



United States Department of the Interior

Fish and Wildlife Service Arizona Ecological Services Office

9828 North 31st Avenue, C3 Phoenix, Arizona 85051

Telephone: (602) 242-0210 Fax: (602) 242-2513



In reply refer to:

AESO/SE

02EAAZ00-2019-F-0975

December 12, 2019

Mr. Ed Holloway Jr.
Clifton Ranger District
Apache-Sitgreaves National Forests
397240 Arizona 75
Duncan, Arizona 85534

RE: Biological Opinion for the Stateline Range Project, Blackjack and Hickey Allotments on the Apache-Sitgreaves National Forests, Clifton Ranger District.

Dear Mr. Holloway:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1531-1544), as amended (Act). We received your request and Biological Assessment (BA) for the Stateline Range Project on July 3, 2019. At issue are effects that may result from the reissuance of a 10-year Term Livestock Grazing Permit authorizing continued livestock grazing on the Blackjack and Hickey Allotments located on the Clifton Ranger District in Greenlee County, Arizona. You determined the project “is likely to adversely affect” the threatened Chiricahua leopard frog (*Lithobates chiricahuensis*) (CLF) and endangered Gila chub (*Gila intermedia*) and their designated critical habitat.

You also concluded that the project “may affect, but is not likely to adversely affect” the threatened narrow-headed gartersnake (*Thamnophis rufipunctatus*) (gartersnake), the threatened Mexican spotted owl (*Strix occidentalis lucida*) (MSO), the endangered Southwestern willow flycatcher (*Empidonax traillii extimus*) and its designated critical habitat, the threatened Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), the endangered spikedace (*Meda fulgida*) and its designated critical habitat, and the endangered loach minnow (*Tiaroga cobitis*) and its designated critical habitat; and that the project is “not likely to adversely modify” proposed critical habitat for the narrow-headed gartersnake and Western yellow-billed cuckoo.. Additionally, you asked us to concur with your determination that the proposed action is not likely to jeopardize experimental non-essential populations of the endangered Mexican wolf (*Canis lupus baileyi*). We concur with your determinations and the basis for our concurrences are in Appendix A.

We based this biological opinion (BO) on information provided in the official BA, telephone conversations, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, livestock grazing, and its effects, or on other subjects considered in this opinion. A complete record of this consultation is on file at this office.

Consultation History

- **April 29, 2019:** The Forest Service submitted a BA and request for consultation.
- **May 16, 2019:** We submitted comments on the BA for your review.
- **June 27, 2019:** Your agency submitted a revised BA, following collaboration between our agencies on effects determinations.
- **September 5, 2019:** Your agency submitted additional information related to the proposed action.
- **December 6, 2019:** We sent a draft BO for your review.
- **December 10, 2019:** We received your comments on the draft BO.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Regulations implementing the Act (50 CFR 402.02) define “action” as “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies of the United States or upon the high seas.” The following is a summary of the proposed action and a detailed description can be found in the BA and literature as cited below.

The Apache-Sitgreaves National Forests (Forests), Clifton Ranger District propose to continue authorization of livestock grazing on the Blackjack and Hickey Allotments within the Stateline Range project area. The Stateline Range project area covers allotments located along and near the state line between Arizona and New Mexico, on the Apache-Sitgreaves and Gila National Forests. This BO addresses the proposed livestock grazing on the Blackjack and Hickey allotments (in Arizona) for a period of 10 years. The remaining Arizona and New Mexico allotments within the Stateline Range project area were previously addressed (section 7 consultation number 02EAAZ00-2019-I-0513) through the Guidance Criteria established within the *Framework for Streamlining Informal Consultation/or Livestock Grazing Activities* (USFS 2015).

The Forests also included a proposal to dissolve Pleasant Valley allotment, modify the existing allotment boundaries to encompass that acreage and remove the remaining portions of the Pleasant Valley Allotment from future livestock grazing due to resource concerns. The Pleasant Valley Allotment is situated between the Blackjack and Hickey allotments and will be divided with approximately 43 percent of the area incorporated in the Blackjack Allotment (37,463 acres) and 38 percent in the Hickey Allotment (26,455 acres). The remaining 19 percent along the San Francisco River, Dix Creek, a 4-mile portion of Left Prong Dix Creek, and the lower 0.5-mile reach of Right Prong Dix Creek would no longer be part of any grazing allotment. Livestock grazing would continue to be excluded from the San Francisco River and the allotment boundary would be modified to show the San Francisco pasture, Dix Creek, the lower 0.5-mile section of Right Prong Dix Creek, and the lower 4-mile portion of Left Prong Dix Creek being outside of the allotment and closed to grazing permanently.

Management Applicable to All Allotments

The proposed action incorporates an adaptive management strategy that provides flexibility to adapt management to changing circumstances. Adaptive management stems from the recognition that knowledge about natural resource systems is sometimes uncertain. The adaptive management strategy would give the responsible official flexibility for unplanned events.

Actual use typically varies from permitted numbers. The specific number of livestock authorized annually, specific dates for grazing, class of animal and modifications in pasture rotations may be administratively modified as determined necessary and appropriate. However, except on a trial basis, such changes would not exceed the limits of the permitted numbers, timing, intensity, duration, and frequency authorized in the environmental analysis and decision.

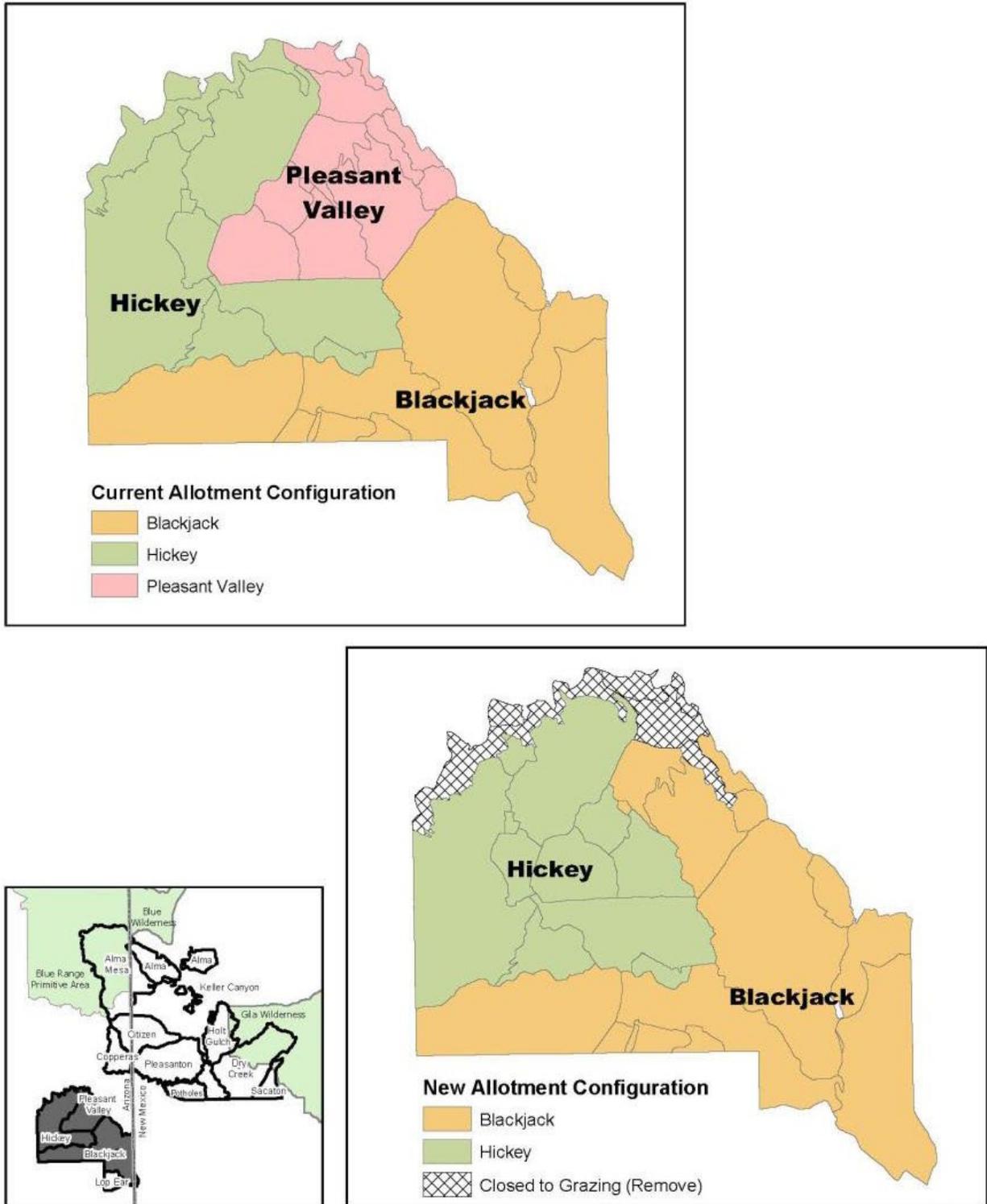


Figure 1. Current and proposed new allotment configuration including areas closed to grazing.

Timing, Duration, and Season of Use

The duration and season of grazing use for individual pastures will vary annually to provide periodic growing season rest or deferment. Typically, pastures will be used for a few months at a time, followed by longer rest periods with livestock not reentering a pasture until after the grass has time to set seed.

The timing of grazing may also vary to provide sufficient rest, particularly following drought or fire events. Sufficient rest is typically the amount of time needed for grasses to fully grow and set seed following grazing or a fire event. However, under some circumstances, longer rest periods may be needed depending on the weather, level of use, fire severity or other disturbance event.

Timing and frequency of pasture use would be determined by, but not limited to, utilization levels, forage conditions, water availability, herd management, previous season of use, and management objectives specified in the allotment management plan (AMP). Pasture moves would be planned with the permittee's input each year through the development of annual operating instructions. Annual operating instructions may be modified as needed during the year to address changing conditions.

Intensity of Grazing

Grazing intensity is measured by the utilization of palatable herbaceous forage plants. Grazing intensity on woody browse is typically measured by percent leaders browsed on trees and shrubs less than six feet (ft) tall. The utilization standards are consistent for all allotments. Utilization is expressed in terms of the current year's production removed and therefore is measured at the end of the growing season. Utilization of key forage species may be monitored through a pasture-wide reconnaissance or measured in key areas. Upland key areas represent management effectiveness over the entire pasture and are generally not located near water, roads, or bed grounds but should be in areas that receive substantial use. Upland key areas are usually at least 0.25 mile from water and located on productive soils where grazing use would occur.

Seasonal utilization is the amount of use that occurs before the end of the growing season. Seasonal utilization measurements are not used for compliance monitoring with meeting utilization guidelines but may be useful when combined with other information to determine the appropriate times to move livestock to another pasture and for evaluating other resource needs.

Consistent patterns of utilization, in excess of utilization standards, would be used as a basis to modify management practices or take administrative actions necessary to reduce utilization in subsequent grazing seasons.

Stubble height standards may also be used in lieu of utilization measurements. Targeted stubble heights would correspond to the light and conservative intensity levels described below.

In the uplands, forage utilization guidelines for both herbaceous and browse species would be managed at a level corresponding to conservative intensity levels within a range of 31 to 40

percent use by weight. In riparian areas, forage utilization guidelines for both herbaceous and browse species would also be managed at conservative intensities, ranging from 31 to 40 percent in those reaches that are in proper functioning condition. For reaches not functioning properly, utilization would be limited to a light use level of 0 to 30 percent until proper functioning condition is obtained.

Within southwestern willow flycatcher and yellow-billed cuckoo suitable habitat, average utilization would not exceed 35 percent of palatable, perennial grasses and grass-like plants in uplands and riparian habitats and woody utilization would not exceed 40 percent on average.

Livestock Management

New AMPs will be developed for each allotment and incorporated into the term grazing permits. The allotment management plans will specify the goals and objectives of management, management strategies, range improvements, monitoring requirements, and an adaptive management strategy.

The use of hay or other feed (certified weed free or commercially processed) will be limited to feeding livestock temporarily confined to corrals and holding facilities. Salt or supplement will be placed at least 0.25 mile from all water sources and away from roads, high-use recreation areas, known cultural sites or other known livestock concentration areas. The Forest Service is recommending that salt or supplement be placed and moved to less utilized areas.

