grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect** for ongoing grazing for all listed species.

CARTWRIGHT ALLOTMENT

Species evaluated:

- Southwestern Willow Flycatcher (*Empidonax traillii extimus*)**
- Arizona Agave (*Agave arizonica*)**
- Spikedace (*Meda fulgida*)**
- Desert Pupfish (*Cyprinodon macularius macularius*)**
- Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)**
- Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuena*)**
- Cactus Ferruginous Pygmy-owl (*Glaucidium brasillianum cactorum*)**

Livestock have been removed from this allotment due to drought conditions and will not return to this allotment until range conditions have recovered. During the interim, the EA, BA&E and formal consultation should be completed for this allotment and a new proposed action will be implemented when livestock return.

Removal of livestock will prevent further resource degradation resulting from a combination of improper livestock management (seasons and numbers) and drought conditions. The total removal of livestock will benefit overall watershed condition and habitat during the period livestock are off the allotment. Some recovery of riparian habitat may occur during this period.

Effects Determination

The determination is **No Effect** for the action of livestock removal on listed species.

Determinations of effects of actions under future management will be made in the BA for these actions.

MILLSITE ALLOTMENT

- Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)**
- Desert Pupfish (*Cyprinodon macularius macularius*)**

Limits on use on riparian areas and uplands within the allotment will improve aquatic habitat in general; however, all other factors addressed in the original BA remain the same.

Effects Determination

The determination remains **May Affect, Likely to Adversely Affect**.

- Cactus Ferruginous Pygmy-owl (*Glaucidium brasillianum cactorum*)**

Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuena*)

Upland utilization levels are lowered, but thresholds addressed in the Grazing Guidance Criteria are not met.

Effects Determination

Based on grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect the Species.**

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Whitlow Dam is a flood control structure which briefly obstructs flows until water can pass through the release system. No water is stored behind the structure. Soil deposition behind the dam and higher water tables have resulted in development of a riparian vegetation community comprised mostly of salt cedar with a mixture of other broadleaf riparian species. The area is suitable for flycatcher nesting habitat, but nesting flycatchers have not been detected.

Exclusion of livestock from potential/suitable habitat behind Whitlow Dam through construction of a cattleguard and nonuse of the Hewitt Pasture in the 2000 grazing will allow for the fastest recovery of this habitat. The Hewitt Pasture will be further subdivided by a fence to permanently exclude livestock from potential habitat. Construction of the cattleguard and associated fencing will not directly alter or affect habitat for the willow flycatcher or other listed species.

The establishment of the 35% use limit in uplands should maintain or move watershed conditions toward satisfactory. Selection of key areas and monitoring will insure pasture moves are based on actual use, rather than season.

Effects Determination

Based on grazing guidance criteria, the determination remains **May Affect, Likely to Adversely Affect the Species.**

OW ALLOTMENT

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Information obtained from the Fish and Wildlife Service subsequent to the submission of the March 31, 1999 BA indicated that the agency did not feel that potential nesting habitat occurred at Canyon Creek on this allotment. The area falls within an elevation range where nesting has not been found to occur.

Effects Determination

Due to the absence of known nesting flycatchers within the elevation range of this allotment, the determination is changed to **No Effect**.

The determination for other all other species on this allotment remains unchanged from the original BA.

PINTO CREEK

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)
Arizona Hedgehog Cactus (*Echinocereus triglochidiatus* var. *arizonica*)
Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)
Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*)

Removal of livestock from the allotment due to drought conditions will prevent further damage to Pinto Creek, other riparian areas and uplands. Riparian areas and upland conditions may improve depending on the period of rest. However, thresholds identified in the Grazing Guidance Criteria are still exceeded for these species.

Effects Determination

Based on the Guidance Criteria, the determination remains **May Affect, Likely to Adversely Affect**.

Mexican Spotted Owl (*Strix occidentalis lucida*)
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Livestock have been removed from this allotment due to drought conditions. Removal of livestock due to drought conditions will prevent further damage to riparian and upland areas. The removal of livestock from Forest lands may benefit overall watershed condition, depending on the length of rest.

When restocking occurs, implementation of a monitoring plan and use restrictions may result in improvement of riparian habitat on Pinto Creek and uplands within the watershed. However, livestock grazing occurs outside of the winter period in some riparian pastures on Pinto Creek and the ability to monitor remains untested. Grazing during the warm season or fall can result in rapidly occurring damage to riparian vegetation and can reverse any gains made in habitat improvement. High levels of use went undetected in the Pinto Creek winter pasture during the 2000 grazing season.

