



United States Department of the Interior

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In Reply refer to:

AESO/SE
2022-0002114-S7

February 12, 2025

Mr. Matthew Paciorek, District Ranger
U.S. Forest Service, Tonto National Forest
Payson Ranger District
1009 East Highway 260
Payson, Arizona 85541

Subject: Biological Opinion for the Lower Verde Subbasin Grazing Allotments, Gila County,
Arizona

Dear Mr. Paciorek:

This document transmits our biological opinion based on our review of the effects of the U.S. Forest Service's (USFS') proposed authorization of livestock grazing within the Lower Verde Subbasin Allotments on the western distinct population segment (DPS) of the yellow-billed cuckoo (cuckoo; *Coccyzus americanus*) pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). Your request for formal consultation was received on September 30, 2022. We initiated consultation on November 17, 2022. As a result of continued discussions between the USFS and our agency after consultation was initiated, we received several revised biological assessments (BA) from the USFS. A final revised BA was received on October 4, 2024, resuming the consultation process at that time.

In your letter, you requested our concurrence that the proposed action is not likely to adversely affect the spikedace (*Meda fulgida*) and its critical habitat, loach minnow (*Tiaroga cobitis*) critical habitat, Gila topminnow (*Poeciliopsis occidentalis*), razorback sucker (*Xyrauchen texanus*) and its critical habitat, as well as the Mexican spotted owl (*Strix occidentalis lucida*) and its critical habitat. We concur with your determinations and include our rationales in Appendix A.

Additionally, you asked us to concur with your determination that the proposed action is not likely to jeopardize the experimental, non-essential population of Mexican wolf (*Canis lupus baileyi*). We have provided a Conference Report for the Mexican wolf in Appendix B.

You also determined that this action would have "no effect" on the loach minnow, Chiricahua leopard frog (*Rana chiricahuensis*) and its critical habitat, southwestern willow flycatcher (*Empidonax traillii extimus*) and its critical habitat, and critical habitat for the western DPS of the yellow-billed cuckoo. Your March 2024 Biological Assessment (BA) further determined that

this action would have “no effect” on the northern Mexican gartersnake (*Thamnophis eques*), woundfin (*Plagopterus argentissimus*), and Colorado pikeminnow (*Ptychocheilus lucius*). “No effect” determinations do not require our review and are not addressed further in this consultation.

This biological opinion (BO) is based on information provided in the revised BAs, which are incorporated herein by reference, communications with Tonto National Forest (TNF) staff, and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern, livestock grazing and its effects, or other subjects considered. A complete administrative record of this consultation is on file at the Arizona Ecological Services Field Office.

CONSULTATION HISTORY

- October 2020: TNF evaluated consultation status for several grazing allotments in the Lower Verde Subbasin and identified the need to update existing consultations for Cedar Bench and Deadman Mesa allotments.
- September 24, 2021: TNF informed us of plans to include Bull Springs and Pole Hollow allotments in the BA due to new yellow-billed cuckoo records.
- December 29, 2021-January 4, 2022: TNF corresponded with our geographic lead to discuss reasonable certainty of species occurrence in the analysis area.
- January 4-11, 2022: TNF corresponded with our Gila topminnow species lead to discuss: 1) the proposed action specific to Cedar Bench Allotment; 2) conservation measures for Gila topminnow; and 3) status of Gila topminnow in Fossil Creek just upstream of its confluence with Verde River.
- February 22, 2022: TNF corresponded with our southwestern willow flycatcher species lead to determine if potential breeding habitat for the species was present inside the analysis area.
- August 17, 2022: TNF participated in a Microsoft Teams call with our yellow-billed cuckoo species lead to discuss: 1) the proposed action specific to Bull Springs and Pole Hollow allotments; 2) the design and implementation of a monitoring plan evaluating impacts of grazing on cuckoos at Doll Baby Ranch; and 3) conservation measures to minimize impacts to cuckoo.
- August 22, 2022: TNF discussed status of razorback sucker in Verde River with our geographic species lead.
- September 30, 2022: We received the BA and your request for formal consultation and conference.
- November 17, 2022: We entered into formal consultation with TNF on the proposed action and requested a 60-day extension due to existing workload backlog in our office.
- February 21, 2023: TNF requested to pause the consultation process to reevaluate components of the BA related to conservation measure YBC-4.
- April 20, 2023: TNF transmitted via email an updated copy of the BA that included changes related to conservation measure YBC-4 and restarted the timeline for the consultation.

- June 26, 2023: We requested a 45-day extension due to existing workload backlog in our office.
- August 25, 2023: We requested a 30-day extension due to existing workload backlog and staff changes.
- September 22, 2023: We participated in a Microsoft Teams call with TNF to discuss components of the proposed action.
- October 6, 2023 – March 13, 2024: TNF transmitted five revised BAs that included updates and clarifications based on continuing coordination with our staff.
- April 25, 2024: We sent the first draft BO to the TNF.
- June 24, 2024: TNF transmitted their comments on the first draft BO along with an updated BA that clarified or corrected the previous BA and reflected ongoing discussions with our office. To support the analysis in the updated BA, the TNF created a geospatial model of potential cuckoo breeding habitat.
- June – August 2024: We coordinated with TNF to refine the cuckoo breeding habitat model and to discuss other aspects of the BA and BO.
- August 19, 2024: TNF transmitted an updated BA that, among other updates, reflected recent updates to the cuckoo breeding habitat model.
- October 4, 2024: After further coordination with U.S. Fish and Wildlife Service (USFWS) staff, TNF transmitted an updated BA addressing effects monitoring within potential cuckoo breeding habitat.
- December 18, 2024: We sent a revised draft BO to TNF.
- January 21, 2025: We received comments from TNF on the revised 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. A detailed description can be found in the final BA received October 4, 2024 (TNF 2024).

The proposed project includes continued grazing authorizations and related actions on Cedar Bench and Pole Hollow allotments and re-authorizations on the vacant Bull Springs and Deadman Mesa allotments, hereafter collectively referred to as Lower Verde Subbasin Allotments (LVSAs; Figure 1). The LVSAs are located on the Payson Ranger District of the TNF. The proposed action includes the TNF’s continued grazing authorizations, construction and maintenance of improvements, conservation measures, adaptive management, and monitoring for 15 years upon issuance of this BO. Management would follow current guidance from Forest Service Handbook (FSH) 2209.13 - Grazing Permit Administration Chapter 90 – Rangeland Decision Making (USFS 2007) and would be implemented in accordance with existing Allotment Management Plans that were approved under TNF’s 1985 Forest Plan (USFS 1985).

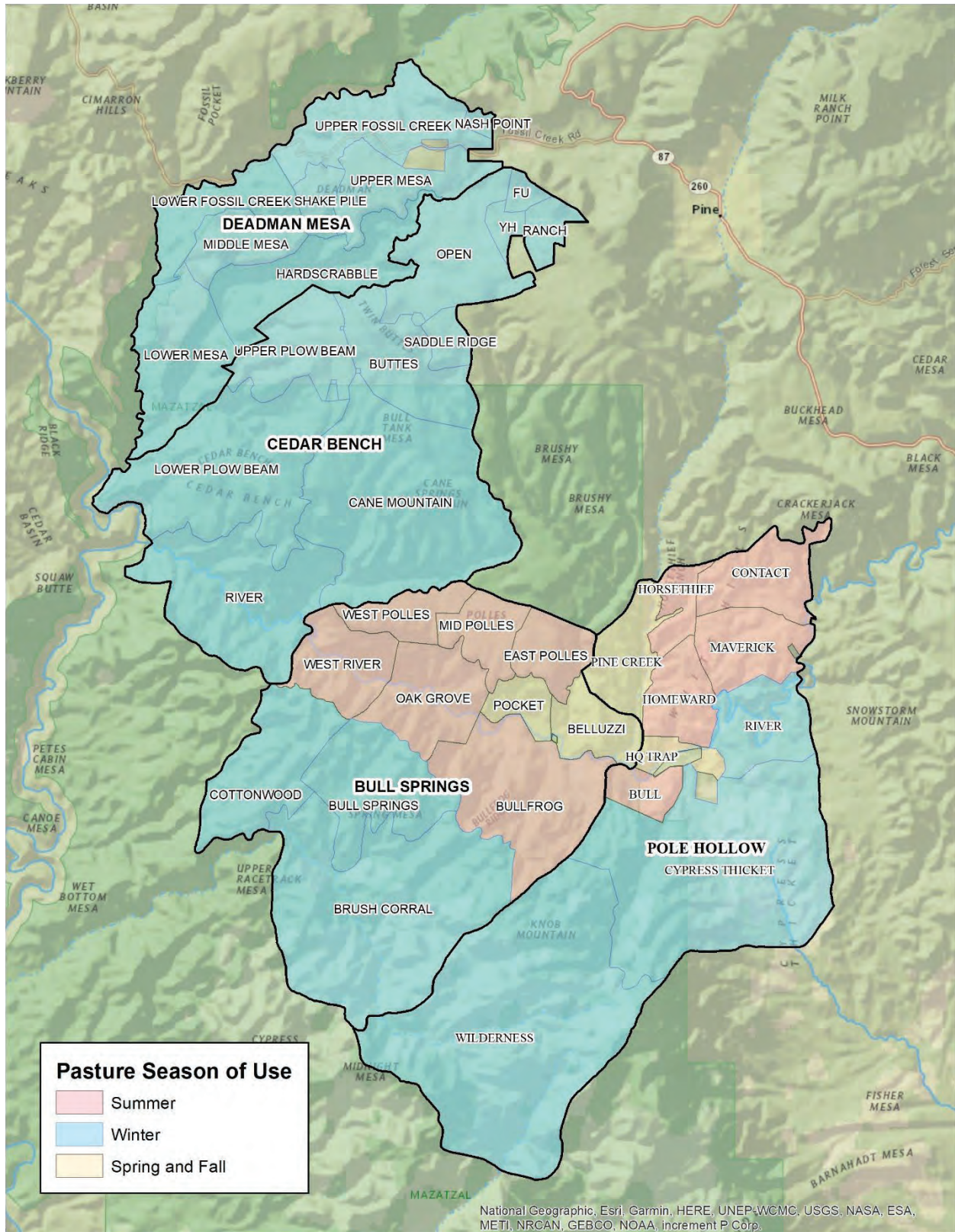


Figure 1. Lower Verde Subbasin Allotments, Pastures, and Typical Season of Use (TNF 2024).