Blackjack Allotment

The Forests identified specific locations where improvements are needed to address resource or management issues. Until the improvements are completed, use of the areas will be limited or excluded. Details for the Blackjack Allotment are identified below.

With the inclusion of portions of the Pleasant Valley Allotment, and subsequent pastures (Dix Mesa, Dix Saddle, Lightning Mesa, and most of the Mesquite Flat, and shared Red Tank Trap), the Blackjack allotment will increase from 31,833 acres to 37,463 acres.

Rotation

Deferred-rest-rotation grazing system.

Season of Use

Yearlong except for the following:

- The two Coal Creek pastures (to be named “Coal Creek North” and “Coal Creek South” after the decision) will be permitted for winter dormant season use sometime between November 1 and March 1, as opposed to the current year-long authorization.
- The Mesquite Flat pasture will typically be used in the fall, rather than year-round as is currently authorized.

Stocking

400 cow-calf pairs and 15 horses or the equivalent for up to 5,016¹ animal unit months.

Utilization guidelines

- 31-40 percent utilization (conservative use) by weight on upland forage and browse.
- 31-40 percent utilization (conservative use) by weight on riparian herbaceous and browse species in reaches at Proper Functioning Condition
- 0-30 percent utilization (light use) by weight on riparian herbaceous and browse species in reaches that are not functioning properly, until proper functioning condition is obtained.

Motorized Access

The Forests propose to add the following existing routes as maintenance level 2 National Forest System roads, open to the public, and to include them on the motor vehicle use map. The introduction of these roads to the public is essentially the only motorized access action proposed as part of this project. The operation/maintenance of these roads will be analyzed in the upcoming travel management plan. The roads exist in a General Forest Management Area and have existed for a number of years (see the BA for specific locations).

- The existing two-track road along Coal Creek, north of Highway 78, and the connecting two-track road approximately 0.8 mile in length to Line Tank #7035.
- The two-track road to The Junipers Mesa which starts at the junction of Martinez Ranch Road 212 and Highway 78 and continues north to The Junipers Mesa. This road goes to Juniper Corral, which was once a Forest Service administrative site.

Improvements by Pasture

The Forests propose to install fences, wells, water lines, and other improvements, as follows:

Dix Creek

Install a fence on the south side of Left Prong Dix Creek to change the allotment boundary and exclude livestock use from Dix Creek, the lower half-mile perennial portion of Right Prong Dix Creek, approximately four miles of lower Left Prong Dix Creek, and the San Francisco River.

Rattlesnake Canyon

Install a well near Rattlesnake Spring and National Forest System Road 215 and extend a pipeline approximately 0.5 miles northwest to a storage tank and trough on the fence line, then continue west approximately 0.5 miles to a trough. Extend a second water line approximately 1.2 miles east along a fence line to a trough.

Brushy Canyon

Install a well and corral southeast of Chalk Peak where National Forest System Road 8365 crosses the canyon, and extend a pipeline southwest approximately 0.5 mile to a storage tank and trough.

Maverick Tank/Big Lue

Install a well near Maverick Tank to supply water to two pipelines. One pipeline will extend

¹ Authorized use would not exceed the current permitted use of 4,116 animal unit months until such time as the proposed Maverick Tank and Brushy Canyon water developments and Dix Creek Fence are installed and based upon monitoring results.

northwest approximately 3.1 miles, predominately following a two-track road between Six Shooter and Beef Eater Canyons ending at the existing Middle Tank. This pipeline will include a storage tank and approximately three troughs. A portion of Middle Tank may be fenced to provide water and habitat for frogs. Also, two lateral lines will extend to existing wildlife guzzlers. Maintenance will be shared between the permittee and the Arizona Game and Fish Department (AGFD) personnel. Livestock use will be seasonal while wildlife will continue to have year-round access.

The second pipeline will extend southeast crossing Big Lue Canyon and continue north across The Junipers Mesa with two storage tanks and approximately three troughs.

Rattlesnake West

East of Mulligan Peak is an existing trick tank and wildlife guzzler which has not been maintained for a number of years. In cooperation with the AGFD personnel, repair and modify existing trick tank and guzzler to create wildlife troughs and separate livestock troughs instead of installing a new well east of Mulligan Peak. Maintenance will be shared between the permittee and AGFD personnel. Livestock use will be seasonal while wildlife will continue to have year-round access.

Install small corral to facilitate handling livestock in the southwest portion of the allotment.

Maggett Spring

Extend a pipeline east approximately 0.4 mile from a well on the permittee's private land to a storage tank and trough on National Forest System lands.

Mesquite Pasture

From the existing Red Tank Well, extend a pipeline to the north 0.25 mile and add a storage tank and trough and then continue north approximately one mile to a second trough with a lateral line extending to Mesquite Flat Tank. Construct a water lot fence around Mesquite Tank to control access to water and control timing and duration of use in this pasture.

Dix Mesa

Install two cattleguards on either end of Dix Mesa along Martinez Ranch Road #212. Install a water lot fence around Dix Mesa Tank and move the pasture boundary fence approximately 0.25 mile to the west end of the mesa.

The Junipers

Install a corral and wing fences on the Junipers Mesa to work and ship livestock and aid with the pasture rotations.

White Peaks

Install a 0.25-mile fence from White Peaks northeast to the existing pasture division fence.

Conservation Measures

- Livestock grazing will continue to be excluded from the San Francisco River and the allotment boundary will be redrawn to show the San Francisco pasture, Dix Creek, lower Right Prong Dix Creek, and a portion of Left Prong Dix Creek Canyon located outside of

the allotment and closed to grazing.

- Dix Mesa will be used primarily in conjunction with spring or fall shipping periods, and the remaining pastures will be managed under a rotation schedule with more months of rest than months of use.
- Mesquite Flat pasture will be changed from season-long use to late-season use to improve soil trends.
- Water troughs and open storage tanks will include effective wildlife escape ramps that extend into the water and all the way to the edge of the trough, such as those designed by Bat Conservation International.
- Additional fencing along the San Francisco River may be added in the future as necessary to continue excluding, or better exclude, livestock use.
- Fences, including those for water lots, will be built to Forest Service standards consisting of a four-strand barbed wire fence using 12-gauge barbed wire. Only the top three wires will be barbed wire. To facilitate wildlife passage, the top wire will not exceed 42 inches above ground and the bottom wire will be smooth barbless wire 18 inches above ground.
- Standard operating procedures for stock (earthen) tank cleaning will be followed. Prior to cleaning, surveys for frogs will occur and all equipment used for cleaning will be washed to prevent the introduction or spread of chytridiomycosis (Bd).

Hickey Allotment

The Forests identified specific locations where improvements are needed to address resource or management issues. Until the improvements are implemented, use of the areas will be limited or excluded. Details for the Hickey allotment are identified below.

The Hickey allotment boundary will be modified to add the Hamilton Mesa, Pleasant Valley, and Johnnie pastures from the Pleasant Valley allotment; with the Red Tank Trap pasture shared between the Hickey and Blackjack allotments. Livestock grazing is excluded from the San Francisco pasture and Bird Trap pasture decreasing the Hickey allotment by 2,740 acres. With the division of the Pleasant Valley allotment, the Hickey allotment will increase by nine percent (2,283 acres) for a total allotment size of 26,455 acres.

The previous 2016 BO for the Hickey Allotment (USFWS 2016) included stock-tank maintenance under the proposed action. These actions were not implemented to date and are therefore included under this revised proposed action. Several stock tanks (up to five) have silted in and are no longer functional. Maintenance of these stock tanks is required to store water for livestock.

Rotation

12 pasture deferred-rest-rotation rotation grazing system.

Season of Use

Yearlong grazing.

Stocking

405 cow-calf pairs and eight horses or the equivalent for up to 4,975 animal unit months.

Utilization

- 1 -40 percent utilization (conservative use) by weight on upland forage and browse.
- 31-40 percent utilization (conservative use) by weight on riparian herbaceous and browse species in reaches at Proper Functioning Condition
- 0-30 percent utilization (light use) by weight on riparian herbaceous and browse species in reaches that are not functioning properly, until proper functioning condition is obtained.

Motorized Access

It is proposed to add the following existing route as a maintenance level 2 National Forest System road, open to the public, and to be included on the motor vehicle use map.

- The existing two-track road from National Forest System Road 215 near Red Tank Well and continuing southwest approximately 0.7 mile to Johnnie Tank, then north approximately 0.6 mile to Curly Tank.

Improvements by Pasture or Type

Sunset Pasture

- In the Sunset pasture, construct a water lot fence around Cave Spring between the Sunset and Silver Basin pastures and another around Silver Basin Tank to better control livestock use and distribution. Controlling livestock access to these two waters will help improve upland conditions near monitoring site C4 which currently shows a slight downward trend.

New Allotment Boundary Fence

- Construct a fence approximately 0.8 miles in length along Red Tank Canyon between the Hamilton Mesa and Lightning Mesa pastures of the current Pleasant Valley allotment that will be an allotment boundary fence between the Blackjack and Hickey.

Pipeline Extensions

- An existing pipeline extends from Red Tank Well south following a two-track road to Hamilton corrals. The Forests proposes to add a trough at the corrals and extend the pipeline 0.25 miles to Hamilton Tank and continue south approximately 1.25 miles and add a storage tank and trough at the pasture division fence.
- Extend a pipeline west approximately two miles, following the two-track road to Johnnie Tank, Curly Tank, and continuing to the ridge top with solar panels, and pumps as needed to accommodate the elevation change. Extend two lateral lines, one to the northwest approximately 0.75 miles to a trough at Snake Ridge Tank and corrals in the adjacent Section 18 and one north approximately 1.7 miles to a trough at Piñon Tank #1. There are approximately two storage tanks and five troughs on this system.
- Extend a pipeline from the existing storage tank along National Forest System Road 215, approximately 1.2 miles southwest to a storage tank and trough in the Pleasant Valley pasture.

Water Lots

- Install three more water lot fences at Limestone Gulch Spring, Sunset Spring, and Hickey Spring to improve livestock use and distribution.
- A portion of Rattlesnake Tank #1 (0.75 mile east of Rattlesnake Gap Tank) may be partially fenced or otherwise modified (completely fenced with a stand pipe and pipeline to a nearby trough) to provide water and habitat for frogs.

Stock-Tank Maintenance

- Clean up to five stock tanks using heavy equipment.
- Prior to using heavy equipment, the Forests will conduct archeological and biological clearance surveys/protocols.
- Once complete, stock tank maintenance will generally occur once every ten years.

Conservation Measures:

- San Francisco pasture and Bird Trap pasture will be removed from grazing and the allotment.
- Water troughs and open storage tanks will include effective wildlife escape ramps that extend into the water and all the way to the edge of the trough, such as those designed by Bat Conservation International.
- When improvements are no longer needed for the purpose(s) for which they were built, they should be removed.
- Fences, including those for water lots, will be built to Forest Service standards consisting of a 4-strand barbed wire fence using 12-gauge barbed wire. Only the top three wires will be barbed wire. To facilitate wildlife passage, the top wire will not exceed 42 inches above ground and the bottom wire will be smooth barbless wire 18 inches above ground.
- Standard operating procedures for stock (earthen) tank cleaning: prior to cleaning, surveys for frogs will occur and all equipment used for cleaning will be washed to prevent the introduction or spread of Bd.

Monitoring

The objective of monitoring is to determine whether management is being properly implemented and whether the actions are effective at achieving or moving allotments toward desired conditions. The implementation and effectiveness monitoring is described below.

Implementation Monitoring

Implementation monitoring will occur on an ongoing yearly basis and may include, but not be limited to, 1) actual use in each pasture; 2) condition of range improvements; 3) seasonal utilization, annual utilization, or stubble heights; or 4) other annual monitoring that may be important in site-specific situations (see page 23 in the BA for specific guides and measurement standards).

Utilization is monitored on key forage species that are palatable to livestock and whose use serves as an indicator of the degree of use of associated species. They are species which, because of their importance, are considered in the management program. Utilization of key forage species may be monitored through a pasture-wide reconnaissance or measured in key areas. Utilization on non-grass species (forbs, shrubs, and trees) may also be measured if

appropriate for the site, such as monitoring use on riparian browse.