Effects Determinations

Based on the Grazing Guidance Criteria and risk to habitat determination remains **May Affect, Likely to Adversely Affect**.

**POISON SPRING ALLOTMENT
SIERRA ANCHA ALLOTMENT**

Bonytail (*Gila elegans*)
Colorado Pikeminnow (*Ptychocheilus lucius*)
Loach Minnow (*Rhinichthys (Tiaroga) cobitis*)
Razorback Sucker (*Xyrauchen texanus*)
Spikedace (*Meda fulgida*)
Bald Eagle (*Haliaeetus leucocephalus*)
Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)
Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*)
Mexican Spotted Owl (*Strix occidentalis lucida*)
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Livestock have been removed from these allotments due to administrative actions and drought conditions and will not return to this allotment until range conditions have recovered.

Removal of livestock will prevent further resource degradation resulting from a combination of improper livestock management and drought conditions. The total removal of livestock will benefit overall watershed condition and habitat during the period livestock are off the allotment.

Livestock numbers will be adjusted based on range capacity and administrative action. Formal consultation on revised management and utilization standards will occur prior to livestock going back on the allotment.

Effects Determination

The determination is **No Effect** for the action of livestock removal on listed species.

Determinations of effects of actions under future management will be made in the BA for these actions.

SUNFLOWER ALLOTMENT

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)
Loach Minnow (*Rhinichthys (Tiaroga) cobitis*)
Spikedace (*Meda fulgida*)
Desert Pupfish (*Cyprinodon macularius macularius*)

The directed removal of all livestock from the allotment will allow riparian vegetation to recover and provide some relief to vegetation and soils on the uplands. Leaving the allotment unstocked until range conditions recover may moderate runoff events and effects on potential riparian vegetation and habitat.

Prior to restocking of the Cottonwood/Cline units the EA, BA and consultation should be completed. On the Dos S Unit, the riparian enclosure on Sycamore Creek and associated water developments and other improvements for implementation of the management plan will be

completed prior to livestock returning to the allotment. Utilization limits monitored through key area inspections will improve riparian habitat outside the Sycamore exclosure and should begin to reverse upland range conditions on the Dos S unit.

Although consultation will be completed separately on the Cottonwood/Cline units, grazing on the Dos S unit will exceed thresholds for fish species as described in the Grazing Guidance Criteria.

Effects Determination

The determination is **May Affect, Likely to Adversely Affect**.

Bald Eagle (*Haliaeetus leucocephalus*)

Revisions in grazing are not likely to change existing conditions for the bald eagle nest territory at Horse Mesa Dam.

Effects Determination

The determination remains **May Affect, Not Likely to Adversely Affect**.

**Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)
Cactus Ferruginous Pygmy-owl (*Glaucidium brasillianum cactorum*)**

Removal of livestock from the allotment will prevent further effects on these species. The species will be formally consulted on under the Cottonwood/Cline EA and management revision. On the Dos S Unit, revised use limits should improve rangeland conditions, but still exceed thresholds for these two species as identified in the Grazing Guidance Criteria.

Effects Determination

The determination remains **May Affect, Likely to Adversely Affect**.

Mexican Spotted Owl (*Strix occidentalis lucida*)

Removal of livestock from the allotment will prevent further effects on this species. Effects of the revision of livestock management on the Cottonwood/Cline units will be further evaluated in the EA, BA and formal consultation for these units. Exclusion of Sycamore Creek from grazing will move this riparian vegetation corridor toward suitability for MSO wintering or migration corridors. Revised utilization limits and establishment of key areas near the Mount Ord PAC and Four Peaks area should maintain cover for prey species.

Effects Determination

Based on the Grazing Guidance Criteria, the determination is revised to **May Affect, Not Likely to Adversely Affect**.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Potential habitat for this species is found on Sycamore Creek, which has the capability to produce suitable habitat rapidly after exclusion from livestock. Cottonwood Creek was originally thought to be potential; however, review by a team of hydrologists, soil scientists and biologists, determined it to be longterm potential (see attachment). The area will be protected under future management of the Cottonwood Unit, but recovery is likely to take decades due to degraded watershed conditions on the allotment.

The directed removal of all livestock from the allotment will allow riparian vegetation to recover and provide some relief to vegetation and soils on the uplands. Leaving the allotment unstocked until range conditions recover may moderate runoff events and effects on potential riparian vegetation and habitat.