TNF would implement existing allotment management plans for the LVSA's. Allotment management plans establish allotment goals and objectives and prescribe grazing systems and management practices intended to provide an improving trend in range condition. To implement the allotment management plans and adaptive management, TNF would provide annual operating instructions to the permittees specifying structural and non-structural improvements, pasture rotation schedules including timing, livestock numbers, and duration, and utilization standards.

Grazing Authorization and Operations

TNF proposes continued grazing authorization on Cedar Bench and Pole Hollow allotments as well as re-authorization of grazing on vacant Bull Springs and Deadman Mesa allotments. The number of adult cattle to be authorized on each allotment and season of use are provided in Table 1. Actual numbers of cattle would vary annually based on current resource conditions and factors including precipitation, pasture rotation, forage production, current range conditions (*i.e.*, forage and growing conditions), water availability, resource monitoring, and permittee needs, but will never exceed the permitted number for each allotment. Grazing on Bull Springs and Pole Hollow allotments would be authorized year-round while Cedar Bench and Deadman Mesa allotments would be authorized for seven months beginning at the end of October or first of November and continuing through the end of May (Table 1).

Table 1. Proposed Permitted Numbers of Adult Cattle and Season of Use on Lower Verde Subbasin Allotments.

Allotment	Number of Adult Cattle	Season of Use
Bull Springs	160	March 1 – February 28 (Year-round)
Cedar Bench	500	November 1 – May 31 (Seasonal)
Deadman Mesa	175	October 21 – May 31 (Seasonal)
Pole Hollow	175	March 1 – February 28 (Year-round)

Grazing within each allotment would occur through a pasture-level rotational system to allow forage regrowth. Grazing within each pasture will occur within the timeframe developed for each allotment; however, grazing within individual pastures may not occur throughout the entire time cattle are within the allotment. Animals would be moved to a new pasture once utilization levels in an area are met or before, as specified in the annual operating instructions for each allotment. Stock drive routes would be developed, and drives conducted as needed to meet livestock distribution requirements. Pasture use may also be deferred to allow for recovery, prevent patterns of repeated use, and accomplish resource goals related to fire, fuels, and habitat protection, as determined through monitoring and adaptive management described below.

While some pastures within yearlong grazing allotments are more suitable for winter use and others for summer, all non-excluded pastures would be available for grazing within the limits of forage availability and based on current resource conditions and growth patterns. Specifically, grazing would be managed to achieve long-term goals specified in each allotment's management plan (TNF 1986, 1988, 1989, 1994; see Adaptive Management and Monitoring below) and to

ensure the vegetation use thresholds provided in Table 2 are not exceeded. Typically, grazed pastures would be allowed at least one growing season and up to one year of rest once utilization levels are met before being grazed again. Typical season of use for individual pastures within allotments is depicted in Figure 1.

Table 2. Vegetation Use Thresholds.

Vegetation	Use Threshold
Upland herbaceous	30 to 40 percent of current year's growth
Upland browse	50 percent of current year's growth
Riparian herbaceous	40 percent of plant species biomass and maintain 6 to 8 inches of stubble height of emergent species such as sedges
Riparian woody	50 percent of leaders browsed on upper one third of plants up to 6 feet tall

Three areas within the LVSAs are designated as holding traps, which are typically used by livestock one to two times a year to aid with pasture rotations or when working livestock. Groups of livestock are generally limited to 20 head at a time as permittees move livestock from one pasture to another, often within a 10-day window.

An existing cattle corral at the south end of the Doll Baby Administrative Site may be used by the Bull Springs and Pole Hollow permittees for branding operations in April and/or May and shipping and handling cattle in October of each year. The permittees may also be authorized to use onsite horse corrals for overnighing animals during these timeframes. The permittees may use corrals at other times during the year for critical activities such as temporary holding, nursing, doctoring, branding, castrating, and sorting; these activities generally would not exceed 48 hours at a time.

Three pastures would be excluded from livestock grazing under the proposed action: River Pasture on Cedar Bench Allotment, which contains a portion of the East Verde River, and Upper and Lower Fossil Creek pastures on Deadman Mesa Allotment, which border Fossil Creek. Although Deadman Mesa Allotment's Lower Mesa pasture also borders Fossil Creek, livestock are not anticipated to be able to access the creek from this pasture due to inaccessible terrain and the proposed construction of a drift fence at the southern end of Deadman Mesa (see Range Improvements below). Under the proposed action, livestock would have access to the first 0.8 mile of Fossil Creek starting at its confluence with the Verde River when Cedar Bench Allotment's Lower Plow Beam pasture is in use. Along the East Verde River, TNF would restrict use of Headquarters Holding Trap and Doll Baby Administrative Site on Pole Hollow Allotment as well as Belluzzi and Pocket holding traps on Bull Springs Allotment to outside cuckoo breeding season (May 25 to September 30; see Conservation Measures below), with the exception of critical activities as described above as approved by the District Wildlife Biologist.

Livestock management practices such as herding and salting would be used to achieve desired livestock distribution within pastures. Permittees would provide sufficient herders to ensure management objectives are met and would ensure all necessary livestock management infrastructure for managing livestock are functioning prior to entering the next scheduled pasture. Grazing practices that would be followed include:

- Salt and/or supplements would be placed where forage is abundant to draw cattle to locations where current grazing levels are low. Salt and/or supplements would not be

placed any closer than 0.25 mile from natural or manmade water, recreation sites, or designated trails except where prior written approval had been obtained from District Ranger.

- No salting would occur within or adjacent to identified heritage sites. Salt would be removed from pastures when cattle have left an area and would not be placed within a pasture until cattle arrive. Salting locations would be coordinated with Wildlife and Range staff and the permittee.
- When entering the next scheduled pasture, all livestock would be removed from the previous pasture within two weeks (dependent on terrain).
- The permittee would ensure enough time is allotted to remove livestock to meet the pasture move date(s) and avoid over-utilization.

Range Improvements

Structural improvements would be constructed across the LVSA's to facilitate livestock distribution and achieve management objectives (Figure 2). The following site-specific improvements would be constructed within an estimated three-year timeframe following project authorization:

- A wildlife-friendly drift fence would be constructed at the southern end of Deadman Mesa prior to livestock entering the pasture, to prevent livestock access to Fossil Creek from the Deadman Mesa Allotment.
- One well would be constructed on Pole Hollow Allotment with a 4-inch pipe and solar panel. Work would be done using drilling equipment, typically a large truck with a drill mount that would access the site from existing USFS roads. Vegetation within ten feet of the well site would be disturbed by the drilling rig. One to two cubic yards of drill spoils (*i.e.*, excess earth and well installation material such as bentonite grout and sand) would be placed adjacent to the well from drilling and is expected to wash away following precipitation.
- Ten troughs and, if needed, storage tanks would be constructed on Pole Hollow Allotment and three troughs would be constructed on Cedar Bench Allotment.
- Construction of 4.4 miles of above-ground pipeline to connect proposed troughs to the proposed well on Pole Hollow Allotment and 0.75 mile of above-ground pipeline to connect the proposed troughs to an existing well on private property on Cedar Bench Allotment. Pipeline would be placed above ground and connected to the troughs and storage tanks along fence lines or roads where possible. Pipelines would be pulled in place by horse or utility terrain vehicle (UTV).

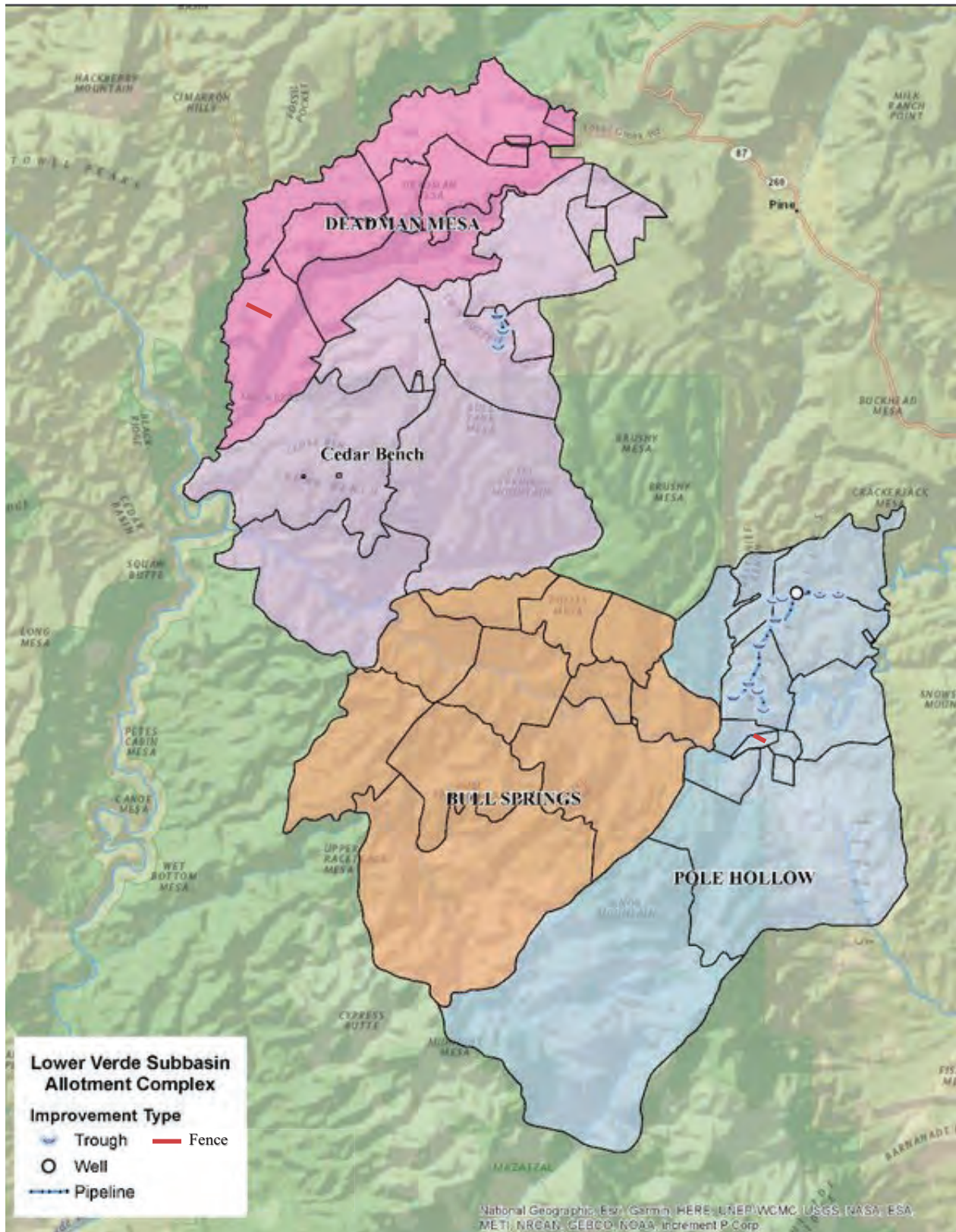


Figure 2. Proposed site-specific structural improvements within the Lower Verde Subbasin Allotments (TNF 2024).