Over time, changes in resource conditions or management may result in changes in livestock use patterns. As livestock use patterns change, new key areas may be established and existing key areas may be modified or abandoned.

Effectiveness Monitoring

Long-term monitoring documents whether management actions are having the expected maintenance of, or progress towards, achieving resource management objectives and may be both qualitative and quantitative. Effectiveness monitoring would typically occur at 5-year to 10-year intervals but may occur more often as needed.

Examples of effectiveness monitoring include, but are not limited to, dry weight rank, pace transects, line intercept, pace quadrat frequency, cover frequency, terrestrial ecosystem surveys, riparian surveys, soil and watershed condition assessments, and repeat photography. Monitoring typically occurs at established permanent monitoring points. Refer to the BA for specific procedures that will be followed during effectiveness monitoring. Permittees are encouraged to participate in implementation and effectiveness monitoring activities.

STATUS OF THE SPECIES AND CRITICAL HABITAT

Chiricahua Leopard Frog

The CLF was listed as a threatened species without critical habitat in 2002 (USFWS 2002). Included was a special rule under Section 4(d) of the Act to exempt operation and maintenance of livestock tanks on non-Federal lands from the section 9 take prohibitions of the Act. The Ramsey Canyon leopard frog (*Lithobates subaquavocalis*) has been subsumed into *Lithobates chiricahuensis* (Crother 2008) and recognized by the USFWS as part of the listed entity (USFWS 2009, 2012). As a result, the USFWS reassessed the status of and threats to the currently described species *Lithobates chiricahuensis*, including the population previously described as the Ramsey Canyon leopard frog. A revised final rule was published on March 20, 2012 (USFWS 2012) that listed the species as threatened rangewide with designated critical habitat and included the special rule from the original listing. Final designation of critical habitat includes 39 areas in Arizona and New Mexico. A recovery plan was finalized in 2007 (USFWS 2007).

The range of the CLF extends through the southeastern sections of Arizona and adjacent Sonora, Mexico, at elevations ranging from 1,219-4,023 ft, and from montane central Arizona east and south along the Mogollon Rim to montane parts of west-southwestern New Mexico, at elevations ranging from 3,500 to 8,040 ft. This species inhabits federal, tribal, and privately owned land.

The species is extirpated from about 80 percent of its historical localities in Arizona and New Mexico. The species is still extant in the major drainage basins in Arizona and New Mexico where it occurred historically; with the exception of the Little Colorado River drainage in Arizona and possibly the Yaqui drainage in New Mexico. However, it has not been found recently in many rivers within those major drainage basins, valleys, and mountains ranges, including the following in Arizona: White River, West Clear Creek, Tonto Creek, Verde River

mainstem, San Francisco River, San Carlos River, upper San Pedro River mainstem, Santa Cruz River mainstem, Aravaipa Creek, Babocomari River mainstem, and Sonoita Creek mainstem. In southeastern Arizona, no records from 1995 to the present exist for the Pinaleño Mountains or Sulphur Springs Valley. As of 2009, there were 84 sites in Arizona at which CLFs occur or are likely to occur in the wild, with an additional four captive refuge sites. At least 33 of the wild sites support breeding. In Mexico, 19 and 8 localities are known from Sonora and Chihuahua, respectively. The species' status in Mexico is poorly understood; however, it has been found in recent years in western Chihuahua.

The primary habitat type for the CLF includes oak, mixed oak, and pine woodlands, although its habitat ranges into areas of chaparral, grassland, and desert, particularly for the southern populations. This species requires permanent water sources, including streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. Natural aquatic systems include rocky streams with deep rock-bound pools, river overflow pools, oxbows, permanent springs, permanent pools in intermittent streams, and beaver dams. Human-influenced aquatic systems include earthen stock tanks, livestock drinkers, irrigation sloughs, mine adits (mine entrances), abandoned swimming pools, and ornamental backyard pools (USFWS 2007).

Threats to this species include introduced American bullfrogs (*Lithobates catesbeianus*), crayfish (*Orconectes virilis*), and predatory fish, chytrid fungus (*Batrachochytridium dendrobatidis*), habitat fragmentation, major wetland manipulations, water pollution, and over-grazing. The most serious threats to the CLF include predation by nonnative organisms, especially American bullfrogs, spiny-rayed fishes, and crayfish, and a fungal skin disease (chytridomycosis or "Bd") that is killing frogs and toads around the globe. Today, invasive species such as introduced fishes, crayfish, and bullfrogs are one of the most important threats to the CLF on the local scale (USFWS 2012). The introduced crayfish is having major negative effects on native populations of frogs in North America (Kats and Ferrer 2003), probably contributing to the statewide decline of CLFs in Arizona (USFWS 2007). Bullfrogs are also predators of native frogs; however, recent eradication efforts in southern Arizona (Atascosa Mountains and Cienega Valley) appear to have established conditions that are favorable to the reestablishment of the CLF.

Chytridiomycosis and nonnative organisms, coupled with habitat fragmentation and loss resulting from water diversion, groundwater pumping, and pollution, have meant that recovery criteria outlined in the recovery plan have not been met for this species. Climate change and increases in UV radiation will likely affect this species in the future. Other threats include drought, floods, wildfires, degradation and destruction of habitat, water diversions and groundwater pumping, disruption of metapopulation dynamics (relationships among populations of frogs), increased chance of extirpation or extinction resulting from small numbers of populations and individuals, and environmental contamination.

The CLF Recovery Plan identifies eight recovery units in portions of Arizona, New Mexico, and Mexico. The Stateline Range Project occurs with Recovery Unit 7 (Upper Gila-Blue River) and includes four Management Units (USFWS 2007). We have assessed these management areas to have a high potential for reestablishing and managing for CLFs within the recovery unit. These management areas are identified as San Francisco River, Lemons Peak, Mule Creek, and Burrow Mountain.

The recovery criteria to delist the CLF include:

- At least two metapopulations located in different drainages, plus at least one isolated and robust population in each recovery unit;
- Protection of these populations and metapopulations;
- Connectivity and dispersal habitat protection; and,
- Threats and causes of decline have been reduced or eliminated, and commitments of long-term management are in place in each RU such that the CLF is unlikely to need protection under the Act in the foreseeable future.

The total number of known sites occupied by CLF in Arizona increased from 49 in 2002 to 90 in 2009 (USFWS 2011), although later reported as 84 occupied sites in 2009 (USFWS 2012). The Service has assessed CLF populations in Arizona as trending between “roughly stable” and “experiencing substantial increases” (USFWS 2011).

Critical Habitat

The 2012 CLF critical habitat rule designated 39 critical habitat units (approximately 10,346 acres) in the eight RUs within the range of the species in Arizona and New Mexico (USFWS 2012). The purpose of the designation of critical habitat is to conserve the physical or biological features that are essential to the conservation of the species and which may require special management consideration or protection. Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determined that the primary constituent elements (PCEs) specific to the CLF are:

1. Aquatic breeding habitat and immediately adjacent uplands exhibiting the following characteristics:
 - a) Standing bodies of fresh water (with salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants absent or minimally present), including natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, off-channel pools, and other ephemeral or permanent water bodies that typically hold water or rarely dry for more than a month. During periods of drought, or less than average rainfall, these breeding sites may not hold water long enough for individuals to complete metamorphosis, but they would still be considered essential breeding habitat in non-drought years.
 - b) Emergent and or submerged vegetation, root masses, undercut banks, fractured rock substrates, or some combination thereof, but emergent vegetation does not completely cover the surface of water bodies.
 - c) Nonnative predators (e.g., crayfish), American bullfrogs, nonnative predatory fishes) absent or occurring at levels that do not preclude presence of the CLF.
 - d) Absence of chytrid, or if present, then environmental, physiological, and genetic conditions are such that allow persistence of CLFs.
 - e) Upland areas that provide opportunities for foraging and basking that are immediately adjacent to or surrounding breeding aquatic and riparian habitat.
2. Dispersal and non-breeding habitat, consisting of areas with ephemeral (present for only a short time), intermittent, or perennial water that are generally not suitable for breeding, and

associated upland or riparian habitat that provides corridors (overland movement or along wetted drainages) for frogs among breeding sites in a metapopulation with the following characteristics:

- a) Are not more than 1.0 mile overland, 3.0 miles along ephemeral or intermittent drainages, 5.0 miles along perennial drainages, or some combination thereof not to exceed 5.0 miles.
- b) In overland and non-wetted corridors, provides some vegetation cover or structural features (e.g., boulders, rocks, organic debris such as downed trees or logs, small mammal burrows, or leaf litter) for shelter, forage, and protection from predators; in wetted corridors, provides some ephemeral, intermittent, or perennial aquatic habitat.
- c) Are free of barriers that block movement by CLFs, including, but not limited to, urban, industrial, or agricultural development; reservoirs that are 50 acres or more in size and contain predatory nonnative fishes, bullfrogs, or crayfish; highways that do not include frog fencing and culverts; and walls, major dams, or other structures that physically block movement.

With the exception of impoundments, livestock tanks, and other constructed waters, critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries.

Special management needs for designated CLF critical habitat are expected in order to address the current and future threats and to maintain or restore the PCEs. Special management of aquatic breeding sites will be needed to ensure that these sites provide water quantity, quality, and permanence or near permanence, cover, and absence of extraordinary predation and disease that can affect population persistence. In dispersal habitat, special management will be needed to ensure frogs can move through those areas with reasonable success.

Gila Chub

The Gila chub was listed as endangered with critical habitat in 2005 (USFWS 2005). Primary threats to Gila chub, such as predation by and competition with non-native organisms, and secondary threats identified as habitat alteration, destruction, and fragmentation are all factors identified in the final rule that contribute to the consideration that the Gila chub is endangered or likely to become extinct throughout all or a significant portion of its range.

Gila chub was formerly considered a separate taxonomic entity but is now recognized, along with headwater chub and roundtail chub, as a single taxonomic species – the roundtail chub (*Gila robusta*) (USFWS 2017). We intend to reevaluate the status of the Gila chub, which is currently listed as endangered with critical habitat (USFWS 2005). However, until that evaluation is completed and potential proposed and final rules to delist the Gila chub are published, its legal status remains as an endangered species with designated critical habitat. Our effects analysis in this BO reflects this current status. Moreover, because we have not completed a range-wide status assessment of *G. robusta*, we briefly provide below general life history and habitat information about the entity formerly known as *G. intermedia*.

Background

Gila chub is a member of the roundtail chub (*G. robusta*) complex that also includes headwater chub (*G. nigra*). The roundtail chub complex has had a turbulent and controversial taxonomic history that includes an assortment of classification schemes. Much of the debate has centered on whether the complex represents a number of nominal species or subspecies of *Gila robusta*. A nomenclatorial synonymy for Gila chub can be found in Minckley (1973).

Gila chub has long been recognized as distinct. Miller (1945), following the arrangement of Jordan and Evermann (1896), supported full generic rank for the genus *Gila* (Baird and Girard 1853) with a “*Gila robusta* complex” that included Gila chub. Miller (1946) considered Gila chub to be an “ecological subspecies” of *G. robusta* (i.e., *G. r. intermedia*) characteristic of the small tributaries they inhabit. Rinne (1969, 1976), using univariate analyses of morphological and meristic characters, argued for recognition of both *G. robusta* and *G. intermedia* as distinct species and against the ecological subspecies concept. This approach was supported by some (e.g. Minckley 1973, Minckley et al. 1986), but it was not until further evidence was generated by DeMarais (1986, 1995) that the specific status for *G. intermedia* was generally accepted. DeMarais (1995) supported continued recognition of *G. intermedia* based on the following arguments: 1) phenotypic extremes between *G. intermedia* and *G. robusta* are widely divergent and each possesses many morphologically uniform populations; 2) the geographic distributions of both species is an overlapping mosaic, therefore not satisfying traditional geographic criteria; and 3) contiguous populations of *G. intermedia* and *G. robusta* show no evidence of genetic exchange, thus each species maintains its evolutionary independence.