Prior to restocking of the Cottonwood/Cline units the EA, BA and consultation should be completed. On the Dos S Unit, the riparian enclosure on Sycamore Creek and associated water developments and other improvements for implementation of the management plan will be completed prior to livestock returning to the allotment. Utilization limits monitored through key area inspections will improve riparian habitat outside the Sycamore enclosure and should begin to reverse upland range conditions on the Dos S unit.

Unlike other allotments with ongoing grazing under previous management plans, potential habitat for the species is excluded when the allotment is restocked. Utilization limits are established for uplands and a monitoring plan with key areas will be established. Utilization levels are set at 35% for uplands; however, 70% of the soils on the Dos S Unit are classified as unsatisfactory. This level of use may be high based on soil conditions, but monitoring in key areas and moves based on use level should indicate the ability of the pasture and grazing system to recover under this level of use.

There are several issues, however, related to monitoring, planned livestock management and protection of Sycamore Creek which may result in the continuation of adverse effects to the flycatcher. Monitoring methodology on the uplands is untested and current condition of rangelands may make monitoring of use difficult to measure. The permittee is currently having problems removing livestock from the unit, taking over three months to complete removal, because of the size of the unit and ruggedness of the terrain (permittee's reasons). This appears to indicate that the permittee will not be able to remove livestock from pastures when use limits are reached or to fully implement planned management.

The effectiveness of the enclosure may also be questionable. High ATV/OHV use in the area has resulted in enclosure fences being cut. Failure to prevent fence cutting or exclusion of livestock use in the enclosure, will prevent recovery of riparian vegetation on Sycamore Creek. The effects of these issues have not been addressed for ongoing or revised actions under the current EA and management plan, and currently, there are no plans for reanalysis of the Dos S Unit.

Effects Determination

Based on effects of management on the Dos S Unit, the determination for the allotment remains **May Affect, Likely to Adversely Affect.**

TONTO BASIN ALLOTMENT

Bonytail (*Gila elegans*)

Colorado Pikeminnow (*Ptychocheilus lucius*)

Loach Minnow (*Rhinichthys (Tiaroga) cobitis*)

Razorback Sucker (*Xyrauchen texanus*)

Spikedace (*Meda fulgida*)

Bald Eagle (*Haliaeetus leucocephalus*)

Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)

Cactus Ferruginous Pygmy-owl (*Glaucidium brasilliarum cactorum*)

Mexican Spotted Owl (*Strix occidentalis lucida*)

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Livestock have been removed from this allotment due to administrative actions and drought conditions and will not return to this allotment until range conditions have recovered. Removal of livestock will prevent further resource degradation resulting from a combination of improper livestock management and drought conditions. The total removal of livestock will benefit overall watershed condition and habitat during the period livestock are off the allotment.

Livestock numbers will be adjusted based on range capacity and administrative action. Formal consultation on revised management and utilization standards will occur prior to livestock going back on the allotment.

Effects Determination

Based on the removal of livestock from the allotment, the determination is **No Effect**.

PREPARED BY:



Mike Ross
Forest Biologist

June 16, 2000
Date

Literature Cited or Reviewed

- Ohmart, R. D. 1996. Historical and present impacts of livestock grazing on fish and wildlife resources in western riparian habitats. In, *Rangeland Wildlife*, P.R. Krausman, ed. Society of Range Management, Denver, CO. pp 245-279.
- Belsky, A.J., A. Matzke, and S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. *J. Soil and Water Cons.* 54(1): 419-431.
- Bengeyfield, P and D. Svoboda. 1998. Determining allowable use levels for livestock movement in riparian areas. *Rangeland Manage. and Water Resources*, American Water Res. Assoc. May. Pp 243-257.
- Clary, W., L. Schmidt, and L. DeBano. 2000. Watershed-riparian connection: a recent concern? In, *Land Stewardship in the 21st Century: the Contributions of Watershed Management*. P. Ffolliot, M. Baker, Jr., C.B. Edminster, M.C. Dillon, and K.L. Mora. USDA Forest Service. Conf Proceedings RMRS-P-13. pp. 221-226.
- Clary, W. and J. Kinney. 2000. Streambank responses to simulated grazing. In, *Land Stewardship in the 21st Century: the Contributions of Watershed Management*. P. Ffolliot, M. Baker, Jr., C.B. Edminster, M.C. Dillon, and K.L. Mora. USDA Forest Service. Conf Proceedings RMRS-P-13. pp. 221-226.
- Clary, W.P. 1999. Stream channel and vegetation responses to late spring cattle grazing. *J. Range Manage.* 52:218-227.
- Elmore, W. and B. Kauffman. 1994. Riparian and watershed systems: degradation and restoration. In, *Ecological Implications of Livestock Herbivory*. pp 212-231.
- Holechek, J.L., H. Gomez, F. Molinar, and D. Galt. 1999. Grazing studies: what we've learned. *Rangelands* 21(2): 12-16.
- Holechek, J.L. and R.D. Piercer. 1988. Estimation of stocking rate on New Mexico rangelands. *J. Soil and Water Cons.* 47(1): 116-119.
- Mosley, J.C., P.S. Cook, A.J. Griffis, and J. O'Laughlin. 1997. Guidelines for managing cattle grazing in riparian areas to protect water quality: review of research and best management practices policy. U. of Idaho; Rept 15. 67pp.
- USDA Forest Service. 1998. Guidance criteria for preliminary effects determinations for species listed as threatened, endangered or proposed for listing. WFRP, R3, Forest Serv. Page 53.