In addition to site-specific range improvements listed above, the following non-site-specific improvements may be constructed as needed to facilitate livestock distribution across the LVSA:

- Pasture division fencing
- Holding traps or corrals
- Livestock handling facilities
- Exclosures
- Earthen stock tanks
- Trick tanks and catchments
- Additional pipelines and troughs with storage tanks
- Cattle guards
- Water developments such as troughs and tanks
- Range infrastructure maintenance (e.g., repairing fences and corrals, cleaning tanks)

All non-site-specific improvements would be conducted under TNF direction via the annual operating instructions and would adhere to the conservation measures described below. Motor vehicle and all-terrain vehicle (ATV)/UTV access to range improvement sites would be from existing roads where practicable. Off-road vehicle use by pickup, trailer, ATV/UTV, or motorcycle would be needed to transport materials or machinery to maintain or inspect structural range improvements. Existing routes or the shortest, most direct route to improvements would be used and new route construction would not be allowed without additional authorization from TNF. Cross-country motorized travel would be coordinated with the TNF and is not allowed when conditions are such that it would cause unacceptable natural resource damage (e.g., when soils are wet enough to create unacceptable surface displacement such as rutting or road widening).

Adaptive Management and Monitoring

The TNF would use adaptive management to modify the grazing strategy, which is intended to facilitate achievement of management objectives including adherence to utilization guidelines provided in Table 2 and riparian utilization guidelines described in USDA 2002. The monitoring and analysis that support an adaptive management strategy would help identify when changes in management actions are needed in response to current resource conditions. TNF may adjust authorized number of livestock in response to monitoring data, weather patterns, likelihood of plant regrowth, and previous years' utilization levels, among others. The authorized number of livestock may be adjusted but would not exceed the number authorized in the permit.

The TNF would utilize qualitative and quantitative monitoring techniques published by the USFS, U.S. Bureau of Land Management, and University of Arizona Cooperative Extension as described in the BA and summarized below. The need for adaptive management would be identified based on the following procedure (C. Akins, pers. comm. 2024):

- Upland monitoring data in key areas (described below under *Effectiveness Monitoring*) would be collected every 5 to 10 years under the Reading the Range program and would

be summarized by the University of Arizona Cooperative Extension and shared with the TNF's Range Program.

- Other monitoring data would be collected by the Range Program or collaborators (e.g., Friends of the Tonto National Forest).
- Once the data has been summarized, the Range Program, District Wildlife Biologist, and Forest Hydrologist would meet, most often prior to the January annual operating instruction meetings, to assess the need to change management or continue as currently prescribed.

Drought Preparation

TNF's adaptive management strategy would include working with allotment permittees to develop drought preparedness guidelines that will address potential drought impacts to livestock and vegetation, identify known issues, and strategically plan for different scenarios while actively monitoring. The USFS uses the Standardized Precipitation Index (SPI) to characterize meteorological drought. The SPI is a widely accepted drought index that quantifies drought as the number of standard deviations by which observed precipitation deviates from the long-term mean (Keyantash and National Center for Atmospheric Research 2018, National Centers for Environmental Information 2024). The index is negative for drought and positive for wet conditions. An interdisciplinary evaluation of grazing allotments for drought-related conditions is initiated when the SPI reaches a value of -1.00 or less for the preceding 12-month period. The drought evaluation is intended to result in management actions to protect rangeland resources and considers factors such as local precipitation, range management status as it relates to desired conditions, stocking levels, grazing strategy, and available water sources including well or spring production and presence of riparian vegetation at the water source. When the 12-month SPI becomes positive, vegetation resources are evaluated for indicators of drought recovery and grazing implementation focuses on recovery through incremental restocking and pasture rest.

Effectiveness Monitoring

TNF would use effectiveness monitoring to track long-term condition and trend of upland and riparian vegetation, soil, and watersheds. TNF would monitor utilization on key forage species, which consist of native perennial grasses or browse species palatable to livestock, at 16 permanent key areas that have been established at upland sites across the LVSA's since 2011 (Figure 3). Each key area is typically monitored every five to ten years on a rotational basis. 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 in cooperation with the permittee and cooperators.

While monitoring techniques as described above will be conducted in key areas, these would not be the sole locations for gathering information from the LVSA's to make decisions about the timing, intensity, duration, or frequency of livestock grazing in each grazing season. The overall condition of the allotment in both upland and riparian areas, distribution patterns, or rangeland improvement conditions could be assessed at any given time to help make those decisions. Also see *Riparian Utilization Monitoring* below for additional details of TNF's riparian monitoring strategy.

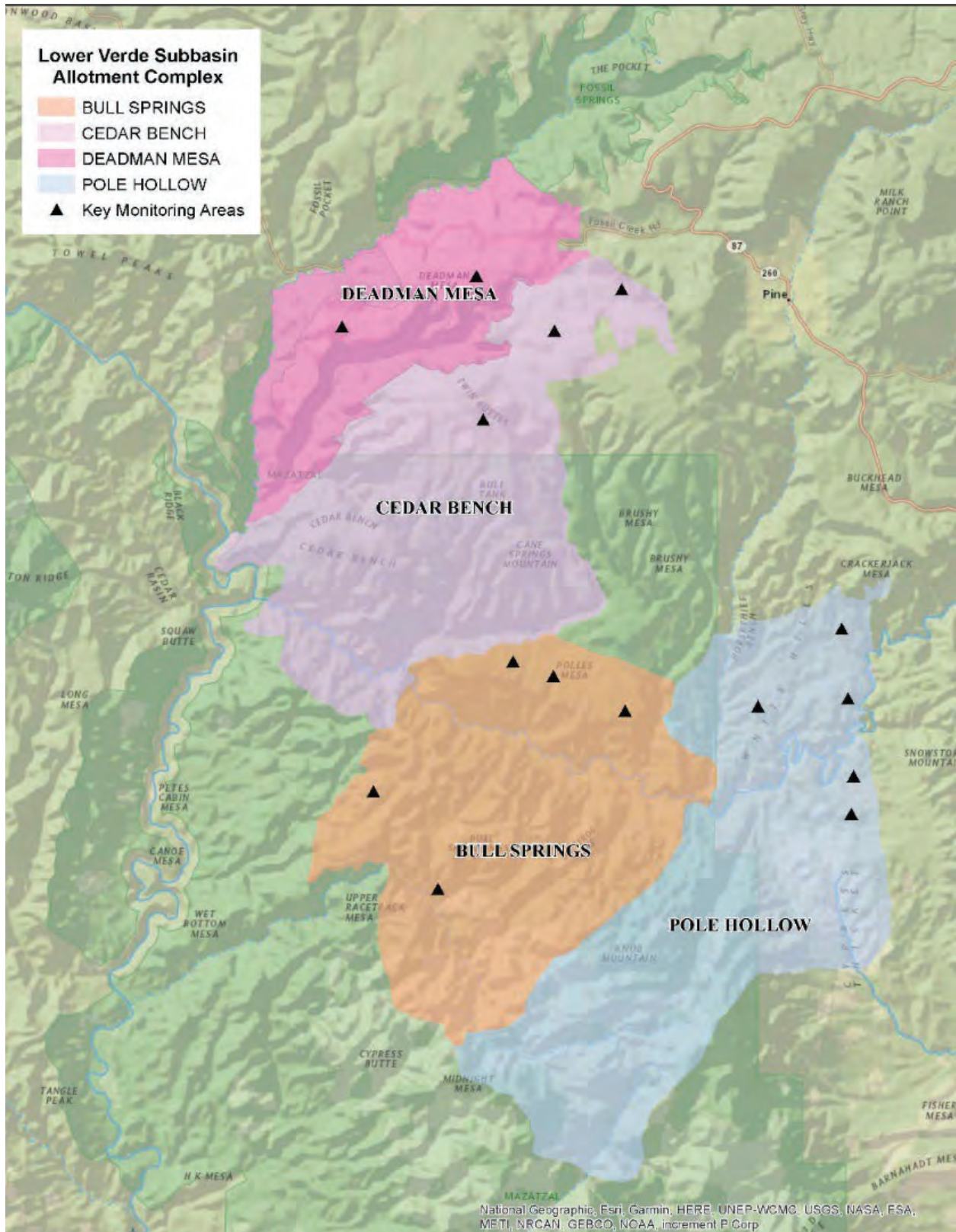


Figure 3. Location of Key Areas within the Lower Verde Subbasin Allotments (TNF 2024).