Gila chub is a thick-bodied species, chunky in aspect, whereas roundtail chub is slender and elongate, and headwater chub is intermediate in meristic and morphometric characteristics (Rinne 1969, 1976, Minckley 1973, DeMarais 1986, Minckley and DeMarais 2000, Minckley and Marsh 2009). Females can reach 250 millimeters (mm) in total length (TL), but males rarely exceed 150 mm (Minckley 1969, 1973, Rinne and Minckley 1991, Schultz and Bonar 2006). Body coloration is typically dark overall, sometimes black or with diffuse, longitudinal stripes, with a lighter belly speckled with gray. The lateral scales often appear to be darkly outlined, lighter in center. Breeding males, and to a lesser extent females, develop red or orange on lower parts of the head and body and on bases of the pectoral, pelvic and anal fins.

While most reproductive activity by Gila chub occurs during late spring and summer, in some habitats it may extend from late winter through early autumn (Minckley 1973). Schultz and Bonar (2006) data from Bonita and Cienega creeks suggested that multiple spawning attempts per year per individual were likely, with a major spawn in late February to early March followed by a secondary spawn in autumn after monsoon rains. Reproductive activities in Monkey Spring (now extirpated) reportedly occurred for longer periods than in other populations, as breeding appeared to last virtually all season (Minckley 1969, 1973, 1985). Bestgen (1985) concluded that temperature was the most significant environmental factor triggering spawning.

Spawning probably occurs over beds of submerged aquatic vegetation or root wads. Minckley (1973) observed a single female closely followed by several males over a bed of aquatic vegetation in a pond. Nelson (1993) also suspected deep pools with vegetation in Cienega Creek were important sites for spawning but did not witness any associated behavior near submerged vegetation.

Gila chub is considered a habitat generalist (Schultz and Bonar 2006), and commonly inhabits pools in smaller streams, cienegas, and artificial impoundments throughout its range in the Gila River basin at elevations between 609 and 1,676 meters (m) (2,000 to 5,500 ft) (Miller 1946, Minckley 1973, Rinne 1975, Weedman et al. 1996). Common riparian plants associated with these populations include willows (*Salix* spp.), tamarisk (*Tamarix* spp.), cottonwoods (*Populus* spp.), seep-willow (*Baccharis glutinosa*), and ash (*Fraxinus* spp.). Typical aquatic vegetation includes watercress (*Nasturtium officinale*), horsetail (*Equisetum* spp.), rushes (*Juncus* spp.), and speedwell (*Veronica anagallis-aquatica*) (USFWS 1983, Weedman et al. 1996).

Gila chub is a highly secretive species, remaining near cover including undercut banks, terrestrial vegetation, boulders, root wads, fallen logs, and thick overhanging or aquatic vegetation in deeper waters, especially pools (Rinne and Minckley 1991, Nelson 1993, Weedman et al 1996). Recurrent flooding and a natural hydrograph are important in maintaining Gila chub habitats and in helping the species maintain a competitive edge over invading nonnative aquatic species (Propst et al. 1986, Minckley and Meffe 1987). They can survive in larger stream habitats, such as the San Carlos River, and artificial habitats, like the Buckeye Canal (Minckley 1985, Rinne and Minckley 1991, Stout et al. 1970, Rinne 1976), and they interact with spring and small-stream fishes regularly (Meffe 1985).

Young Gila chub are active throughout the day and feed on small invertebrates as well as aquatic vegetation (especially filamentous algae) and organic debris (Bestgen 1985, Griffith and Tiersch 1989, Rinne and Minckley 1991). Adult Gila chub are crepuscular feeders, consuming a variety of terrestrial and aquatic invertebrates, and fishes (Griffith and Tiersch 1989, Rinne and Minckley 1991). Benthic feeding may also occur, as suggested by presence of small gravel particles.

Gila chub evolved in a fish community with low species diversity and where few predators existed, and as a result developed few or no mechanisms to deal with predation (Carlson and Muth 1989). This species is known to be associated with speckled dace (*Rhinichthys osculus*), longfin dace (*Agosia chrysogaster*), desert sucker (*Pantosteus clarki*), Sonora sucker (*Catostomus insignis*), Gila topminnow (*Poeciliopsis occidentalis*), desert pupfish (*Cyprinodon macularius*), and Monkey Spring pupfish (*C. arcuatus*). Prior to the widespread introduction of nonnative fishes, Gila chub was probably the most predatory fish within the habitats it occupied. In the presence of the nonnative green sunfish (*Lepomis cyanellus*) in lower Sabino Creek, Arizona, Gila chub failed to recruit young (Dudley and Matter 2000). Direct predation by green sunfish on young Gila chub was the acknowledged cause of this observation.

Status and Distribution

Historically, Gila chub was recorded from nearly 50 rivers, streams and spring-fed tributaries throughout the Gila River basin in southwestern New Mexico, central and southeastern Arizona, and northern Sonora, Mexico (Miller and Lowe 1967, Rinne and Minckley 1970, Minckley 1973, Rinne 1976, DeMarais 1986, Sublette et al. 1990, Weedman et al. 1996); and, occupancy of Gila chub throughout its range was more dense, and currently-occupied sites were likely more expansive in distribution (Hendrickson and Minckley 1984, Minckley 1985, Rinne and Minckley 1991). Gila chub now occupies an estimated 10 to 15 percent of its historical range (Weedman

et al. 1996, USFWS 2005) and approximately 25 of these current localities are considered occupied, but all are small, isolated and face one or more threats (Weedman et al. 1996, USFWS 2005). The biological status of several of these populations is uncertain, and the number of localities currently occupied may overestimate the number of remnant populations in that some might not persist if its core connected population was extirpated (eliminated).

We identified five Recovery Units (RU) that are essential for the survival and recovery of Gila chub in the Gila chub draft recovery plan (USFWS 2014). They are identified in the recovery plan as the Agua Fria River Subbasin, Verde River Subbasin, Santa Cruz River Subbasin, San Pedro River Subbasin, and the Upper Gila River Subbasin. The Stateline Range Project occurs with the Upper Gila River Subbasin. This RU includes the entire Gila River watershed upstream of the Salt River confluence, exclusive of the Santa Cruz and San Pedro subbasins. Major subdrainages include the San Carlos, San Simon, San Francisco, and upper Gila rivers (including its three forks).

There are six remnant populations of Gila chub within this unit, and five historically-occupied streams are considered extirpated. The six populations are Blue River (San Carlos) Eagle, Bonita, Harden Cienega, and Dix creeks; and, Turkey Creek, New Mexico. The Blue River (San Carlos) population is entirely on San Carlos Apache Tribal (SCAT) lands, and there is little information available regarding its status. There are constructed fish barriers on Bonita and Dix creeks, although nonnatives remain present in lower Bonita Creek. Harden Cienega appears free of nonnatives, although there is no barrier preventing their encroachment. The Eagle Creek population was significantly impacted by severe runoff following the 2011 Wallow Fire. The Turkey Creek population appears large and relatively stable, although rainbow trout inhabits the upper reaches and some warmwater nonnative species inhabit the lower reaches.

Recovery goals for Gila chub are to ensure the persistence of Gila chub within its currently occupied historical range and recover the species by protecting remnant populations, expanding the existing distribution through replication of distinct lineages, and protecting and improving habitats for existing and future populations so that the species no longer meets the definition of endangered or threatened (USFWS 2007).

Critical Habitat

Critical habitat for Gila chub is designated for approximately 160.3 miles of stream reaches in Arizona and New Mexico that includes cienegas, headwaters, spring-fed streams, perennial streams, and spring-fed ponds. Critical habitat includes the area of bankfull width plus 300 ft on either side of the banks. The bankfull width is the width of the stream or river at bankfull discharge (i.e., the flow at which water begins to leave the channel and move into the floodplain) (Rosgen 1996, USFWS 2005). Critical habitat is organized into seven areas or river units (USFWS 2005).

There are seven primary constituent elements of critical habitat, which include those habitat features required for the physiological, behavioral, and ecological needs of the species:

- 1) Perennial pools, areas of higher velocity between pools, and areas of shallow water among plants or eddies all found in headwaters, springs, and cienegas, generally of smaller

tributaries;

- 2) Water temperatures for spawning ranging from 63 degrees Fahrenheit (°F) to 75 °F, and seasonally appropriate temperatures for all life stages (varying from about 50°F to 86 °F;
- 3) Water quality with reduced levels of contaminants, including excessive levels of sediments adverse to Gila chub health, and adequate levels of pH (e.g. ranging from 6.5 to 9.5), dissolved oxygen (i.e., ranging from 3.0 parts per million (ppm) to 10.0 ppm) and conductivity (i.e., 100 millimhos (mmhos) to 1,000 mmhos);
- 4) Prey base consisting of invertebrates (i.e., aquatic and terrestrial insects) and aquatic plants (i.e., diatoms and filamentous green algae);
- 5) Sufficient cover consisting of downed logs in the water channel, submerged aquatic vegetation, submerged large tree root wads, undercut banks with sufficient overhanging vegetation, large rocks and boulders with overhangs, a high degree of stream bank stability, and a healthy, intact riparian vegetation community;
- 6) Habitat devoid of non-native aquatic species detrimental to Gila chub or habitat in which detrimental nonnative species are kept at a level that allows Gila chub to continue to survive and reproduce; and
- 7) Streams that maintain a natural flow pattern including periodic flooding.

Consultation History

Our information indicates that, rangewide, more than 50 consultations have been completed or are underway for actions affecting Gila chub. These opinions primarily include the effects of grazing, water developments, fire, species control efforts, recreation, sportfish stocking, native fish restoration efforts, and mining.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. 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 projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Description of the Action Area

The action area is defined at 50 CFR 402.02 as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” The Service has defined that the action area for this project extends to some unknown distance beyond the 63,918-acre boundary of the Blackjack and Hickey allotments. We can anticipate some broader watershed effects from ongoing livestock grazing manifesting along streams farther downstream from the allotment boundary. Any effects should diminish until they are undetectable farther downstream and away from the allotment boundary. However, that specific distance is unknown and are likely difficult to distinguish and detect.

Status of the Species and Factors Affecting the Species and Critical Habitat within the Action Area

Chiricahua leopard frog

Chiricahua leopard frogs were noted on the main stem of the Blue River in the 1970s and 1980s (USFWS 2003). The species was collected and photographed in 1997 on the Blue River approximately 17 miles upstream of the Blackjack and Hickey allotments. There are approximately 12.5 miles of historical frog habitat along the San Francisco River, all of which is excluded from livestock use.

Occupied habitat is located within the Blackjack Allotment, primarily within livestock troughs/tanks and streams. A recent (2018) translocation of egg masses in Coal Creek appears to have successfully produced tadpoles, and possibly juvenile frogs. Within the Hickey Allotment occupied habitat is located primarily within livestock troughs/tanks. CLF were observed at Rattlesnake Gap Tank in November 2016, and June and September 2017. And, a partial pipe rail fence was installed at Rattlesnake Gap Tank to protect breeding, basking, and cover habitat along a portion of the perimeter in 2016. In 2018, augmentation efforts continued at Rattlesnake Gap Tank and Buckhorn Tank along with a reintroduction into Coal Creek (AGFD 2019).

Potential reintroductions may occur at Left and Right Prong of Dix Creek and Rattlesnake pasture for future CLF recovery actions.

Within the action area, designated critical habitat is present within Blackjack and Hickey allotments. This area is contained within the San Francisco River Management Area, as described in the recovery plan. Acres of critical habitat assigned to each allotment were checked due to project changes to allotment boundaries. The Blackjack Allotment (Coal Creek pasture) has 47.4 acres of critical habitat and the Hickey Allotment (Rattlesnake Pasture Tanks) has 244.7 acres of critical habitat.

The greatest threats to CLFs in the proposed action area are nonnative aquatic species, drought, and possibly disease (USFWS 2011, USFWS 2012). The San Francisco River is inhabited by nonnative fish and crayfish which may prey upon any frogs that disperse into the river. Native tiger salamanders (*Ambystoma tigrinum*), a potential predator of the frog especially in its paedomorphic form, have been detected in livestock tanks in the action area in recent years. Native tiger salamanders were found in Rattlesnake Gap, Rattlesnake Pasture, and Brushy Mountain tanks during 2014 surveys (USFWS 2016). Although one bullfrog was found in Rattlesnake Gap Tank in 2010, bullfrogs and crayfish have not become established in the action area (USFWS 2012).