Tonto National Forest

Livestock Utilization Limit Monitoring Strategy

June 15, 2000

To protect rangeland resources, limits on livestock use on both uplands and riparian areas are now required for range allotments. The maximum allowable use levels currently being developed for allotments are expressed as percent use and varies based on the 1) type of vegetation (riparian or upland); 2) season of use; 3) overall range condition; and 4) other variables, such as use limits required to protect listed species habitat.

The use of monitoring data to interactively manage livestock and utilization levels represents a change in the way previous monitoring data has been collected and used by range managers, biologists and line officers on the forest. The current Forest monitoring protocol for riparian areas is used to estimate levels of use on palatable species and to estimate the percentage of banks altered by livestock. A method for estimation of use on deer grass and riparian species, such as horsetail, bullrush and similar riparian species is being developed. No set monitoring method is prescribed for uplands. Cages have been used to monitor some upland sites, but not all pastures or allotments have cages.

District and SO personnel and the forest monitoring team collect data on allotments with BO requirements and/or allotments with watershed or other issues. Use levels at some riparian monitoring sites are sampled at mid- and end-of- or post-season, but this does not occur at all monitoring sites. The monitoring data have generally not been used to move livestock to another pasture in cases where use on riparian or uplands approached or exceeded use standards.

Protection of riparian and upland resources through allowable utilization levels, such as those developed through environmental assessment or required under biological evaluations, require that these levels not be exceeded. To accomplish this, a new monitoring/inspection protocol has been developed. The following will be used during development of an EA or before preparing or revising Annual Operating Instructions for ongoing permit administration

A. Establishing Maximum Allowable Use Levels, Key Areas and Monitoring/Inspection Requirements

1. Define utilization limits by pasture or allotment
 - limits are set during EA development and/or stipulated in a BO and/or required for habitat or resource protection.
2. Establish key areas on which to monitor utilization.
 - key areas will be determined by an interdisciplinary team consisting of district and SO specialists.
 - more than one key area must be used for riparian areas unless only one area exists on the pasture/allotment.
 - key areas that address habitat, riparian or upland issues will be selected for each pasture.

- key areas will reflect habitat or watershed issues identified during NEPA, a BO or documented emergency, such as drought conditions.
3. Determine number of visits required to each key area based on stocking rate, season of use, range condition, climatic conditions, etc.
 - stocking rates or seasons of use which trend toward high use in key areas will require more frequent visits to monitor use.
 - stocking rates or seasons of use which trend toward lighter use may require less frequent visits.
 4. Define method or protocol to monitor use.
 - current riparian protocol or revision should be used to monitor key riparian areas.
 - upland monitoring methods should be defined by the team during key area selection.
 - cages may be required for long-term monitoring.
 5. Define conditions or situations that indicate when use levels are being approached, reached or exceeded.
 - define in terms of number of key areas or specific key areas which indicate the current level of use.
 - select secondary inspection sites to determine if areas outside of key areas are exceeding use limits.