Implementation Monitoring

The USFS uses implementation monitoring to determine if activities are implemented in accordance with the allotment management plan and the annual operating instructions, and to determine if grazing meets use thresholds in upland and riparian areas. Implementation monitoring would be conducted yearly and would include inspection reports, forage utilization measurements in key areas, livestock counts, and/or facilities inspections. Information would be collected through routine pasture inspections and end-of-season utilization monitoring. The TNF Range Program, the permit holder, and cooperators would be responsible for monitoring livestock grazing utilization. Specific schedules for monitoring may vary from year-to-year based on resource needs, which could change with climatic variations and management. Monitoring for plant cover, vigor, recruitment, and diversity is intended to ensure that wildlife needs and riparian and watershed conditions are moving toward desired conditions.

Riparian Utilization Monitoring

TNF would continue to coordinate the Riparian Photopoint Program, which is implemented by Friends of the Tonto National Forest. From 1990 to 2009, 44 permanent monitoring points have been established across the LVSA to monitor conditions over time (Table 3). Photopoints are monitored during the growing season, which is defined for this program as mid-April to the end of September (Friends of the Tonto National Forest 2024). Points provide a qualitative record of changes due to factors including livestock management, flooding, fire, and drought. This information is used when informing decision makers about changes to management and restoration. TNF's goal would be to visit each photopoint in the project area every five years with most remote locations visited every 10 years. Riparian areas would also be monitored using riparian utilization measurements. This riparian utilization monitoring will center around reaches where riparian photopoint monitoring occurs.

Table 3. Existing Photo Points on Lower Verde Subbasin Allotments and History of Repeat Photography (TNF 2024).

Allotment	Pasture	Site Name	Number of Points	Year Established	Last Read	Trend
Bull Springs	Belluzzi	East Verde	4	1992-1996	2020	Improving
Bull Springs	Belluzzi	Pine Creek	3	1996-2009	2020	Stable
Cedar Bench	Lower Plow Beam	Fossil Creek	1	1995	1995	Limited data
Deadman Mesa	Upper Fossil Creek	Fossil Creek	2	1993	2009	Stable
Pole Hollow	Bull	East Verde	3	1990-1991	2020	Variable
Pole Hollow	Cypress Thicket	City Creek	8	2005-2006	2020	Stable
Pole Hollow	Cypress Thicket	Dennis Spring	1	1994	1996	Limited data
Pole Hollow	Cypress Thicket	Mineral Creek	7	1993-2005	2019-2020	Improving
Pole Hollow	Cypress Thicket	Mineral Spring	1	1993	2019	Stable
Pole Hollow	Cypress Thicket	Pole Hollow	13	2005	2006-2017	Improving

Additional riparian photopoints will be established in occupied and suitable unsurveyed cuckoo habitat, as described in the Conservation Measures below.

In order to achieve the standards and guidelines described in the 1985 Forest Plan, the following use guidelines for riparian components will be implemented: *obligate riparian tree species* – limit use to less than 50 percent (%) of terminal leaders (top one third of plant) on palatable riparian tree species accessible to livestock (usually less than 6 feet tall); *deergrass* – limit use to less than 40% of plant species biomass; *emergent species* (rushes, sedges, cattails, and horsetails) – maintain six to eight inches of stubble height during the grazing period. Utilization limits for herbaceous riparian vegetation are intended to: 1) protect plant vigor; and 2) provide physical protection of streambanks or the sediment on the greenline (*i.e.*, the first perennial vegetation that forms a lineal grouping of community types on or near the water's edge [Winward 2000]) that could develop into a bank feature.

If utilization reaches limits of recommended allowable use, livestock would be moved from critical areas or pastures, with consideration of time of year and extent of area involved. Actual use records in combination with utilization measurements will inform if it may become necessary to minimize or remove access to riparian habitat if grazing pressure becomes a limiting factor in use of pastures. Notably, TNF's ability to conduct riparian photopoint, utilization, and effectiveness monitoring is limited in some locations (*e.g.*, Fossil Creek, portions of the East Verde River) in part due to difficulty of access through rugged terrain.

Forest Plan Aquatic and Riparian Monitoring

As required by the 2012 Planning Rule (36 CFR 219.12(a)(5)), TNF will collaborate with other agencies, organizations, individuals, and Tribes to develop a monitoring program in support of their updated Forest Plan, which was finalized in December 2023 (TNF 2023). As part of the monitoring program, TNF intends to establish a riparian and aquatic monitoring component based on stream geomorphology, stream permanence, and climactic zones that pairs reference reaches with reaches actively used for grazing, recreation, or mining across the forest. Monitoring areas will be established over the first five years after the establishment of the new Forest Plan as part of the required monitoring within the plan. At a minimum, the TNF will: 1) establish quantitative vegetation monitoring transects using the USFS National Riparian Protocol or other best available science; 2) evaluate macroinvertebrates using the Ephemeroptera, Plecoptera, and Trichoptera Index or index of biological integrity; and 3) measure water quality parameters such as pH, temperature, total dissolved solids, and fines. Results from this monitoring will be used to adaptively manage ongoing actions across the forest.

Conservation Measures

TNF would implement the following conservation measures with the intent to avoid and minimize adverse effects to ESA-listed species and critical habitat resulting from the proposed action:

General

G-1: It will be the permittee's priority to ensure any of their livestock observed in unscheduled areas are removed. If fence repairs are needed, permittee will complete repairs. Permittees will make all reasonable efforts to remove livestock from unscheduled areas occupied by federally listed species within 72 hours of notification. In some situations, it may take permittees 3 to 10 days to organize resources and move

livestock and/or repair fences given the remoteness of much of the project area. TNF will coordinate any delay in action with the USFWS.

Riparian

- RP-1:* Equipment or staging areas needed to conduct range management activities (heavy equipment, vehicles, temporary holding pens, etc.) would be outside riparian areas or river and stream corridors and when appropriate, use spill containment systems to minimize impacts.
- RP-2:* Motorized vehicles or heavy equipment used to complete range management activities will not be permitted to cross a perennial stream unless an established road already exists or is approved by the District Wildlife Biologist.
- RP-3:* Trailing livestock along stream banks and riparian areas is prohibited except to cross a drainage to access another pasture or where no other trailing route exists. TNF will administer this conservation measure through the annual operating instructions with each allotment permittee.

Range Improvements

- RI-1:* New water developments (earthen stock tanks, above ground drinkers, troughs, etc.) would not be developed within 400 feet of perennial streams.
- RI-2:* New water developments would not disturb or negatively impact primary constituent elements (PCEs) or physical and biological features (PBFs) of any species' proposed or designated critical habitat. This also includes selecting areas requiring the least amount of vegetation removal, felling of trees, or removing downed logs.
- RI-3:* Non-site-specific improvements would not be constructed at any special status (federally listed and USFS sensitive species or species of conservation concern) occupied site or protected habitat unless approved by a District Wildlife Biologist in coordination with the USFWS. Improvements would not be constructed during sensitive breeding seasons where the action can disrupt breeding behavior or recruitment.
- RI-4:* All new or existing above ground water developments will have wildlife ramps to allow for ingress and egress.
- RI-5:* New spring developments would not dewater springs and must maintain a residual flow for riparian obligate vegetation and wildlife species. When possible, construction will follow gravity flow development designs outlined in *Rangeland water developments at springs: best practices for design, rehabilitation, and restoration* authored by Joseph T. Gurrieri, 2020.
- RI-6:* Horizontal wells must contain a shut off valve and reducer to avoid failure or waste of water.
- RI-7:* New fencing would be constructed using a wildlife friendly design which includes three upper strands of barbed wire and a top wire not to exceed 42 inches. The lowest strand will be smooth wire set at 16-18 inches to allow wildlife to safely pass under.
- RI-8:* New authorizations for wells and pipelines on National Forest System lands shall only be considered where the water removed and/or transported by these facilities would not adversely impact springs, wetlands, riparian areas, surface flows, and other groundwater dependent ecosystems on National Forest System lands.

Western Yellow-Billed Cuckoo

- YBC-1:* Improvements or maintenance to existing features or construction of new range infrastructure will not occur during the cuckoo breeding season (May 25 through September 30) in occupied or mapped suitable breeding habitat unless the District Wildlife Biologist, in coordination with the USFWS, determines: 1) the site is unoccupied; 2) mapped breeding habitat is verified as dispersal habitat; or 3) the action will not disrupt breeding birds.
- YBC-2:* Pole Hollow Allotment permittee will not use Headquarters Holding Trap and Doll Baby Administrative Site during the breeding season from May 25 through September 30 each year to ensure short-term grazing operations do not disturb breeding cuckoos. Any critical activity that must occur during the breeding season will be coordinated with the District Wildlife Biologist to ensure activities do not impact cuckoos or their habitat. Critical activities could include temporary holding, nursing, doctoring, branding, or castrating; these activities generally do not exceed 48 hours at a time.
- YBC-3:* Bull Springs Allotment permittee will not use Belluzzi or Pocket holding traps or Doll Baby Administrative Site during the breeding season from May 25 through September 30 each year to ensure short-term grazing operations do not disturb breeding cuckoos. Any critical activity that must occur during the breeding season will be coordinated with the District Wildlife Biologist to ensure activities do not impact cuckoos or their habitat. Critical activities could include temporary holding, nursing, doctoring, branding, or castrating; these activities generally do not exceed 48 hours at a time.
- YBC-4:* Photopoint Monitoring in Occupied Cuckoo Habitat: TNF will increase photopoint monitoring in occupied cuckoo habitat. TNF will qualitatively assess the condition of cuckoo habitat along the East Verde River in the vicinity of Doll Baby Ranch by increasing frequency of riparian photo-point monitoring along the occupied cuckoo reach. Currently, two of the three photopoints in Pine Canyon and seven established riparian photopoints on the East Verde River overlap with occupied cuckoo habitat.
- TNF will evaluate locations of established points along this reach of the East Verde River with the likelihood of adding at least two more photopoints for adequate coverage of occupied habitat. TNF commits to visiting each point in occupied habitat immediately prior to livestock use (typically May and/or October) in holding traps and then one month after each livestock use to monitor system recovery. TNF will also install game cameras at three photo-point sites varying in bank stability and vegetation composition to better understand use (wildlife, livestock, recreation, etc.) and changes in the system. If long-term system recovery shows a decline for two consecutive years and can be attributed to livestock, TNF will explore management actions, in coordination with the USFWS, to reduce pressure on riparian areas such as: 1) installing off-stream water or placing mineral and salt blocks to influence livestock distribution; 2) installing partial fencing if feasible and effective; or 3) adjusting use of holding traps.
- YBC-5:* Photopoint Monitoring in Suitable Unsurveyed Cuckoo Habitat: There are no established riparian photopoints on the East Verde River adjacent to LF Ranch where the most suitable unsurveyed cuckoo breeding habitat exists; habitat along Pine Creek and the East Verde on the Pole Hollow Allotment similarly lack photopoints. TNF will establish one photopoint each in Belluzzi Holding Trap, Pocket Holding Trap, and

Bullfrog, Pine Creek, and Homeward pastures and collect photos using two game cameras per point depicting upstream and downstream habitat. If long-term system recovery shows a decline (*i.e.*, lack of seedling and sapling recruitment or survivorship) for two consecutive years and can be attributed to livestock, TNF will explore management actions, in coordination with USFWS, to reduce pressure on riparian areas such as: 1) installing off-stream water or placing mineral and salt blocks to influence livestock distribution; 2) installing partial fencing if feasible and effective; or 3) adjusting use of holding traps or Bullfrog Pasture. Should access to these areas become more feasible in the future, use of game cameras to acquire photos will not be needed and standard photos and assessments will be taken.