Drought is problematic in the action area because all stock tanks are currently fed only by rainfall and risk drying during times of extended drought. Much of the action area is very remote so that efforts to decrease drying of tanks, such as installing geotextile liners or drilling wells, are expensive and difficult to implement.

Although disease has not been detected in the action area, lowland leopard frogs have recently tested positive for chytridiomycosis (Bd) in Dix Creek approximately eight miles northeast of the action area. Chytridiomycosis (Bd) is also prevalent in New Mexico east of the action area (USFWS 2011, 2012, and files).

Gila Chub

Gila chub distribution within the Blackjack Allotment is limited to the mainstem Dix Creek, the lower half-mile section of Right Prong Dix Creek, and the lower 0.85 mile of Left Prong Dix Creek. Gila chub do not occur within the Hickey Allotment.

Critical habitat is present within both the Blackjack and Hickey allotments. Approximately 171 acres of critical habitat in Dix Creek, Left Prong Dix Creek, and Right Prong Dix Creek will be removed from grazing due to allotment boundary restructuring, leaving about 167 acres of critical habitat remaining within the Blackjack Allotment in Right Prong Dix Creek. The Forests proposes to add fencing within the Dix Creek drainage, with the intent of reducing livestock impacts to Gila chub in occupied and critical habitat.

Threats identified in the 2014 draft recovery plan (USFWS 2014) for Gila chub (within Dix Creek) include: drought, wildfire, fire suppression, grazing, and parasites.

EFFECTS OF THE ACTION

In accordance with 50 CFR 402.02, effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of all other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see §402.17).

Chiricahua Leopard Frog

The proposed action is expected to result in adverse effects and long-term benefits to the CLF and its habitat. Effects related to pasture improvements/maintenance (e.g. stock-tank, fencing, wells, pipelines, etc.), livestock grazing, and roads, along with long-term benefits from new livestock fencing and exclosures are described below.

Mechanical equipment will be used to install wells and pipeline, modify and/or install new fencing, and maintain or improve existing structures (e.g., troughs and modified springs). The installation or maintenance of wells, pipeline and fencing are expected to have minimal to no impacts to CLFs. The majority of this work will occur during the dry season, outside of riparian areas, when frogs are likely to be occupying habitat within or very close to perennial water sources.

Heavy-equipment will be needed for stock-tank maintenance, which involves periodic removal of accumulated sediment. Such maintenance is required approximately once every 10 years and

is typically done when the tank is dry or almost dry. In some cases, the work may require deliberate drying of the tank. If CLFs are present, this would likely result in death or injury to frogs that remained in the tank, unless provisions are included to retain a portion of the tank as escape cover or the frogs are salvaged beforehand.

Stock-tank maintenance, which is included in the grazing permit, would be critical to the survival of the CLF released into these stock tanks. Stock-tank maintenance ultimately benefits CLFs, since earthen tanks would otherwise fill with sediment and lose their value as frog habitat. The stock tanks must be routinely maintained and sediment regularly removed to ensure the CLF and their habitat persists on the allotment.

The CLF Recovery Plan (USFWS 2007) provides a lengthy discussion of potential effects to frogs from livestock grazing activities, with an emphasis on effects to CLFs during the warmer periods of the year when the species is assumed to be surface-active and/or reproductive. Adverse effects may result from livestock grazing, but limited grazing around an occupied leopard frog habitat can also provide openings in the vegetation that provide beneficial basking and foraging sites for frogs.

Both direct and indirect adverse effects may occur through a variety of means during the non-active (i.e., non-breeding) seasons of the year for CLFs. This may include trampling of hibernating frogs or tadpoles, loss of wetland vegetation along stock tank shorelines used for cover, and spread of disease and nonnative predators (Sredl and Jennings 2005, USFWS 2007). The indirect effects of livestock grazing in the Blackjack and Hickey allotments may also include increases in sediment into the stock tanks generated by grazing levels. Grazing exclusions in the San Francisco River and Left Prong Dix Creek will also provide a buffer, minimizing and/or eliminating sediment impacts to these areas. These effects will likely occur on the Blackjack and Hickey allotments, but are expected to be minimal, and attenuated through consistent monitoring, grazing exclusions, and sediment removal from the stock tanks.

Direct mortality of all life stages of amphibian species due to trampling by livestock is documented in the literature (Bartelt 1998, Ross et al. 1999), but most likely occurs with egg masses. There is currently no documentation of CLF trampling, specifically. Such mortality is likely to occur, particularly in confined, simple habitats such as stock tanks, and has been documented with other frog and toad species. Juvenile and adult frogs can probably avoid trampling when they are active; however, leopard frogs are known to hibernate on the bottom of ponds (Harding 1997) where they may be subject to trampling during their periods of non-activity in the winter months. We are reasonably certain that the proposed action would result in increased risks of trampling to hibernating frogs, carry-over tadpoles from previous years that have not yet metamorphosed, and egg masses that may occur at sites that are occupied or may become occupied by frogs due to dispersal from nearby sites during the life of the project. The San Francisco River and Left Prong Dix Creek are removed from livestock access; therefore, direct mortality is not expected to occur in these areas from livestock grazing.

Existing user-created two-track roads will be incorporated under the National Forest System Roads as a maintenance level two category. These roads are rated for high clearance vehicles only and are primarily used by the permittee for access to the grazing infrastructure. Once the

roads are entered into the National Forest System, additional public use may occur, but this area is remote and is not expected to see a measurable increase in use. Because of the road rating and remote locations, current and future use of these roads are not expected to result in adverse effects to CLF in the area. Maintenance for these roads will be covered under the Travel Management Plan (final date for completion is unknown).

In summary, with respect to the effects of the proposed action on the frog, we believe there is a potential for impacts to frogs during livestock watering in the tanks as well as tank maintenance activities such as dredging or silt removal; injury at tanks due to transmission of disease by livestock or ranch hands; and direct or indirect fatality at those tanks grazed by livestock as a result of cattle wading into stock tanks, removing shoreline or aquatic cover at egg deposition sites, and increasing turbidity. However, the partial fencing enclosure at Rattlesnake Gap Tank and Middle Tank will provide some livestock-free habitat for frogs while still providing livestock access to water. This partial enclosure will reduce the opportunity for livestock to accidentally trample frogs at Rattlesnake Gap Tank and Middle Tanks, but will not completely remove the threat of trampling. Middle Tank and Rattlesnake Tank will have fencing enclosures installed that will provide water and partially protect habitat for future dispersal or release of CLFs. If and when CLFs are released or naturally disperse to the other available stock tank habitats, they would not be protected from accidental trampling from livestock watering at those sites.

Effects of the Action on Chiricahua Leopard Frog Critical Habitat

In our analysis of the effects of the action on critical habitat, we consider whether or not a proposed action will result in the destruction or adverse modification of critical habitat. In doing so, we must determine if the proposed action will result in effects that appreciably diminish the value of critical habitat for the recovery of a listed species. The PCEs related to CLF aquatic breeding habitat (including immediately adjacent uplands) and dispersal habitat and the potential effects from implementation of the Blackjack and Hickey allotments are described below.

1. Aquatic breeding habitat and immediately adjacent uplands exhibiting the following characteristics:

PCE 1a: Standing bodies of fresh water, including natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, off-channel pools, and other ephemeral or permanent water bodies that typically hold water or are rarely dry for more than a month. During periods of drought, or less-than-average rainfall, these breeding sites may not hold water long enough for individuals to complete metamorphosis, but they would still be considered essential breeding habitat in non-drought years.

Effect: Actions implemented under the Blackjack and Hickey AMPs are expected to maintain this PCE for CLFs. Cleaning (i.e., draining and or removal of sediment) of stock tanks that provide habitat for CLFs could result in the loss and/or reduction (reduced depth) of this PCE for short periods of time. Stock tanks are cleaned on average every 10 years as part of the grazing permit. However, occasional drying for short periods (less than one month) may be beneficial in that the frogs can survive, but predators such as bullfrogs and aquatic forms of tiger salamanders

will be eliminated during the dry period (USFWS 2007). Chytrid fungus may also be eliminated, if present, in stock tanks that dry for short periods of time. Therefore, this PCE will not be adversely modified by the proposed action.

PCE 1b: Emergent and or submerged vegetation, root masses, undercut banks, fractured rock substrates, or some combination thereof, but emergent vegetation does not completely cover the surface of water bodies.

Effect: The Blackjack and Hickey AMPs are expected to result in adverse effects to this PCE. Livestock will eat and/or modify emergent and submerged vegetation at sites they occupy resulting in loss of cover for frogs. Rattlesnake Gap Tank will be partially fenced, along with grazing exclosures for Dix Creek, so that vegetation inside the exclosures will be protected to support breeding frogs (e.g., vegetation to attach egg masses, provide cover and food to tadpoles, etc.). The emergent and submerged vegetation outside of the exclosures can be adversely affected by livestock.

PCE 1c: Nonnative predators absent or occurring at levels that do not preclude presence of the CLF.

Effect: The Forests' Land Management Plan (LMP) has specific standards and guidelines, required under all forest programs, to reduce or prevent the spread of nonnative predators through management activities (USFS 2013). There is little if any potential for the proposed action to result in movement or increase of non-native predators in critical habitat.

PCE 1d: Absence of chytridiomycosis (Bd), or, if present, then environmental, physiological, and genetic conditions are such that they allow persistence of CLFs.

Effect: There is the potential that actions such as the cleaning of accumulated sediment from stock tanks and moving machinery among stock tanks could result in the movement of chytrid fungus, or other diseases, to critical habitat. However, the permittee will follow all requirements and recommendations within the CLF recovery plan for tank cleaning intended to reduce or prevent spread of chytrid fungus.

PCE 1e: Upland areas that provide opportunities for foraging and basking that are immediately adjacent to or surrounding breeding aquatic and riparian habitat.

Effect: Implementing the Blackjack and Hickey AMP may result in reduced vegetative habitat immediately around and surrounding critical habitat. However, fencing at Rattlesnake Gap Tank and Dix Creek will allow aquatic habitat to develop and persist in the exclosures. Livestock will be able to eat, trample, and/or otherwise modify vegetation outside the fenced areas including Coal Creek. Although this will degrade some frog habitat, it will also benefit frog habitat by providing needed open basking areas and foraging habitat. There may be adverse effects to this PCE in the portions of critical habitat that are outside of the exclosures.

2. Dispersal and non-breeding habitat, consisting of areas with ephemeral (present for only a short time), intermittent, or perennial water that are generally not suitable for breeding, and

associated upland or riparian habitat that provide corridors (overland movement or along wetted drainages) for frogs to move among breeding sites in a meta-population. The dispersal and non-breeding habitat need to have the following characteristics:

PCE 2a: Not more than 1.0 mile overland, 3.0 miles along ephemeral or intermittent drainages, 5.0 miles along perennial drainages, or some combination thereof not to exceed 5.0 miles.

Effect: Actions implemented under the Blackjack and Hickey AMP are not expected to result in stock tank loss within critical habitat that would change the movement distance (connectivity) between stock tanks. Routine stock tank maintenance to remove sediment, as part of the grazing permit, would protect this PCE. Therefore, we anticipate effects of the action (i.e., cleaning of stock tanks) to be beneficial to this PCE.

PCE 2b: In overland and non-wetted corridors, provides some vegetation cover or structural features (e.g., boulders, rocks, organic debris such as downed trees or logs, small mammal burrows, or leaf litter) for shelter, forage, and protection from predators; in wetted corridors, provides some ephemeral, intermittent, or perennial aquatic habitat.

Effect: Actions implemented under the Blackjack and Hickey AMP will not reduce or modify vegetation cover or structural features. Project-wide, the Forests estimate the total water use would decrease by about three percent from the reduction of livestock numbers, livestock enclosures, and other water-related improvements. Therefore, wetted corridors within the critical habitat boundaries are expected to continue providing aquatic habitat.

PCE 2c: Free of barriers that block movement by CLFs, including, but not limited to, urban, industrial, or agricultural development; reservoirs that are 50 acres or more in size and contain predatory nonnative fishes, bullfrogs, or crayfish; highways that do not include frog fencing and culverts; and walls, major dams, or other structures that physically block movement.