B. Moving Livestock

1. Personnel responsible for monitoring/inspecting key areas will notify the district ranger of current use level and the potential move date or the need for immediate removal of livestock from a pasture or allotment.
2. District Ranger will notify permittee of utilization levels and date when livestock must be moved from the pasture or allotment. Where use is well below allowable use, field inspections with the permittee may be arranged. Where use is at or exceeding allowable use levels, a field inspection with the permittee may occur, but the permittee should be notified of the consequences of exceeding allowable use.
3. A move date will be agreed to with the permittee. A follow-up inspection will occur to insure livestock have been moved and to document final utilization levels in key areas.
4. Regrazing of pastures in the current year will normally not occur. An exception to this would be allotments with current EA's that have addressed regrazing and that have BA's and BO's that assess this issue. Any proposal for regrazing not covered under an existing BO will require review by an interdisciplinary team and consultation with FWS.
5. When livestock are moved through the rotation and all forage use limits have been met, they will be removed from the Forest. Livestock will not be allowed back on the allotment until the beginning of the following year or start of the next year's rotation.
6. Placement on another unoccupied allotment will be considered only if: consultation is current on the unoccupied allotment; a current management plan based on the consultation exists; all structural improvements are in place; and any monitoring requirements are implemented and met.
7. All use levels and required actions will be described in detail in the Annual Operating Instructions.

C. Exceeding Use Limits

1. District Rangers will take action on the permit if use levels are exceeded. The riparian ecologist, soil scientist and/or biologist will review the key areas in the field with district personnel to help determine the type of action to be taken. Actions may include: elimination of the pasture from use for a period of time until habitat can recover; suspension of part of the permitted numbers; notification to the permittee of utilization problems and actions to be taken if the use exceeds limits (where excess use was insignificant and damage to habitat, upland recovery, etc. did not occur).
2. If excess use is severe or flagrant, the District Ranger should take emergency action on the permit to prevent further degradation of conditions and provide for long-term recovery of the key areas. Emergency actions might include removal of livestock from the allotment, removal of use of the pasture or reductions in permitted numbers beyond the limits identified in the FSM.
3. If pastures are removed from grazing, capacity will be recalculated and numbers reduced proportionately to prevent increases in utilization on other pastures.

D. Monitoring and Reporting

1. Key area inspections will be documented according to protocol and include inspection notes or forms and photos.
2. All meetings and field reviews will be documented and kept with the allotment folder.
3. Annual reports which summarize use levels by allotment, pasture and key area will be prepared by/for each District and compiled into a Forest report.
4. Districts will seek permittee involvement in monitoring and moving of livestock as use levels are approached.
5. Monitoring by permittees will occur only after training in monitoring techniques and field verification by FS personnel. FS personnel will make spot checks on all allotments monitored by permittees. Permittees will be required to submit complete forms and photos immediately after each monitoring trip. The permittee will notify the District if use is approaching or has exceeded use limits.
6. Monitoring data from permittees will only be accepted on allotments where excess use has not occurred. Confirmation by FS personnel is required on these allotments.

Priorities

Current priorities for implementing the monitoring strategy will be those undergoing NEPA or that have monitoring requirements identified in a BO.

Southwestern Willow Flycatcher Habitat Fluvial Characteristics

Grant Loomis, Mike Ross, Janet Johnson, Lynn Mason, Debbie Lutch

April 14, 2000

The Tonto National Forest is evaluating the suitability of its streams to provide habitat for the endangered Southwestern Willow Flycatcher. Based on guidance criteria (see appendix) from the Forest Service (8/25/99) and the Bureau of Land Management (2/9/99), the physical characteristics of stream channels are important determinants of the suitability or potential for a stream reach to provide habitat for the flycatcher. Fluvial features that affect habitat suitability include floodplain area, channel gradient and duration of stream flow. Floodplains are the sites most likely to be occupied by riparian vegetation for other than short duration (a few years) time periods, channel gradient is important for providing the quiet water areas found in occupied habitats, and duration of stream flow affects both the type of riparian vegetation that can be established at a site and whether open water will be available during the nesting season. The purpose of this writeup is to provide the Forest in general and the Forest's wildlife biologists in particular with information on the type of data available from the Forest's stream inventory and how that data can be used to evaluate whether suitable or potential habitat exists on certain streams

The Forest collects quantitative data about the physical characteristics of its stream channels during stream assessment inventories conducted primarily for project level analyses but to some extent as part of an ongoing inventory of stream channel conditions on the Forest. A qualitative summary judgment about the overall health of a channel is also conducted based on the quantitative data, channel stability indices (Pfankuch, 1975) and (Rosgen, 1996), and a riparian condition assessment (Thompson et al, 1998). In some instances inferences about trends in channel and riparian condition are available if repeat surveys have been conducted. Knowledge of stream type also permits inferences about a streams evolutionary history, its response to management, and what changes in fluvial characteristics might be anticipated with continued evolution. Site specific stream channel surveys can also be conducted for streams not included in the existing inventory and where an assessment of flycatcher habitat potential is necessary.