YBC-6: TNF will continue to complete protocol surveys to determine when yellow-billed cuckoos arrive at and migrate from occupied habitat at Doll Baby Ranch. TNF will also use bioacoustics or protocol surveys to understand cuckoo distribution in unsurveyed but suitable habitat when resources allow including difficult to access areas east and west of East Verde River near LF Ranch.

Aquatic Species and Designated Critical Habitat

AQ-1: Livestock will not graze Lower and Upper Fossil Creek pastures, which provide access to Fossil Creek on Deadman Mesa Allotment. TNF will ensure the southern boundary fence line of the appropriate excluded pasture(s) is inspected prior to moving livestock to any of the following adjoining pastures: Middle Mesa, Shake Pile, Upper Mesa, and Nash Point. Livestock will have access to Lower Mesa Pasture only after a drift fence is constructed on the southern edge of Deadman Mesa. This fence construction, combined with extremely steep terrain and bluffs, will prohibit livestock from accessing lower reaches of Fossil Creek bordering Deadman Mesa Allotment.

AQ-2: TNF will ensure the Lower Plow Beam Pasture fence is inspected prior to use to ensure livestock cannot access Verde River or move upstream in Fossil Creek to Deadman Mesa Allotment when cattle are scheduled in the pasture. At least once annually, the TNF will monitor the 0.8-mile reach of Fossil Creek and report number of livestock using the area; TNF may work with the grazing permittee to assist with carrying out these inspections.

Mexican Spotted Owl and Designated Critical Habitat

MSO-1: Creation of new earthen tanks located within Mexican spotted owl critical habitat will be placed in areas where there will be no negative impacts to Primary Constituent Elements. For example, trees or snags greater than 18 inches diameter-at-breast-height would not be felled, and large downed logs would not be removed.

MSO-2: Livestock grazing or livestock management activities will occur within Protected Activity Centers in the LVSA's, but the following actions will not be permitted inside Mexican spotted owl Protected Activity Centers during the breeding season (March 1 through August 31):

1. use of mechanized equipment such as chainsaws or electric/gas powered post pounders
2. operation of ATV/UTVs other than on existing roads

3. use of corrals
4. maintenance of corrals, buildings, or earthen stock tanks

Actions may occur during the MSO breeding season if non-breeding or absence is inferred by a District Wildlife Biologist. On a case-by-case basis, exceptions may occur where above actions take place during the breeding season when nesting is unknown or nesting is confirmed, and a nest site located. Actions could occur inside a PAC if the action takes place at least 0.25 mile away from the known nest site and time/hour of day, length of disturbance, noise level, location within PAC, and noise reducing measures have been evaluated by TNF. Depending on topography and vegetation, the 0.25-mile buffer may be reduced or expanded. For any action completed during the breeding season, TNF will first receive approval from USFWS.

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 USFWS has determined that the action area for this project includes full extent the four LVSA's, which consist of the 32,100-acre Bull Springs, the 32,000-acre Cedar Bench, the 17,000-acre Deadman Mesa, and the 36,300-acre Pole Hollow allotments and a portion of the Verde River adjacent to the action area at the Fossil Creek confluence.

STATUS OF THE SPECIES AND CRITICAL HABITAT

This section summarizes best available data about the rangewide status of the cuckoo that are relevant to formulating an opinion about the proposed action. The USFWS published its decision to list the western DPS of the yellow-billed cuckoo as threatened on October 13, 2014 (USFWS 2014). We have not yet developed a recovery plan for the cuckoo. Unless otherwise noted, the following describes the life history of the western DPS of the yellow-billed cuckoo; eastern cuckoos differ from western cuckoos in regulatory status and some life history traits.

Species Description

Life History

The cuckoo is a neotropical migrant that breeds in North America and winters in South America (Sechrist et al. 2012; McNeil et al. 2015; Hughes 2015a). Cuckoos breed from late May through September, although most nesting occurs from late June through August. Timing of spring migration and arrival on the breeding grounds is likely related to climate, habitat, and food availability (Pulido et al. 2001; Cresswell et al. 2011). Both adults build loose platform nests composed of dry twigs. Nest height ranges from 1.3 – 17 meters (4.3 to 55.8 feet; Halterman 2001; McNeil et al. 2013; Wohner et al. 2021). Nestlings grow rapidly, with a period of 17 days from start of incubation to fledgling, which is among the shortest of bird species (Hughes 2015).

Given that cuckoos are larger birds with a short hatch-to-fledge time, they require access to abundant food sources to successfully rear their rapidly growing offspring (Laymon 1980). In portions of the southwestern United States, high densities of prey species may be seasonally present, often for brief periods of time, during the vegetation growing season. Food availability and foraging distance can vary greatly within and between years, drainages, and geographic area and is largely rainfall related. In areas that typically receive rains during the summer monsoon, an increase in humidity, soil moisture, and surface water flow are important triggers for insect

reproduction and cuckoo nesting (Wallace et al. 2013). In years of high insect abundance, cuckoos lay larger clutches (three to five eggs rather than two), a larger percentage of eggs produce fledged young, and they breed multiple times (two to three nesting attempts rather than one; Laymon et al. 1997). On the upper San Pedro and lower Colorado Rivers, cuckoos renested following both successful and unsuccessful nesting attempts (Halterman 2009; McNeil et al. 2013). These subsequent nests are sometimes hundreds of meters away from previous nests.

Cuckoos eat large insects (*e.g.*, cicadas, caterpillars, katydids, grasshoppers, crickets, large beetles, dragonflies, and moth larvae) and small vertebrates (frogs and lizards) during nesting season (Laymon and Halterman 1985; Laymon et al. 1997; Halterman 2001, 2009; Griffin 2015a). Minor prey includes beetles, dragonflies, praying mantis, flies, spiders, butterflies, caddis flies, crickets, and cicadas (Laymon et al. 1997; Hughes 2015a). In Arizona, cicadas are an important food source (Halterman 2009).

Habitat

Rangewide breeding habitat across the western DPS exists primarily in riparian woodlands along low-gradient streams, broad floodplains, and open riverine valleys that provide wide floodplain conditions. The general habitat characteristics are areas that are often greater than 325 feet wide, usually dominated by willow (*Salix* spp.) or cottonwood (*Populus* spp.) with above-average canopy closure (greater than 70%), and a cooler, more humid environment than the surrounding riparian and upland habitats. These areas contain the moist conditions that support riparian plant communities made up of overstory and understory components that provide breeding sites, shelter, cover, and food resources. In addition to cottonwood and willow, riparian vegetation may include tree species other than cottonwood and willow, including but not limited to boxelder (*Acer negundo*), ash (*Fraxinus* spp.), walnut (*Juglans* spp.), and sycamore (*Platanus* spp.) (Hamilton and Hamilton 1965; Gaines 1974; Laymon 1980; Gaines and Laymon 1984; Groschupf 1987; Corman and Magill 2000; Dettling & Howell 2011).

Although tamarisk (*Tamarix* spp.) monocultures generally lack the structural diversity of native riparian habitat, cuckoos may use these areas for foraging, dispersal, and breeding, especially if sites retain some native trees. Most occupied habitat with a tamarisk component is composed of at least 50% native habitat, but in parts of the cuckoo's range, some tamarisk-dominated sites have been used for nesting and foraging including parts of the Bill Williams, Verde, Gila, Salt, and Rio Grande rivers (Groschupf 1987; Corman and Magill 2000; Halterman 2001; Sogge et al. 2008; Dockens and Ashbeck 2011, 2011b; Jarnevich et al. 2011; McNeil et al. 2013; Dillon et al. 2018; White et al. 2018; Parametrix, Inc. and Southern Sierra Research Station 2019).

Home range size is highly variable and may depend on habitat quality and availability. Average 95% Kernel Density Home Range estimates are typically over 20 ha (49.4 acres) with individual estimates ranging from 1.5 to 216 hectares (3.7 to 533.7 acres; Laymon and Halterman 1985; Halterman 2009; McNeil et al. 2013; Sechrist et al. 2013; Dillon and Moore 2020). Cuckoos are also highly mobile, with estimates of movements from the Middle Rio Grande in New Mexico from 204 to 3,357 meters (669 to 11,013 feet) within a single day, and 365 to 5,574 meters (1,198 to 18,287 feet) within a season (Sechrist et al. 2013; Dillon and Moore 2020).