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in the creation of barriers to movement within critical habitat.

In summary, the individual and/or cumulative effects to CLF PCEs are not likely to result in adverse modification of critical habitat as a whole for the species.

Gila Chub

The proposed action is expected to result in adverse effects and long-term benefits to Gila chub and its habitat. Effects related to pasture improvements/maintenance (e.g. stock-tank, fencing, wells, pipelines, stock tank, etc.), livestock grazing, and roads, along with long-term benefits from new livestock fencing and enclosures are described below.

Mechanical equipment will be used to install wells and pipeline, modify and/or install new fencing, and maintain or improve existing structures (e.g., troughs and modified springs). The installation or maintenance of wells, pipeline and fencing are expected to have no impacts to Gila chub or its habitat. The majority of this work will occur during the dry season and outside of riparian areas where Gila chub occur.

The proposed action includes the closure of all currently occupied Gila chub reaches from livestock grazing. Fencing around a portion of the Dix Creek (including Right and Left Prong Dix Creek) drainage will exclude livestock from all known occupied Gila chub habitat. Direct effects from livestock grazing will have no impact to Gila chub in Dix Creek and the livestock enclosure will provide long-term benefits to the species and its habitat.

Mesquite Flat pasture does not have perennial water. The stream channels, including the segment of Right Prong Dix Creek that is outside of the livestock enclosure, are intermittent or dry most of the year with seasonal flow after rainfall events. Within this pasture, indirect effects could include increased sediment loading from grazing impacts to streambanks, in tributaries and uplands, and general soil disturbance from hooves when livestock congregate near stream channels. Additionally, general disturbance of soil and vegetation outside of riparian areas can increase sedimentation, especially during precipitation events (e.g., monsoon rains). The AGFD completed a habitat survey within the lower portion of Dix Creek on July 31, 2018. Their survey documented substantial riffle habitat containing unembedded cobble throughout the survey reach and speculated that recent monsoon rains increased stream flows (B. Hickerson, AGFD, pers. comm. 2018). Since the cobble was unembedded, it is likely periodic rainfall events are quickly moving sediment out of the system. Although the sediment impacts seemingly dissipated, initial sediment pulses could indirectly affect Gila chub or directly affect its habitat. These adverse impacts are expected to be short-term, and we anticipate they will not rise to the level of take.

In addition to the livestock enclosure, other beneficial changes within this allotment include a 1,277 AUM reduction (from previous numbers), seasonal/fall-use instead of year-long grazing, approximately three percent reduction in overall water consumption (compared to existing conditions), and conservative to light utilization on uplands. These changes to the allotment are expected to reduce adverse effects from livestock grazing and benefit Gila chub and its habitat in the long-term.

Effects of the Action on Gila Chub Critical Habitat

In our analysis of the effects of the action on critical habitat, we consider whether or not a proposed action will result in the destruction or adverse modification of critical habitat. In doing so, we must determine if the proposed action will result in effects that appreciably diminish the value of critical habitat for the recovery of a listed species. The PCEs related to Gila chub critical habitat and the potential effects from implementation of the Blackjack and Hickey allotments are described below.

PCE 1: Perennial pools, areas of higher velocity between pools, and areas of shallow water among plants or eddies all found in headwaters, springs, and cienegas, generally of smaller tributaries.

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in impacts related to pool habitat, areas between pools, and shallow water for this PCE.

PCE 2: Water temperatures for spawning ranging from 63°F to 75 °F, and seasonally appropriate

temperatures for all life stages (varying from about 50°F to 86 °F).

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in impacts related water temperatures.

PCE 3: Water quality with reduced levels of contaminants, including excessive levels of sediments adverse to Gila chub health, and adequate levels of pH (e.g. ranging from 6.5 to 9.5), dissolved oxygen (i.e., ranging from 3.0 ppm to 10.0 ppm) and conductivity (i.e., 100 mmhos to 1,000 mmhos).

Effect: Actions implemented under the Blackjack and Hickey AMP are expected to result in short-term pulses of sediment post-rainfall events. These indirect effects are primarily from livestock grazing surrounding and within the Right Prong Dix Creek. Within this pasture, indirect effects could include increased sediment loading from grazing impacts to streambanks, in tributaries and uplands, and general soil disturbance from hooves when livestock congregate near stream channels. As stated previously, it is likely periodic rainfall events are quickly moving sediment out of the system; however, the initial pulse of sediment could affect water quality for Gila chub in the short-term.

PCE4: Prey base consisting of invertebrates (i.e., aquatic and terrestrial insects) and aquatic plants (i.e., diatoms and filamentous green algae).

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in impacts related prey base.

PCE 5: Sufficient cover consisting of downed logs in the water channel, submerged aquatic vegetation, submerged large tree root wads, undercut banks with sufficient overhanging vegetation, large rocks and boulders with overhangs, a high degree of stream bank stability, and a healthy, intact riparian vegetation community.

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in impacts related to cover.

PCE 6: Habitat devoid of non-native aquatic species detrimental to Gila chub or habitat in which detrimental nonnative species are kept at a level that allows Gila chub to continue to survive and reproduce.

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in impacts related to non-native aquatic species.

PCE 7: Streams that maintain a natural flow pattern including periodic flooding.

Effect: Actions implemented under the Blackjack and Hickey AMP would not result in impacts related to natural stream flow patterns.

In summary, the individual and/or cumulative effects to Gila chub are not likely to result in

adverse modification of critical habitat as a whole for the species.

CUMULATIVE EFFECTS

Cumulative effects are those “effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area” considered in this BO (50 CFR 402.02). There are private parcels along the San Francisco River in the proposed action area. It is unknown whether there are non-Federal actions, such as agricultural diversions and livestock grazing, occurring on these lands that may affect CLFs or Gila chub in that reach of the San Francisco River.

JEOPARDY AND ADVERSE MODIFICATION ANALYSIS

Section 7(a)(2) of the Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

Jeopardy Analysis Framework

Our jeopardy analysis relies on the following:

“Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). The following analysis relies on four components: (1) Status of the Species, which evaluates the range-wide condition of the listed species addressed, the factors responsible for that condition, and the species’ survival and recovery needs; (2) Environmental Baseline, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) Effects of the Action (including those from conservation measures), which determines the direct and indirect effects of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) Cumulative Effects, which evaluates the effects of future, non-federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species’ current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild. The jeopardy analysis in this BO considers the range-wide survival and recovery needs of the species and the role of the action area in the survival and recovery as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

The Stateline Range Project includes specific actions to meet the recovery goals and objectives

outlined in the CLF and Gila chub (draft) recovery plans (USFWS 2007 and 2014) by reducing threats to existing populations, maintaining, restoring, and creating habitat for future recovery to facilitate down- and de-listing. The creation of new livestock fencing and exclosures around occupied and suitable habitat within the project area seek to improve the conditions for future recovery of CLF and Gila chub. Therefore, the implementation of the Stateline Range Project is not likely to cause an appreciable reduction in the likelihood of both the survival and recovery of CLF or Gila chub in the wild.

Destruction/Adverse Modification Analysis Framework

The final rule revising the regulatory definition of “destruction or adverse modification” became effective on September 29, 2019 (USFWS 2019). The revised definition states “Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.”

CONCLUSION

After reviewing the current CLF and Gila chub status, the environmental baseline for the action area, the effects of the proposed authorization of livestock use on the Stateline Range Project, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the CLF and Gila chub or adversely modify their critical habitat as a whole. We base this conclusion on the following:

Chiricahua Leopard Frog

- CLF populations have persisted since listing in the Blackjack and Hickey allotments along with ongoing cattle grazing.
- Cattle use of vegetation is regulated, managed, monitored, and rested to reduce or prevent overgrazing of vegetation adjacent to streams/stock tanks that can be used by CLFs.
- CLF populations throughout its range have expanded naturally and due to introductions. These populations are dynamic, and any decline resulting from the proposed action would be a small proportion of their overall rangewide status.
- Stock tanks, an important component of livestock grazing operations, also provide important CLF habitat. Stock tank maintenance, while causing short-term adverse effects, is important for long-term CLF habitat preservation.
- The implementation of livestock grazing is not likely to adversely modify CLF critical habitat as a whole.

Gila chub

- Gila chub populations have persisted since listing in the project area along with ongoing cattle grazing.
- The implementation of livestock grazing exclosures around occupied and critical habitat will provide long-term, beneficial effects to Gila chub.
- Any adverse impacts to Gila chub during implementation of the proposed actions are not expected to appreciably reduce the numbers, reproduction, or distribution of the species in

the action area or throughout the species' range.

- The implementation of livestock grazing is not likely to adversely modify CLF critical habitat as a whole.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR §17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR §17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Forests so that they become binding conditions of any grant or permit issued to the permittee, as appropriate, for the exemption in section 7(o)(2) to apply. The Forests have a continuing duty to regulate the activity covered by this incidental take statement. If the Forests (1) fails to assume and implement the terms and conditions or (2) fails to require the permittee to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the effect of incidental take, the Forests must report the progress of the action and its effects on the species to the USFWS as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Chiricahua Leopard Frog

Incidental take of CLFs is reasonably certain to occur in the form of harm (including direct fatality) as a result of the proposed action. We recognize that providing a numerical estimate of incidental take is the preferred method of measuring incidental take. However, it is impossible to quantify the number of individual frogs taken because:

1. Dead or impaired individuals are almost impossible to find (and are readily consumed by predators) and losses may be masked by seasonal fluctuations in environmental

- conditions;
2. The status of the species may change over time through immigration, emigration, and natural loss or active creation of habitat through management; and,
 3. The species is small-bodied, well camouflaged, and occurs under water of varying clarity, and thus individuals are difficult to detect.

It is not meaningful to provide a number for incidental take of frogs associated with this proposed action because we can count what we see but there is much we cannot see under the water, in root wads, and in other hiding locations. We are capable of counting frogs at tanks to some extent (particularly if we put a certain number of frogs into an unoccupied site), but many factors (weather conditions, predator presence, etc.) can modify the number of frogs seen at a tank during a survey.

Establishing a number for incidental take becomes even more impracticable when we acknowledge that CLFs naturally experience very high mortality rates (greater than 90 percent) in the egg and early tadpole stages, high mortality when the tadpole turns into a juvenile frog, and then relatively lower mortality rates when the frogs become adults (USFWS 2007). The recovery strategy and delisting criteria in the CLF Recovery Plan are built upon numbers of populations (not individuals) and we use counts of frogs only to define a "robust" population which, depending upon the habitat, can range from an estimate of 40 to 60 adults, depending upon whether the habitat is drought-resistant (USFWS 2007).

Since we cannot estimate the number of individual frogs that will be incidentally taken for the reasons listed above, the USFWS is providing a mechanism to quantify when take would be considered to be exceeded as a result of implementing the Blackjack and Hickey AMP. Specifically, we will use the existing number of stock tanks in which CLF populations are successfully established on the Blackjack and Hickey Allotment to determine when take is exceeded.

Coal Creek, Dix Creek, and Buckhorn Tank are considered occupied within the Blackjack allotment. Rattlesnake Gap Tank is the only occupied location in the Hickey Allotment. All occupied locations within the Blackjack and Hickey allotment have stock tanks within dispersal distance that could become established in the future. CLFs that are released to suitable stock tank habitats may also disperse to other stock tanks and become established. We have set an incidental take limit of the loss of all CLFs in one tank. Such take will be determined by monitoring for three consecutive years with negative monitoring results. We believe this incidental take limit is measurable, and will indicate when the frogs are being impacted at a level where management needs to change. We are confident that repeated surveys can tell us whether a site is occupied or not, which will clearly show if incidental take is exceeded. We conclude that the incidental take of CLFs will be considered exceeded and re-initiation of consultation required if more than one stock tank population (current or newly established) is lost for three consecutive years as a result of the implementation of the Blackjack and Hickey AMP.