The Forest classifies its streams based on a stream channel classification system developed by Rosgen (1996). Rosgen uses a hierarchical assessment approach to classify streams on the basis of morphological variables. Variables used in the system, in hierarchical sequence, include: entrenchment ratio (the degree of vertical containment of a channel), width/depth ratio (ratio of bankfull width to mean bankfull depth), sinuosity (ratio of stream length to valley length), channel slope, and dominant channel materials (particle size distribution of bed and banks).

Once a stream's morphological features have been inventoried the stream can be classified into one of seven major stream types. These include:

- "A" stream types - steep (4-10% slope), narrow, and entrenched, typically step-pool systems with narrow floodplains. These stream types are normally found in headwater areas.
- "B" stream types - moderate gradient (2-4%), moderately entrenched, riffle dominated channels, with width/depth ratios greater than 12. They also have relatively narrow floodplains.
- "C" stream types - low gradient (<2%), slightly entrenched, meandering, riffle/pool channels that have wide and well-developed floodplains.
- "D" stream types - braided with multiple bar and channel features, very high width/depth ratios, eroding banks and channel slope similar to the valley slope.
- "E" stream types - low gradient (<2%), slightly entrenched, with very low width/depth ratios (<12), and very high channel sinuosity.
- "F" stream types - deeply incised, low gradient (<2%), very high width/depth ratio streams. These streams have moderate sinuosity, a riffle/pool bedform and high bank erosion rates.
- "G" stream types - essentially gullies. They are entrenched, narrow and deep with a step/pool bedform.

They have very high bank erosion rates and a high sediment supply.

"A" and "B" channel types are considered essentially unsuitable for flycatcher habitat because of steep gradients and narrow floodplains. "C" and "E" channel types are considered suitable or potential habitat if both floodplain width and duration of stream flow are sufficient to support the species of riparian vegetation necessary for flycatchers and to provide open water surfaces during the breeding season. "D" channels are unstable but can provide sufficient surface area on bar deposits for riparian vegetation to establish on at least a temporary basis and can provide open water surface during the breeding season. The mouth of Tonto Creek where it empties into Roosevelt Lake is an example of currently occupied habitat on a "D" type stream channel. The bar formations on which riparian vegetation becomes established in "D" systems can shift with each major flood. Habitat in this channel type should probably be considered transitory.

"F" and "G" stream types are typically transition channels that occur in the evolution of a stream from one stable form to a second stable form following the imposition of a natural or man-induced disturbance on a stream system. Understanding of the current stage in the evolutionary sequence of a stream can allow inferences about future channel adjustments and the potential for flycatcher habitat to eventually develop. A change in water flow or sediment discharge from a contributing watershed area, or destabilization of stream banks can cause channel adjustment processes that result in downcutting (incision) of a stream within its floodplain. If depth of incision exceeds some threshold flood flows will no longer inundate the flood plain on a relatively frequent basis. The floodplain is then abandoned by the channel and becomes a drier terrace that is no longer suitable for recruitment of riparian vegetation. Flood flows that previously spilled onto the floodplain are confined within the terrace walls of the newly downcut channel. Confinement of flood flows results in high bank erosion rates that cause widening of the channel. Once bank erosion has widened the channel sufficiently, a new floodplain will form at the lowered base level of the channel, and the stream should exist in a more stable form. "G" channel types typically occur during the active incision process. "F" channel types occur during the widening period. "G" channels are unlikely to evolve to the point where they could be considered potential habitat within the time frames (20-30 years) considered in the guidelines. "F" channels may have the potential to evolve into channels with sufficient floodplain width to provide the riparian vegetation necessary to be considered suitable habitat within the time frames considered in the guidelines. Judgment will be necessary to evaluate where "F" channel types are in their evolution and whether they will provide potential or suitable habitat within reasonable timeframes. Stream flow during the nesting season is still an essential component of habitat in these stream types.