Abundance and Distribution

Rangewide – The cuckoos' rangewide territory estimates are near 1,300 (USFWS 2019). Based on historical accounts, the cuckoo was formerly widespread and locally common in California and Arizona, more narrowly distributed but locally common in New Mexico, Oregon, and

Washington, and uncommon along the western front of the Rocky Mountains north to British Columbia (American Ornithologists' Union 1998; Hughes 2015b). The cuckoo may now be extirpated from British Columbia, Washington, and Oregon (Hughes 2015a; USFWS 2021) and rare in scattered drainages in western Colorado, Idaho, Nevada, and Utah, with single, nonbreeding birds most likely to occur (USFWS 2014, 2020). The largest remaining core breeding populations occur in Arizona, along the Rio Grande in New Mexico, and in northwestern Mexico (USFWS 2020, USFWS 2021). Population declines continue to occur due to continuing and new threats to the western DPS (USFWS 2020).

Arizona – There are an estimated 450 cuckoo breeding territories across Arizona (USFWS 2019). Historically, the species was a common resident chiefly in the lower Sonoran zones of southern, central, and western Arizona (Phillips et al. 1964; Groschupf 1987). Populations in Arizona have declined in many perennial riparian areas from historical levels over the past 35 years, with recent declines at some of the largest populations (e.g., Bill Williams River). The San Pedro River supports the largest population of cuckoos in Arizona in an unregulated riparian system and one of the largest in the western DPS. The Gila River and Lower Colorado River also contain large populations of cuckoos in Arizona. Since listing, surveyors have documented cuckoos breeding in ephemeral and intermittent drainages with a mix of xeroriparian and non-riparian trees, indicating a broader range of habitats and geographic areas than previously known. Fewer than 10 territories are present within most drainages, but combined they make up a large amount of occupied habitat across the landscape. The cuckoo currently nests primarily in the central and southern parts of the state, as well as at revegetation sites along the lower Colorado River (Groschupf 1987; Corman and Magill 2000; Halterman 2009; McNeil et al. 2013; Griffin 2015a; MacFarland and Horst 2015, 2016, 2017, 2019; Sferra et al. 2019).

Threats

Current cuckoo breeding populations are fragmented and geographically isolated. The primary threat to the species is loss and degradation of its habitat from altered watercourse hydrology and natural stream processes, livestock overgrazing, encroachment from agriculture, and resulting conversion of native habitat to predominantly nonnative vegetation. Additional threats to the species include the effects of climate change, drought, pesticides, wildfire, and fragmentation of suitable habitat patches (USFWS 2014). In addition, minerals mining projects negatively impact occupied habitat by reducing streamflow, habitat, and increasing disturbance (USFWS 2020). The tamarisk leaf beetle (*Diorhabda* spp.) may potentially negatively impact occupied habitat by defoliating tamarisk to the extent that it no longer provides protective cover, temperature amelioration, or food (USFWS 2020). Mortality from collisions with towers and other tall structures and mortality from solar power facilities is an ongoing and serious threat that needs further evaluation (Longcore et al. 2005; Kagan et al. 2014).

Critical Habitat

USFWS designated critical habitat for the cuckoo on April 21, 2021 (USFWS 2021) encompassing 298,845 acres across the western United States. Critical habitat units do not include all known occupied habitat or all reaches of occupied drainages. Given the wide variety and extent of foraging habitat outside breeding habitat, and the large geographic areas in which cuckoos search for food, we did not designate foraging habitat as critical habitat.

Based on our current knowledge of the habitat characteristics required to sustain the species' life-history processes, including breeding and dispersing, we have determined that the specific physical or biological features (PBFs) essential to the conservation of the cuckoo consist of the

following three components:

PBF 1 - Rangelwide breeding habitat. Riparian woodlands across the DPS; Southwestern breeding habitat, primarily in Arizona and New Mexico: Drainages with varying combinations of riparian, xeroriparian, and/or nonriparian trees and large shrubs. This PBF includes breeding habitat found throughout the DPS range as well as additional breeding habitat characteristics unique to the southwest.

- a. Rangelwide breeding habitat (including areas in the southwest): Rangelwide breeding habitat is composed of riparian woodlands within floodplains or in upland areas or terraces often greater than 325 feet in width and 200 acres or more in extent with an overstory and understory vegetation component in contiguous or nearly contiguous patches adjacent to intermittent or perennial watercourses. The slope of the watercourses is generally less than 3% but may be greater in some instances. Nesting sites within the habitat have an above-average canopy closure (greater than 70%), and have a cooler, more humid environment than the surrounding riparian and upland habitats. Rangelwide breeding habitat is composed of varying combinations of riparian species including the following nest trees: cottonwood, willow, ash, sycamore, boxelder, alder, and walnut.
- b. Southwestern breeding habitat: Southwestern breeding habitat, found primarily in Arizona and New Mexico, is more variable than rangelwide breeding habitat. Southwestern breeding habitat occurs within or along perennial, intermittent, and ephemeral drainages in montane canyons, foothills, desert floodplains, and arroyos. It may include woody side drainages, terraces, and hillsides immediately adjacent to the main drainage bottom. Drainages intersect a variety of habitat types including, but not limited to, desert scrub, desert grassland, and Madrean evergreen woodlands (presence of oak). Southwestern breeding habitat is composed of varying combinations of riparian, xeroriparian, and/or nonriparian tree and large shrub species including, but not limited to, the following nest trees: cottonwood, willow, mesquite, ash, hackberry, sycamore, walnut, desert willow, soapberry, tamarisk, Russian olive, juniper, acacia, and/or oak. In perennial and intermittent drainages, Southwestern riparian breeding habitat is often narrower, patchier, and/or sparser than rangelwide riparian breeding habitat and may contain a greater proportion of xeroriparian trees and large shrub species. Although some cottonwood and willow may be present in Southwestern riparian habitat, xeroriparian species may be more prevalent. Mesquite woodland may be present within the riparian floodplain, flanking the outer edges of wetter riparian habitat, or scattered on the adjacent hillsides. The more arid the drainage, the greater the likelihood that it will be dominated by xeroriparian and nonriparian nest tree species. Arid ephemeral drainages in southeastern Arizona receive summer humidity and rainfall from the North American Monsoon (PBF 3), with a pronounced green-up of grasses and forbs. These arid ephemeral drainages often contain xeroriparian species like hackberry or nonriparian species associated with the adjacent habitat type like oak, mesquite, acacia, mimosa, greythorn, and juniper. In southeastern Arizona mountains, breeding habitat is typically below pine woodlands (~6,000 feet).

PBF 2 - Adequate prey base. Presence of prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies, moth larvae, spiders),

lizards, and frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

PBF 3 - Hydrologic processes. The movement of water and sediment in natural or altered systems that maintains and regenerates breeding habitat. This physical or biological feature includes hydrologic processes found in rangewide breeding habitat as well as additional hydrologic processes unique to the southwest in southwestern breeding habitat:

- a. Rangewide breeding habitat hydrologic processes (including the southwest): Hydrologic processes (either natural or managed) in river and reservoir systems that encourage sediment movement and deposits and promote riparian tree seedling germination and plant growth, maintenance, health, and vigor (*e.g.*, lower-gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). In some areas where habitat is being restored, such as on terraced slopes above the floodplain, this may include managed irrigated systems that may not naturally flood due to their elevation above the floodplain.
- b. Southwestern breeding habitat hydrologic processes: In southwestern breeding habitat, elevated summer humidity and runoff resulting from seasonal water management practices or weather patterns and precipitation (typically from North American Monsoon or other tropical weather events) provide suitable conditions for prey species production and vegetation regeneration and growth. Elevated humidity is especially important in southeastern Arizona, where cuckoos breed in intermittent and ephemeral drainages.

Previous Related Consultations

Given the wide range of the cuckoo, many Federal actions affect this species every year. A complete list of all formal consultations affecting the cuckoo in Arizona is kept by Arizona Ecological Services.

ENVIRONMENTAL BASELINE

Under 50 CFR § 402.02, the environmental baseline is “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 the past and present impacts of all Federal, State, or private actions and other human activities in the action area; the anticipated impacts of all proposed Federal projects in the action that have already undergone formal or early section 7 consultation; and the impact of State or private actions which are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from agency activities or existing Federal agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline.”

Description of the Action Area

The following is a summary of the environmental baseline as presented in the revised BA received October 4, 2024 (TNF 2024) unless otherwise noted. Additional details and citations for original source material can be found in TNF (2023).

The four LVSAAs encompass approximately 117,400 acres located west of Payson in Gila and Yavapai counties, Arizona. Plant communities across LVSA are predominately pinyon-juniper woodland in higher elevations and chapparal in lower elevations. Small belts of riparian

communities made up of sycamore, cottonwood, and willow are present along major drainages and near springs. There is a small stand of ponderosa pine (*Pinus ponderosa*) on the southeastern side of Pole Hollow Allotment. Fifteen sixth code watersheds lie at least partially in the LVSA, 12 of which are considered to be functioning at risk, two functioning properly, and one functionally impaired. Major watercourses within or adjacent to the LVSA include the Verde River, Fossil Creek, and East Verde River.

In 2020, the USFS contracted the removal of unauthorized livestock from National Forest System lands with a goal to remove all unauthorized livestock from the Verde River corridor by spring 2023. Gather efforts on Coconino, Prescott, and Tonto national forests resulted in the removal of 363 feral cattle. Removals are ongoing with an estimate of 200 head remaining in the Verde River corridor, some of which may encroach into portions of the action area near the river.

Payson Ranger District recently implemented landscape restoration and fuels reduction treatments inside LVSA under the Pine/Strawberry Wildland-Urban Interface Project (see Previous Consultations in the Action Area below for consultation details). From 2018 to 2021, TNF implemented 1,197 acres of mastication treatments on Cedar Bench Allotment and 707 acres of mastication on Deadman Mesa Allotment in 2018. TNF plans to masticate an additional 3,178 acres on Deadman Mesa Allotment between 2023 and 2024. The goal of fuels reduction treatments is to reduce the likelihood of stand replacing fire while maintaining habitat for wildlife, protecting powerline infrastructure, and creating a more resilient landscape. TNF considers these treatments to have improved the Lower Verde Subbasin watershed by protecting water supply, reducing sediment, and increasing herbaceous cover and forbs. Fuels reduction treatments have not occurred on Bull Springs or Pole Hollow allotments.