This incidental take will be measured by surveys conducted twice each year between March and October (frog activity season) in order to determine presence or infer absence of frogs. We have identified actions that may result in the incidental take of individual frogs (due to actions

implemented through the AMP and discussed in the Effects section above); however, we do not anticipate the complete loss of an entire occupied stock tank as a result of any action authorized under the Hickey AMP. If the loss of a currently occupied site occurs, in coordination with the Forests, we will determine whether it was the result of the proposed action or if environmental conditions such as drought caused the loss. If the loss of a site is a result of the proposed livestock grazing action, re-initiation of formal consultation would be required as the amount or extent of incidental take would be exceeded. If the loss of an occupied site occurs as a result of drought or other environmental factors in combination with the proposed action, then re-initiation would also be necessary in light of the new information regarding the status of the CLF on the Blackjack and Hickey allotments.

This amount of incidental take (all frogs at one site) will not prevent the population from recovering to pre-take levels because multiple breeding sites are all within frog dispersal distance of one another (frogs can move up to 5 miles) and connected via critical habitat. Therefore, if frogs cease to be present at one site, the frogs will be able to recolonize the site on their own, or we can assist them as we have done in the past at other breeding areas. We conclude that this level of incidental take does not place recovery of the CLF at risk. We know that regardless of whether the Forests continues to authorize grazing on the Blackjack and Hickey allotment, environmental factors such as drought, movement of nonnative species, maintenance of stock tanks, and natural fluctuations in frog populations will result in changes in the occupancy of stock tanks across the two allotments. Recovery of the species will not be achieved or lost within the Blackjack or Hickey allotments as they include only a small portion of the overall range of the species. And, the prospects for this population to recover and contribute to the overall recovery of the species are very high, even with the potential temporary loss of one occupied site over the life of this project.

The USFWS has determined that this level of anticipated take is not likely to result in jeopardy to CLFs. While the proposed action may result in short-term, adverse effects to the frog through the loss of individual frogs of various life stages via the forms of incidental take described above, we do not anticipate that any of these actions, as described in the BA, will result in the loss of all frogs at a given stock tank.

Gila Chub

The USFWS does not anticipate the proposed action will incidentally take any Gila chub for the following reasons:

1. Gila chub are not likely to be present in Right Prong Dix Creek where livestock have access. The stream reach is typically dry most of the year. After precipitation events, the water is not likely to persist long enough for dispersal into the area. In addition, this portion of the creek does not contain the habitat (e.g. pools, riparian habitat, invertebrates, etc.) preferred by Gila chub.
2. Sediment from periodic rainfall events may affect water quality but impacts are short-term and unlikely to harm individuals or the population.

EFFECT OF THE TAKE

In this biological opinion, the USFWS determines that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat for the reasons stated in the Conclusions section.

REASONABLE AND PRUDENT MEASURES

Chiricahua Leopard Frog

The following reasonable and prudent measures are necessary and appropriate to minimize take of CLFs:

1. Protect CLFs on the Blackjack and Hickey allotments.
2. Protect and maintain identified CLF habitats on the Blackjack and Hickey allotments.
3. Monitor and report the impacts of implementation of the Blackjack and Hickey AMP on the CLF.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Forests must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

Chiricahua Leopard Frog

The following terms and conditions implement reasonable and prudent measure 1 (incidental take monitoring) for the CLF:

- 1.1 Live fish, crayfish, leopard frogs, salamanders, or other aquatic organisms shall not be moved among earthen stock tanks or other aquatic sites on the Blackjack or Hickey allotments by Forest Service employees or the permittee unless approved by the USFWS.
- 1.2 In addition to the biological clearances incorporated as part of the proposed action, prior to stock tank cleaning, the Forests shall provide USFWS and AGFD staff at least 60 days notice prior to the permittee conducting work in the stock tanks on the Blackjack or Hickey allotments. This notice will allow for surveys, frog capture if needed and they are still present, and/or implementation of additional conservation measures (e.g. flag or mark portions of the stock tank not to be disturbed during maintenance and/or ensure that exclosures are still intact and protected during maintenance) to reduce adverse effects to CLFs.

The following terms and conditions will implement reasonable and prudent measure 2:

- 2.1 The Forests shall continue to work with USFWS, AGFD, and the permittee to define when conditions on the Blackjack and/or Hickey allotments warrant installation of erosion control structures, or other measures needed to improve soil and vegetative conditions around stock tanks or other suitable habitats to minimize indirect effects to CLFs.

- 2.2 Water shall not be hauled to any occupied leopard frog habitat or potentially suitable stock tanks on the Blackjack or Hickey allotments by Forest Service employees, the permittee, or anyone operating under Forest Service authorization, from another aquatic site or tank that supports leopard frogs, crayfish, or fish. If water is needed to address drought concerns for the frog or livestock, the Forests must seek USFWS approval prior to adding any water to a stock tank occupied by CLFs.
- 2.3 If nonnative aquatic species are detected within occupied CLF habitat or habitat that connects to occupied CLF habitat on the Blackjack or Hickey allotments, the Forests shall notify USFWS immediately (within 48 hours) and then initiate a multi-stakeholder planning effort with the USFWS and AGFD to remove the nonnative species from the stock tank as quickly as possible. This may involve the complete drying of a stock tank if deemed as the most effective management tool to address the threat of nonnatives. As stated above, under 1.2, the Forests shall provide USFWS and AGFD staff at least 60 days notice prior to this action to allow CLF salvage if determined necessary.

The following terms and conditions will implement reasonable and prudent measure 3:

- 3.1 The Forests shall submit an annual summary report to our Phoenix Office by January 31 of each year. This annual report shall summarize the livestock grazing management that occurred (e.g., livestock numbers, pastures used, timing of use, etc.), a summary of situations (and corrective actions) that pertain to the above items, relevant frog or other aquatic species survey information, and any other pertinent information about the project's effects on the CLF. The report shall also make recommendations for modifying or refining these terms and conditions to enhance leopard frog protection.
- 3.2 The Forests shall notify (written correspondence, email, or phone call) our Phoenix Office as soon as practicable of the observed occurrence or the discovery of aquatic nonnative species in any stock tank on the Blackjack or Hickey allotments to provide for collaborative emergency planning and corrective action as required in reasonable and prudent measure 2 and its implementing terms and conditions.
- 3.3 The Forests shall notify (written correspondence, email, or phone call) our Phoenix Office within 48 hours of any observation of any pasture boundary or exclusion fence line failure or fence line disrepair that is adjacent to known occupied habitat within the Blackjack or Hickey allotments, and the corrective actions implemented.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effect of incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Forests must immediately provide an explanation of the causes of the taking and review with the USFWS the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the USFWS's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, New

Mexico, 87113; 505-248-7889) 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 sick or injured animals to ensure effective treatment and care in handling dead specimens to preserve the biological material in the best possible state.

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.

Chiricahua Leopard Frog

1. We recommend that the Forests implement Forest-specific actions within the Recovery Plan (USFWS 2007).
2. We recommend that the Forests work with us and AGFD to reintroduce the CLF to additional suitable habitats identified through habitat assessment and surveys conducted throughout the range of the frog on the Forests.
3. We recommend the Forests work with us and the AGFD to continue to control nonnative aquatic organisms on the Forests, particularly American bullfrogs, nonnative fish, and crayfish.
4. We recommend that the Forests work with us to develop a programmatic environmental assessment and biological opinion to cover tank renovation and maintenance forest-wide on the Forests and effects to CLF.
5. We recommend that the Forests continue to identify factors that limit the recovery potential of CLFs on lands under their jurisdiction and work to correct them.

Gila Chub

1. We recommend that the Forests work with us and AGFD to continue to control nonnative aquatic organisms on the Forests, particularly American bullfrogs, nonnative fish, and crayfish.

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

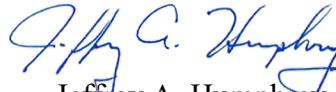
REINITIATION NOTICE

This concludes formal consultation on the Stateline Range Project (Blackjack and Hickey allotments) proposed action. 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 the 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.

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to continue to coordinate with the Bureau of Indian Affairs in the implementation of this consultation and, by copy of this biological opinion, are notifying the Hopi Tribe and the White Mountain Apache Tribe of its completion. We also encourage you to coordinate the review of this project with the AGFD.

We appreciate the Forest's efforts to identify and minimize effects to listed species from this project. Please refer to the consultation number, 02EAAZ00-2019-F-0975 in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Ryan Gordon (602-242-0210) or Mary Richardson (602-242-0210).

Sincerely,


Jeffrey A. Humphrey
Field Supervisor

cc (electronic):

Fish and Wildlife Biologist, Fish and Wildlife Service, Tucson, AZ (Attn: Jeff Servoss, Cat Crawford, Susan Sferra)

Fish and Wildlife Biologist, Fish and Wildlife Service, Flagstaff AZ (Attn: Shaula Hedwall) Fish and Wildlife Biologist, Fish and Wildlife Service, Phoenix, AZ (Attn: Mary Richardson, Greg Beatty)

Aquatic Program Manager, Apache-Sitgreaves National Forests, Stephanie Coleman
Wildlife Program Manager, Apache-Sitgreaves National Forests, Amanda Scott

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

Supervisor, Region 1, Arizona Game and Fish Department, Pinetop, AZ

Director, Cultural Preservation, Hopi Tribe, Kykotsmovi, AZ

Director, Cultural Resources, White Mountain Apache Tribe, White River, AZ

Executive Director, Inter-Tribal Council of Arizona, Inc., Phoenix, AZ

LITERATURE CITED

General Literature

U.S. Fish and Wildlife Service (USFWS) 2016. Hickey allotment management plan. Biological opinion for the Apache-Sitgreaves National Forests. May 6, 2016. 27 pages.

U.S. Fish and Wildlife Service (USFWS) 2019. Endangered and threatened wildlife and plants; regulations for interagency cooperation. Final Rule. Federal Register 84(166):44976-45018.

U.S. Forest Service (USFS). 2015. Streamlining consultation for livestock grazing activities. USDA Forest Service, Southwestern Region, Arizona and New Mexico. 159 pages.

Chiricahua Leopard Frog and General Literature

Arizona Game and Fish Department (AGFD). 2019. Chiricahua leopard frog recovery in Arizona 2018. Terrestrial Wildlife Branch, Wildlife Management Division, Arizona Game and Fish Department. Technical Report 324. 200 pages.

Bartelt, P. E. 1998. *Bufo boreas* (Western Toad) mortality. Herpetological Review 29(2):96.

Crother, B.I. (Editor). 2008. Scientific and common names for amphibians and reptiles of North America North of México. Society for the Study of Amphibians and Reptiles, Herpetological Circular No. 37:1-84.

Kats, L.B. and R.P. Ferrer. 2003. Alien predators and amphibian declines: Review of two decades of science and the transition to conservation. Diversity and Distributions 9:99-110.

Ross, D.A., J.K. Reaser, P. Kleeman, and D.L. Drake. 1999. *Rana luteiventris* (Columbia spotted frog). Mortality and site fidelity. Herpetological Review 30(3):163.

U.S. Fish and Wildlife Service (USFWS). 2002. Endangered and threatened wildlife and plants; listing of the Chiricahua leopard frog (*Rana chiricahuensis*); final rule. Federal Register 67(114):40790-40811.

U.S. Fish and Wildlife Service (USFWS). 2003. Biological opinion: Blue and San Francisco Rivers Consultation. File Code Numbers 2-21-95-F-441, 2-21-95-F-442, 2-21-95-F-443, 2-21-95-F-446, 2-21-95-F-447, F2-21-01-F-105, F2-21-01-F-211, F2-21-01-F-300, F2-21-01-F-302, 2-21-01-F-303, 2-21-01-F-306, 2-21-01-F-307. Arizona Ecological Services Office, Phoenix, Arizona.

U.S. Fish and Wildlife Service (USFWS). 2007. Final Chiricahua leopard frog (*Rana chiricahuensis*) recovery plan. Region 2, U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 429 pages.

U.S. Fish and Wildlife Service (USFWS). 2009. Endangered and threatened wildlife and plants;

partial 90-day finding on a petition to list 475 species in the Southwestern United States as threatened or endangered with critical habitat; proposed rule. Federal Register 74(240):66866-66905.

U.S. Fish and Wildlife Service (USFWS). 2011. Chiricahua leopard frog (*Lithobates [=Rana] chiricahuensis*) 5-Year Review: Summary and Evaluation. Arizona Ecological Services Office, Phoenix, Arizona.