"Bc" stream types are a special channel type that is commonly found on the Tonto NF. These streams have the moderately narrow floodplains characteristic of "B" streams but a flatter gradient that is more typical of "C" stream types. These streams may reflect the evolution of the "F" stream type to a more stable form. Further evolution to a stream type with a broader floodplain may occur slowly. Potential for "Bc" stream types to provide habitat will depend primarily on floodplain width, stream health rating (which can provide insight about whether further floodplain development is anticipated) and flow duration.

Approximately 200 stream reaches have been inventoried on the Tonto NF. The data has been entered into the Access database on the IBM computer system. The database will be queried to retrieve existing information about streams being evaluated for their flycatcher habitat potential. The data will be presented in tabular form in the Flycatcher Habitat Table (Johnson and Mason, 1999) developed to provide biologists with the fluvial characteristics needed to evaluate suitability or potential for flycatcher habitat to exist. Streams being surveyed for habitat potential that are not included in the database can be inventoried using standard Tonto NF inventory methods. The data from the surveys will be incorporated into the Flycatcher Habitat Table once the inventory is complete. The data presented in the table and the habitat guidance criteria addressed by each of the fluvial characteristics listed are displayed in the table below.

Fluvial Features	Physical Habitat Criteria Addressed
	Presence of perennial flow, surface water, or saturated soil in or

Flow Regime	adjacent to nesting areas from April through September
Width of bankfull channel Mean depth of bankfull channel Width/depth ratio Floodplain width Valley bottom width Entrenchment ratio Stream type Channel gradient	Wide and shallow stream channels associated with well-defined floodplains and broad valley bottoms. Streams are slightly entrenched with well-defined meanders and riffle/pool bed features.
Floodplain width (from above)	Tree and shrub patches should be capable of extending more than three or four tree widths in depth from the active channel.
Floodplain width (from above) Reach length Channel gradient (from above)	High gradient streams should not be ruled out if they have potential for backwater and associated riparian areas at least 0.5 ha in size.

Location and elevation of inventoried reaches and an assessment of the potential for "F" and "Bc" stream types to evolve the physical features needed for flycatcher habitat, within reasonable time frames (20 – 30 years), will also be provided. This assessment will be at best an educated guess. The sequence of evolving from these stream types to stream types with potential to support willow flycatcher habitat is dependent on the occurrence of stream discharges with sufficient magnitude to erode banks, and shape gravel and cobble bars. Timing of these discharges is dependent on climate which is difficult to predict.

References

Pfankuch, D. J. 1975. Stream reach inventory and channel stability evaluation. USDA Forest Service, RI-75-002. Government Printing Office #696-260/200, Washington, DC. 26 pp.

Rosgen, D.L. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, Co. 246 pp

Thompson, William H., et al. 1998. Assessing Health of a Riparian Site. In Proceedings: Specialty Conference on Rangeland Management and Water Resources, American Water Resources Association Symposium, Reno, 1998, 13 pp.

Appendix

Southwestern Willow Flycatcher Habitat Guidance Criteria

Guidance for assessing habitat suitability is provided by two documents: 1) The Forest Service's *Region 3 Guidance for Determining the Effects of Issuing Term Grazing Permits on Threatened, Endangered or Species Proposed for Listing* (8/25/99) and 2) The Bureau of Land Management's *Guidance Criteria for Determinations of Effects of Proposed Grazing Permit Authorizations or Renewals on Threatened or Endangered Species* (2/9/99). Habitat requirements provided by the Forest Service guidance for suitable habitat include:

- Willow shrub, tamarisk, and mixed riparian vegetation that exists as dense thickets (> 90% canopy cover) along rivers, streams, irrigation ditches, or other wetlands.
- Presence of perennial flow, surface water, or saturated soil in or adjacent to nesting areas from April through September.
- Wide and shallow stream channels associated with well-defined floodplains and broad valley bottoms. Streams are slightly entrenched with well-defined meanders and riffle/pool bed features. Channel gradients are less than 1%.
- Quiet water dominates, as in backwaters, pools, beaver ponds, or non-riffle stream reaches. Beaver ponds may be of particular importance in areas where stream gradient is above 1%.
- Nests are typically placed 1.5 to 8.5 meters above the ground most often in a branch fork but occasionally on a horizontal branch.

Potential habitat has some, but not all, of the habitat elements required by flycatchers for nesting. Potential habitat includes:

- Perennial water or at least saturated soil within 500 meters of the habitat patch.
- Stream gradients less than 1% or situations that mimic low gradients (such as beaver ponds, sloughs, backwaters, etc.)
- Appropriate vegetative species (either existing or with the ability of becoming established)

The BLM guidance document, while generally providing broader criteria than the Forest Service document, does provide further refinement of some of the criteria for potential habitat. These include:

- Tree and shrub patches should be capable of extending more than three or four trees in depth from the active channel.