Four wildfires have burned across the LVSA since 2004 (Table 4). Fire severity in vegetation was mostly low to moderate, except for the Willow Fire. Large areas of the Willow Fire burned with uncharacteristically high severity in ponderosa pine. It is unknown how much of the pine that burned with high severity recovered as ponderosa pine but, for at least one to two decades post fire, those areas are expected to be dominated by shrubby vegetation.

Table 4. Fire history in the Lower Verde Subbasin Allotments (TNF 2024).

Fire	Allotment	Year	Burn Severity	Acres
Willow	Bull Springs/Pole Hollow	2004	Mostly high with patches of timber stringers remaining	42,422
Polles	Bull Springs	2020	Low and very low with a small amount of moderate	588
Bull	Bull Springs	2020	Low and very low with a small amount of moderate	542
Backbone	Deadman Mesa	2021	Mostly low and very low with patches of moderate and high	6,625

As described in the BA, monitoring of the 16 key areas in the LVSA shows that ground cover types have remained generally stable with a slight decrease in bare ground and increase in basal vegetation. Areas that have been rested from grazing show signs of stable and improving trends in vegetation and soil condition. Forage production has fluctuated, largely a function of precipitation.

Allotment-specific information and grazing history is provided below.

Bull Springs Allotment

Bull Springs Allotment encompasses 32,100 acres and is located 12 miles west of Payson, Arizona. The entire allotment is located within the Mazatzal Designated Wilderness. Vegetation on the allotment consists primarily of pinyon-juniper and chaparral. Riparian communities are present along the East Verde River, Rock Creek, and Wet Bottom Creek. Elevation ranges between 2,800 feet above mean sea level (amsl) at the East Verde River to approximately 6,200 feet amsl at Knob Mountain.

From the early 2000s through 2020, TNF authorized Bull Springs Allotment to a single permittee who grazed up to 160 cattle yearlong. Bull Springs Allotment is divided into six summer pastures, three winter pastures, and two holding traps, which were authorized to be used on an alternating basis for working cattle in spring and fall. The permittee was authorized to use scheduled summer pasture(s) for up to five months every two out of three years. Three winter pastures were authorized to be grazed on a deferred rotation, preventing any one pasture from being grazed during the same months for two consecutive years. Bull Springs Allotment has been vacant since March 2020 after the TNF suspended and subsequently cancelled the previous grazing permit due to noncompliance.

In 2004, the Willow Fire burned much of the south end of the Bull Springs Allotment and since then, this area has been largely ungrazed due to a lack of infrastructure and range improvements. There are five key areas for monitoring on Bull Springs Allotment, with three on Polles Mesa and two in the southern portion. Monitoring efforts have been concentrated on areas used by cattle on Polles Mesa (East and Mid Polles key areas). Vegetation and soil condition trends remain stable on Polles Mesa but in poor condition due to years of noncompliant livestock management. Vegetation and soil conditions are generally understood as improving in winter country. Riparian photo monitoring points along the East Verde River and Pine Creek show improving and stable trends, respectively. Most watersheds in this allotment are functioning at risk with Sycamore Creek and Wet Bottom Creek considered to be functioning properly.

Cedar Bench Allotment

Cedar Bench Allotment encompasses 32,000 acres and is located two miles southwest of Strawberry, Arizona. Just over 20,000 acres of the southern portion of the allotment is within the Mazatzal Designated Wilderness. Vegetation varies from semi-desert grassland near the Verde River to ponderosa pine near Strawberry Mountain. Riparian communities exist along Fossil Creek, Rock Creek, Hardscrabble Creek, and The Gorge. Elevation ranges from approximately 2,600 feet amsl at the confluence of the Verde River and Fossil Creek to 6,400 feet amsl at Strawberry Mountain.

Cedar Bench is a winter-season grazing allotment currently permitted for up to 500 cattle from November 1 to May 31 annually. Cedar Bench Allotment consists of six pastures scheduled for general use, three for holding traps, and one used as a bull pasture. Cedar Bench is currently managed on a seasonal rotation with cattle at higher elevations on the northern part of the allotment in November. Cattle are worked south to lower elevations during winter months, then return to the northern part of the allotment in the spring. Cattle are then shipped off TNF to summer range at the end of May. River Pasture is currently excluded from rotations.

In 2021, TNF revised the Cedar Bench Allotment boundary to exclude Verde River. This revision also reduced the size of Lower Plow Beam pasture, which provides livestock limited

access to Fossil Creek. Livestock currently have access to the first 0.8 mile of Fossil Creek starting at its confluence with Verde River when Lower Plow Beam pasture is in use.

There are three key areas for monitoring on Cedar Bench Allotment. Within Open and Upper Plow Beam pastures, litter and live basal vegetation have increased and soil condition is improving. Ranch Pasture has shown a decrease in bare soil and persistent litter (≥ 0.5 inch) with an increase in litter (≤ 0.5 inch) and live basal vegetation. One riparian photo monitoring point is located in Cedar Bench Allotment at Fossil Creek, but trends are inconclusive due to limited data. All watersheds on this allotment are considered to be functioning at risk.

Deadman Mesa Allotment

Deadman Mesa Allotment encompasses 17,000 acres and is located eight miles west of Strawberry, Arizona. Vegetation consists primarily of pinyon-juniper woodland and chaparral. Riparian communities are present along Fossil Creek and Hardscrabble Creek. Elevation ranges from 2,600 feet amsl at Fossil Creek to 6,100 feet amsl near Nash Point.

Deadman Mesa Allotment was authorized for livestock grazing beginning in the early 1920s but has been vacant since 2001. Deadman Mesa Allotment was a winter season allotment permitting up to 175 adult cattle from October 21 to May 31 annually.

There are three key areas for monitoring on Deadman Mesa Allotment. The allotment has been in vacant status and ungrazed for over 20 years. Across the allotment, bare soil has decreased, and this metric remains stable along with vegetation condition. Litter has fluctuated, but in general is stable. TNF recently completed fuels reduction projects and masticated approximately 700 acres of juniper resulting in some of the highest producing rangeland on TNF. There are plans to treat an additional 3,178 acres within the next three years under a separate action. Riparian photo monitoring points at Fossil Creek in Deadman Mesa Allotment showed a stable trend between 1993 and the last observation date in 2009. All watersheds on this allotment are considered to be functioning at risk.

Pole Hollow Allotment

Pole Hollow Allotment encompasses 36,300 acres and is located 11 miles west of Payson, Arizona. Just over 15,000 acres of the allotment intersect Mazatzal Designated Wilderness. Most of the allotment is chaparral and pinyon-juniper, but ponderosa pine communities are present in higher elevations around North Peak. Riparian communities are present along major drainages and include East Verde River, Pine Creek, Rock Creek, and Wet Bottom Creek. Elevations range from approximately 3,400 feet amsl at the East Verde River to 7,400 feet amsl at the top of North Peak.

Pole Hollow is currently permitted as a yearlong cow/calf operation managed on a rest-deferred rotation grazing plan preventing any one pasture to be grazed during the same months for two consecutive years. The allotment is currently permitted up to 175 head of adult cattle and divided into eight pastures, one holding trap, and one bull pasture. Wilderness Pasture on the southwest part of the allotment has not been grazed since 2004 due to a lack of boundary fence following the Willow Fire, though grazing will be allowed under TNF's proposed action once the fence is repaired.

There are five key areas for monitoring on Pole Hollow Allotment. In 2004, the Willow Fire burned much of the south end of the allotment. Vegetation conditions have improved and remained stable in recent years. Bare soil has decreased, and this trend is stable. Riparian photo

monitoring points at Mineral Creek and Pole Hollow show improving trends, stable trends at City Creek and Mineral Spring, and variable trends at the East Verde River. One additional riparian monitoring point at Dennis Spring showed an inconclusive trend due to limited data. Most watersheds in this allotment are functioning at risk. Sycamore Creek and Wet Bottom Creek are considered to be functioning properly while Rye Creek is considered to have impaired function.

Doll Baby Administrative Site is located within the boundaries of the Pole Hollow Allotment. This USFS-owned property includes a 150-acre historic cattle ranch with horse pastures and agricultural fields, a barn, corral, and several wells. Existing infrastructure is used to shelter USFS stock animals and store supplies. Fields and pastures are used to pasture stock animals and are maintained for forage production. Fields are made up mostly native shrubs and grasses and maintenance includes limiting woody encroachment and treatment of weedy species. Three water rights associated with the property equaling 309 acre-feet are used for irrigation channeled through a series of ditches and terraces to flood irrigate pastures and fields several times annually. Cattle and horse corrals are currently used by the Pole Hollow Allotment permittee as described under the proposed action.

Status of the Species and Critical Habitat within the Action Area

Within the action area, riparian habitat suitable for occupancy by cuckoos during the breeding season is located along Fossil Creek on the northern and western edge of the Deadman Mesa Allotment, along the East Verde River and Mineral Creek on the Pole Hollow Allotment, and along the East Verde River and Pine Creek on the Bull Springs Allotment. Suitable habitat also occurs outside of the LVSAs along the nearby Verde River; a portion of the Verde River in the project vicinity has been designated as critical habitat.

Because comprehensive cuckoo protocol surveys have not been conducted within potential habitat in the action area, TNF developed a geospatial representation (model) of areas likely to support populations of breeding cuckoos (Figure 4). Areas identified by the model includes patches of riparian vegetation as delineated by TNF's Riparian Existing Vegetation geospatial data (*i.e.*, breeding habitat; Clark et al. 2018, TNF 2020) greater than 246 feet (75 meters) wide and at least 50 acres in extent. Within the action area, 1,116 acres are mapped as potential cuckoo breeding habitat. While we do not expect that the resulting model identifies all areas of breeding habitat on the LVSAs and may also identify some unsuitable areas as breeding habitat, we believe that the model is a useful tool to identify areas of high concern for cuckoos because, when applied forest-wide, 92 percent of cuckoo detections on the TNF occurred within modeled breeding habitat (TNF 2024). Therefore, for the purposes of our analysis, we consider the TNF's model to be the best available information identifying areas where breeding cuckoos are reasonably certain to occur. The geospatial model identified sections of the aforementioned drainages as cuckoo breeding habitat as described in detail below. Other sections of these drainages as well as additional drainages within the LVSAs such as Hardscrabble Creek, The Gorge, and Wet Bottom Creek may provide short-term habitat for cuckoos during movement events.