U.S. Fish and Wildlife Service (USFWS). 2012. Endangered and threatened wildlife and plants; listing and designation of critical habitat for the Chiricahua leopard frog; final rule. Federal Register 77(54):16324-16423.

U.S. Fish and Wildlife Service (USFWS). 2016. Hickey Allotment Management Plan. Biological Opinion for the Apache-Sitgreaves National Forests. U.S. Fish and Wildlife Service Consultation Number 02EAAZ00-2015-F-0512.

U.S. Forest Service (USFS). 2013. Proposed land management plan for the Apache-Sitgreaves National Forests: Apache, Coconino, Greenlee and Navajo Counties, Arizona. Southwestern Region MB-R3-01-6. Albuquerque, New Mexico. 274 pages.

Gila Chub Literature

Bagley, B. 2002. Survey of Verde River drainage, Arizona for loach minnow (*Tiaroga cobitis*). Final Report to U.S. Fish and Wildlife Service, Contract No. 22410-0-M525.

Baird, S.F. and C. Girard. 1853. Descriptions of some new fishes from the River Zuni. Proceedings Academy Natural Sciences Philadelphia. 6:368-369.

Bestgen, K.R. 1985. Distribution, biology and status of the roundtail chub, *Gila robusta*, in the Gila River basin, New Mexico. Unpublished Master of Science thesis, Colorado State University, Fort Collins, Colorado. 104 pages.

Carlson, C.A. and R.T. Muth. 1989. The Colorado River: lifeline of the American Southwest. Pages 220-239 *In* Proceedings of the International Large River symposium, D.P. Dodge (Editor). Canadian Special Publication of Fisheries and Aquatic Sciences 106.

DeMarais, B.D. 1986. Morphological variation in Gila (Pisces: Cyprinidae) and geologic history: lower Colorado River basin. Unpublished Master's Thesis, Arizona State University, Tempe, Arizona. 86 pages.

DeMarais, B.D. 1995. Taxonomic history and status of the Gila chub, *Gila intermedia* (Girard). A Report to Arizona Game and Fish Department.

Hickerson, B. 2018. August 1, 2018 email transmission from B. Dickerson (Arizona Game and Fish Department) to R. Gordon (USFWS) Re: Dix Creek Assessment 7/31/2018.

- Dudley, R.K., and W.J. Matter. 2000. Effects of small green sunfish (*Lepomis cyanellus*) on recruitment of Gila chub (*Gila intermedia*) in Sabino Creek, Arizona. *The Southwestern Naturalist* 45:24-29.
- Griffith, J.S., and T.R. Tiersch. 1989. Ecology of fishes in Redfield Canyon, Arizona, with emphasis on *Gila robusta intermedia*. *The Southwestern Naturalist* 34:131-134.
- Hendrickson, D.A., and W.L. Minckley. 1984. Cienegas -- vanishing climax communities of the American southwest. *Desert Plants* 6(3):131-175.
- Jordan, D.S. and B.W. Evermann. 1896. The fishes of North and Middle America. Part 1. *Bulletin U.S. National Museum*, 47:1-1240.
- Meffe, G.K. 1985. Predation and species replacement in American southwestern fishes: A case study. *The Southwestern Naturalist* 30: 173-187.
- Miller, R. R. 1945. A new cyprinid fish from southern Arizona, and Sonora, Mexico, with the description of a new subgenus of *Gila* and a review of related species. *Copeia* 1945 (no. 2): 104-110, Plate 1.
- Miller, R. R. 1946. *Gila cypha*, a remarkable new species of cyprinid fish from the Colorado River in Grand Canyon, Arizona. *Journal of the Washington Academy of Sciences*. 36(12): 409-415.
- Miller, R.R., and C.H. Lowe. 1967. Fishes of Arizona, Part 2. Page 133-151 *In* The vertebrates of Arizona, Second printing, C.H. Lowe (Editor). University of Arizona Press, Tucson, Arizona.
- Minckley, W.L. 1969. Aquatic biota of the Bonita Creek Basin, Santa Cruz County, Arizona. *The Nature Conservancy, Ecological Studies Leaflet*, 15:1-8.
- Minckley, W.L. 1973. Fishes of Arizona. Arizona Game and Fish Department, Phoenix, Arizona.
- Minckley, W.L. 1985. Native fishes and natural aquatic habitats in U.S. Fish and Wildlife Service Region II west of the Continental Divide: report to the U.S. Fish and Wildlife Service, Albuquerque, New Mexico. Department of Zoology, Arizona State University, Tempe, Arizona. Pages ix+158, processed.
- Minckley W.L., and Marsh P.C. (2009) Inland fishes of the greater Southwest. The University of Arizona Press, Tucson, Arizona.
- Minckley, W.L. and DeMarais, B.D. 2000. Taxonomy of Chubs (Teleostei, Cyprinidae, Genus *Gila*) in the American Southwest with comments on conservation. *Copeia*. 2000: 251-256.
- Minckley, W.L. and G.K. Meffe. 1987. Differential selection by flooding in stream fish

communities of the arid American Southwest. Pages 93 – 104 *In* Community and evolutionary ecology of North American stream fishes W.J. Matthews and D.C. Heins (Editors). University of Oklahoma Press, Norman, Oklahoma.

Minckley, W.L., D.A. Hendrickson and C.E. Bond. 1986. Geography of western North American freshwater fishes: description and relationship to intracontinental tectonism. Chapter 15, Pages 519-614 *In* C.H. Hocutt and E.O. Wiley (Editors) *The Zoogeography of North American Freshwater Fishes*. John Wiley & Sons, New York, New York.

Nelson, B. 1993. Spawning characteristics of Gila chub (*Gila intermedia*) in Cienega Creek, Pima County, Arizona. Report for U.S. Department of the Interior Bureau of Land Management, Tucson Resource Area, Arizona.

Propst, D.L., K.R. Bestgen, and C.W. Painter. 1986. Distribution, status, biology, and conservation of the spikedace (*Meda fulgida*) in New Mexico. *Endangered Species Report* No. 15. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 93 pages.

Rinne J. N. 1969. Cyprinid fishes of the genus *Gila* from the lower Colorado River Basin. Master of Science thesis, Arizona State University, Tempe, Arizona.

Rinne, J. N. and Minckley, W.L. 1991. Native fishes of arid lands: a dwindling resource of the desert southwest. General Technical Report RM-206, U.S. Department of Agriculture Forest Service. Phoenix, Arizona. 42 pages.

Rinne, J.N. 1975. Changes in minnow populations in a small desert stream resulting from natural and artificially induced factors. *Southwest Naturalist* 202(2):185-195.

Rinne, J.N. 1976. Cyprinid fishes of the genus *Gila* from the Lower Colorado River Basin. *Wasmann Journal Biology* 34(1):65-107.

Rinne, J.N., and W. L. Minckley. 1970. Native Arizona fishes: Part III - chubs. *Wildlife Views* 17(5):12-19.

Rinne, J.N. and W.L. Minckley. 1991. Native fishes of arid lands: a dwindling resource of the desert Southwest. General Technical Report RM-206. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.

Rosgen, D. 1996. Applied river morphology. Wildland Hydrology, Inc. Pagosa Springs, Colorado.

Schultz, A.A. and Bonar, S.A. 2006. Spawning and Culture of Gila Chub. Final Report to the Arizona Game and Fish Department. Fisheries Research Report 02-07. Arizona Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, University of Arizona, Tucson, Arizona.

Stout, G.G., E.C. Bloom, and J.K. Glass. 1970. The Fishes of Cave Creek, Maricopa County, Arizona. *Journal Arizona Academy Science* 6(2): 109-113.

Sublette, J.E., M.D. Hatch, and M. Sublette. 1990. *The fishes of New Mexico*. University of New Mexico Press, Albuquerque. 347 pages.

U.S. Fish and Wildlife Service (USFWS). 1983. Endangered and threatened species listing and recovery priority guidelines. *Federal Register* 48:43098-43105.

U.S. Fish and Wildlife Service (USFWS). 2005. Endangered and threatened wildlife and plants; Final rule listing the Gila chub as endangered with critical habitat. *Federal Register* 70(211): 66664-66721.

U.S. Fish and Wildlife Service (USFWS). 2014. Gila chub draft recovery plan. Southwest Region. U.S. Fish and Wildlife Service. 112pp.

U.S. Fish and Wildlife Service (USFWS). 2017. Endangered and threatened wildlife and plants; threatened species status for the headwater chub and roundtail chub distinct population segment. Proposed rule; withdrawal. *Federal Register* 82(66): 16981-16988.

Weedman, D., A.L. Girmendonk, and K. Young. 1996. Status Review of Gila Chub, *Gila intermedia*, in the United States and Mexico. Technical Report 91, Nongame and Endangered Wildlife Program, Arizona Game and Fish Department. Phoenix, Arizona. 120 pages.

APPENDIX A: CONCURRENCES

Loach Minnow and its Critical Habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the loach minnow or its critical habitat for the following reasons:

- Loach minnow do not occupy those portions of the San Francisco River adjacent to the Blackjack and Hickey allotments.
- The portions of the San Francisco River bordering these two allotments which are designated as critical habitat for loach minnow are excluded from livestock grazing. Pastures that are excluded are identified as the San Francisco, San Francisco 1 (Dix Creek), San Francisco 2, San Francisco 3, Bird Trap, and Left Prong (Dix Creek).
- Riparian pasture widths are adequate to buffer any upland grazing affects if present.

Spikedace and its Critical Habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect spikedace or its critical habitat for the following reasons:

- Spikedace do not occupy those portions of the San Francisco River adjacent to the Blackjack and Hickey allotments.
- The portions of the San Francisco River bordering these two allotments which are designated as critical habitat for loach minnow are excluded from livestock grazing. Pastures that are excluded are identified as the San Francisco, San Francisco 1 (Dix Creek), San Francisco 2, San Francisco 3, Bird Trap, and Left Prong (Dix Creek).
- Riparian pasture widths are adequate to buffer any upland grazing affects if present.

Mexican Spotted Owl

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the MSO and its habitat for the following reasons:

- MSO are not known to occur in the project area and the closest known Protected Activity Center (PAC) (Walker Butte) is 2.6 miles from the Hickey Allotment and 5.8 miles from the Blackjack Allotment.
- Large riparian galleries capable of supporting MSO are present on both the Blackjack and Hickey allotments, and are within the dispersal distance of known PACs. However, all of these areas are excluded from grazing.

Mexican Wolf

We concur with your determination that the proposed action is not likely to jeopardize the Mexican wolf for the following reasons:

- Because of the Mexican wolf's status as an experimental, non-essential population, wolves found in Arizona are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not

essential to the continued existence of the species. Thus, no proposed action effecting a designated population could lead to a jeopardy determination for the entire species.

Southwestern Willow Flycatcher and its Critical Habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the southwestern willow flycatcher and its critical habitat for the following reasons:

- Southwestern willow flycatchers have not been detected breeding on the San Francisco River in the action area.
- All designated critical habitat and suitable dispersal habitat is located within a livestock-excluded pasture on the San Francisco River.

Yellow-billed Cuckoo and its Proposed Critical Habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the yellow-billed cuckoo and is not likely to adversely modify its proposed critical habitat for the following reasons:

- Yellow-billed cuckoos have not been detected breeding on the San Francisco River in the Blackjack and Hickey Allotments.
- The portions of the San Francisco River bordering these allotments which are designated as proposed critical habitat for yellow-billed cuckoos are excluded from livestock grazing.

Narrow-headed Gartersnake and its Proposed Critical Habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the narrow-headed gartersnake and is not likely to adversely modify its proposed critical habitat for the following reasons:

- Livestock are excluded, with the exception of 70 acres, from portions of the upper San Francisco River bordering the Blackjack and Hickey allotments, which could be unoccupied based on the distribution of species records in the river. The 70 acres occur on the bluffs (upland habitat) above the San Francisco River where the boundary fences and steep topography prevent livestock grazing in the riparian areas.
- The 70 acres occurs within the proposed critical habitat boundary for the narrow-headed gartersnake. This includes habitat that provides adequate terrestrial space (600 ft lateral extent to either side of bankfull stage) as described under PCE 2. Livestock grazing within this area is not expected to reduce or remove the structural characteristics that support life-history functions for the narrow-headed gartersnake.