High gradient streams should not be ruled out if they have potential for backwater and associated riparian areas at least 0.5 ha in size.

Appendix 1

Procedure for Identification and Designation of Southwestern Willow Flycatcher Habitat

Tonto National Forest

by

Debbie Lutch and Mike Ross

April 6, 2000

Biologists have the tools (guidance criteria, other literature, surveys, etc.) to determine suitable and occupied southwestern willow flycatcher habitat; however, it is often difficult to assess the potential of an area to produce habitat or predict rates of recovery where riparian areas are degraded or have been altered through past management. The absence of trees or dense, multistoried stands of woody vegetation does not mean that an area is not capable of producing high quality habitat. If conditions are favorable, an area may respond rapidly and produce vegetation that meets suitable habitat requirements within five to ten years. Due to limited amount of suitable habitat on the Forest, identification of areas that have the potential to produce suitable habitat becomes a critical step in the recovery of the southwestern willow flycatcher. Areas identified as potential habitat require elimination of management actions which are preventing the progression of the vegetation/area toward suitability.

It is often difficult to determine the potential of degraded riparian areas. Biologists must rely on the help of other watershed specialists to help predict the potential vegetation and other conditions which will occur in the area in the future under protection. The following steps should be used by the biologist in making a determination of potential or current suitability of the habitat. The biologist will only make the determination of the potential of an area in conjunction with a team consisting of the riparian ecologist, hydrologist and soil scientist (where appropriate).

Step 1: All riparian areas within or adjacent to range allotments and other project areas within the elevational range of the flycatcher should be evaluated for their potential to produce habitat for the species. For each drainage, determine if the riparian area is currently occupied by southwestern willow flycatcher, is within designated critical habitat, or is currently suitable based on the evaluation criteria, literature, surveys or other sources.

Step 2: If the drainage or riparian area is not currently occupied or is not designated critical habitat, request that the stream channel characteristics be evaluated by the Forest Riparian Ecologist and Hydrologist. Stream channel characteristics identified in Southwestern Willow Flycatcher Fluvial Characteristics (Loomis et al. 2000) and the Flycatcher Habitat Table (Johnson and Mason 1999) will be used as the basis for a determination of the potential of the area to produce suitable habitat for the southwestern willow flycatcher. In severely degraded areas where upland conditions may be affecting riparian area potential, request an evaluation of upland conditions by the soil scientist. A joint field visit to the riparian area should be made by the team if the area has not been previously evaluated.

Step 3: Based on field data and the team evaluation, use the following flow chart to determine the habitat category for a riparian area or stream reach:

Riparian area is within designated critical habitat (Verde River, above Horseshoe Reservoir) —————> Critical Habitat

Riparian area has been identified as occupied habitat (Tonto Cr/Salt River confluences w/ Roosevelt Lake) —————> Occupied Habitat

Riparian area currently meets the definition of suitable habitat in FS Guidance Criteria —————> Suitable Habitat

Riparian area may or may not currently meet the definition of potential habitat in FS Guidance Criteria (and BLM Criteria) but the physical attributes of the site, availability of water and existing vegetation is capable of producing suitable habitat conditions rapidly (within approximately 10 years) with exclusion of limiting factors —————> Potential Habitat

Riparian area does not currently meet definition of potential habitat (see above) and most physical attributes, availability of water, existing vegetation, upland conditions, etc. preclude the formation of suitable flycatcher habitat for 10-30 years —————> Long-term Potential*

Riparian area does not currently meet definition of potential habitat (see above) and based on current condition, physical attributes, availability of water and existing vegetation precludes the formation of suitable habitat —————> Unsuitable Habitat

***Long-term Potential Habitat, with potential to become suitable within 20-30 years:** Should not be considered potential habitat for purposes of determining effects to the flycatcher using the Guidance Criteria, but should be identified as a high priority for riparian area improvement to move it toward flycatcher habitat as quickly as possible. This category would be used just so we can differentiate an area with the predicted capability to produce suitable habitat, versus an area that probably never would. This category would be a lower priority for expenditures if funds were limited, but should still receive management emphasis which moves the area toward suitability as quickly as possible. This category would be important in terms of coming up with alternatives during the NEPA process.