Fossil Creek

As modeled by TNF, cuckoo breeding habitat on the Deadman Mesa Allotment occurs along Fossil Creek in the Upper Fossil Creek and Lower Mesa pastures. Modeled breeding habitat also occurs along Fossil Creek on the Cedar Bench Allotment near the Verde River confluence; no surveys have been conducted and no incidental records have been reported for this allotment. On

the Deadman Mesa Allotment, cuckoos were reported along Fossil Creek by a Coconino National Forest biologist at an unknown location in 1999 (Coconino National Forest 2020). Cuckoos were not detected during surveys conducted by Northern Arizona University along Fossil Creek from just below the Irving Power Plant to upstream of Fossil Springs from 2005 to 2009; these surveys covered most of the length of Fossil Creek along Deadman Mesa's Upper Fossil Creek Pasture and a portion of the Lower Fossil Creek Pasture (Coconino National Forest 2020). During common black-hawk surveys in Fossil Creek in 2019, a single cuckoo was heard by experienced Northern Arizona University bird surveyors along the Lower Fossil Creek Pasture near Homestead (Coconino National Forest 2020). Additionally, two cuckoo records exist in eBird, one at the Lower Fossil Creek hotspot and the other at a point location upstream of Homestead from June of 2020 (eBird 2024).

As protocol surveys have not been conducted along Fossil Creek since 2009, the current occupancy status by cuckoos is not well understood. However, as supported by the detections in 2019 and 2020, we consider portions of Fossil Creek on the Deadman Mesa and Cedar Bench allotments to be occupied by cuckoos where suitable habitat is present.

East Verde River and Tributaries

Breeding habitat for the cuckoo includes portions of the East Verde River on the Pole Hollow, Bull Springs, and Cedar Bench allotments in the vicinity of and downstream of Doll Baby Ranch. Areas outside the vicinity of Doll Baby Ranch have not been surveyed due to lack of accessibility, but TNF's model identified stretches of the East Verde River within the Maverick, River, and Homeward pastures and Headquarters Holding Trap on the Pole Hollow Allotment, Belluzzi and Pocket holding traps and the Bullfrog, Oak Grove, and West River pastures on Bull Springs Allotment, and River Pasture on Cedar Bench Allotment as breeding habitat. Based on the extent of riparian vegetation depicted in the TNF's geospatial data (Clark et al. 2018, TNF 2020), and proximity to known populations at Doll Baby Ranch (described below), we consider portions of the East Verde River in the vicinity of LF Ranch very likely to support breeding cuckoos. Additionally, we consider portions of the following East Verde River tributaries to contain cuckoo breeding habitat based on TNF's model: Rock Creek near East Verde River at LF Ranch on the Belluzzi Holding Trap; 2.5 miles of Pine Creek within the Pole Hollow Allotment's Pine Creek Pasture and Bull Springs Allotment's Belluzzi Holding Trap; and City Creek near the East Verde River confluence on Pole Hollow Allotment's Headquarters Holding Trap and Cypress Thicket Pasture.

Protocol surveys for cuckoos have been conducted along segments of the East Verde River and Pine Creek in the vicinity of Doll Baby Ranch. No surveys have been conducted along other portions of the East Verde River or its tributaries to date, including areas of modeled breeding habitat at LF Ranch, which have not been surveyed primarily due to inaccessibility.

TNF's Doll Baby Ranch surveys covered approximately 1.7 miles of the East Verde River from the Pine Creek confluence on the Bull Springs Allotment east to City Creek on the Pole Hollow Allotment in 2021, 2022, and 2023. Surveyed areas included portions of Headquarters and

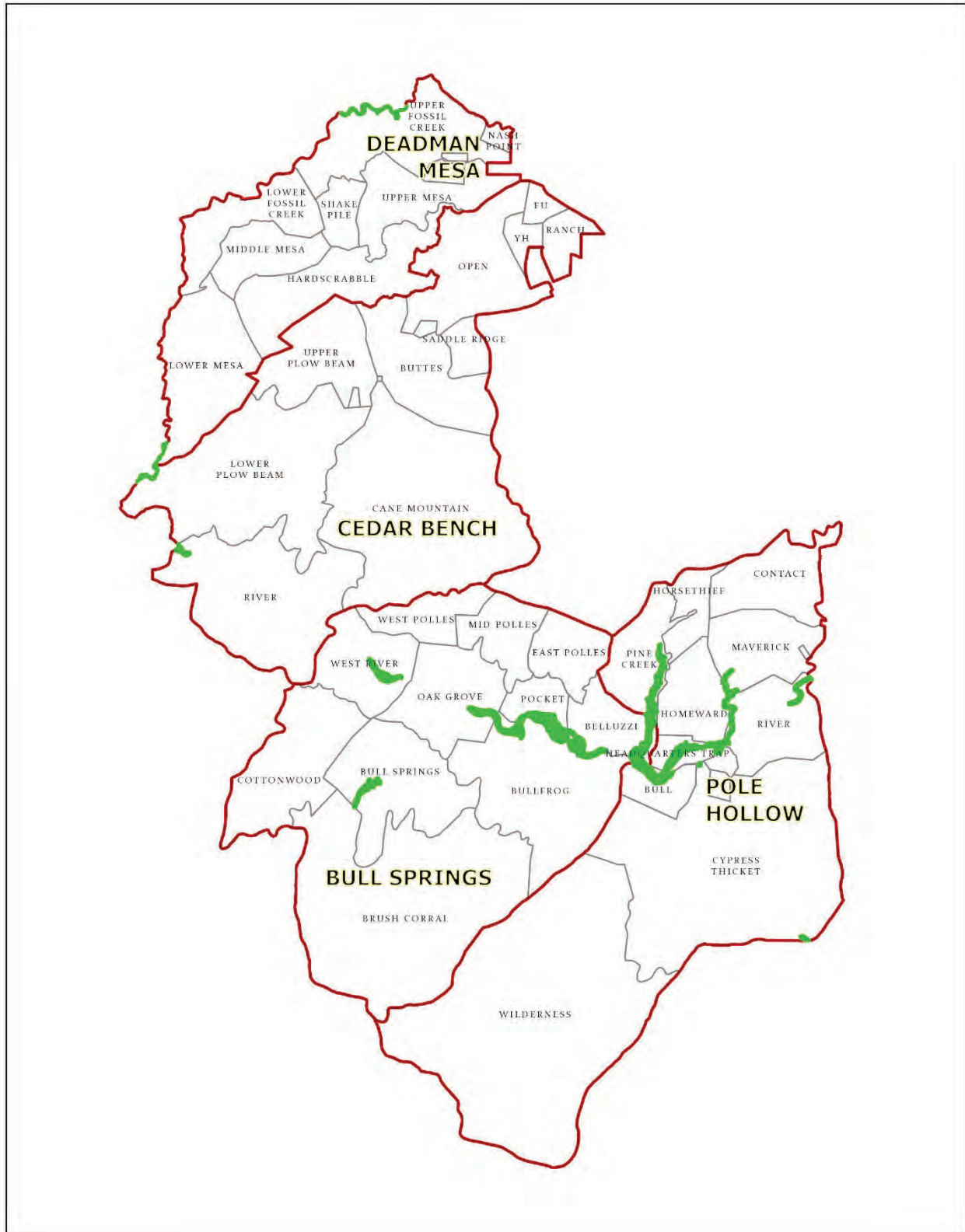


Figure 4. Tonto National Forest Geospatial Representation of Yellow-billed Cuckoo Habitat within the Lower Verde Subbasin Allotments and Pastures.

Belluzzi holdings traps and Doll Baby Administrative Site¹. Surveys conducted in 2024 extended further east to include portions of the East Verde River within Homeward and River pastures.

Survey results are as follows:

- 2021: 20 detections over the course of four surveys conducted between August 12 and September 21. Despite surveys having been conducted late in the breeding season, three possible and one probable breeding territories were estimated to be present.
- 2022: 54 detections over the course of eight surveys conducted between June 27 and October 11 (1 to 13 detections per survey), resulting in one possible and eight probable breeding territories. Notably, a juvenile cuckoo was observed during the October 11 survey.
- 2023: 63 detections over the course of six surveys conducted between June 30 and September 7 (2 to 14 detections per survey), resulting in five possible and eight probable breeding territories. No cuckoos were detected during late-season surveys conducted on September 21 and 28.
- 2024: 46 detections over the course of seven surveys conducted between June 21 and September 12 (4 to 13 detections per survey), resulting in five possible and six probable breeding territories.

In 2022, Southern Sierra Research Station made two cuckoo detections during a June 30 survey of approximately 1.1 miles of Pine Creek, a tributary of the East Verde River on the Bull Springs Allotment. Two surveys of Pine Creek were conducted in 2022; no cuckoos were detected on the second survey (TNF 2024).

Rye Creek

TNF's geospatial model identifies potential cuckoo breeding habitat at the confluence of Mineral and Rye creeks at the southern boundary of the Pole Hollow Allotment within the Cypress Thicket Pasture. This area is part of a larger patch that extends outside the LVSA's. Protocol cuckoo surveys have not been conducted at this location.

Bull Spring Canyon

TNF's geospatial model identifies potential cuckoo breeding habitat in Bull Spring Canyon in the vicinity of Bull Spring, a tributary to Wet Bottom Creek. This area is located primarily within Bull Springs Pasture, with a small extension onto Brush Corral Pasture. Protocol cuckoo surveys have not been conducted at this location.

Critical Habitat

No designated critical habitat for cuckoo occurs within the LVSA's. The nearest designated critical habitat, Unit 11: AZ-9A Horseshoe Dam; Gila and Yavapai Counties, Arizona, begins 0.12 mile west of the Cedar Bench Allotment at the Verde River-East Verde River confluence and extends downstream along the Verde River to Horseshoe Dam. The unit provides the habitat component provided in PBF 1 and the prey component in PBF 2. Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in PBF 3, occur within this unit but depend on river flows and flood timing. Cuckoos

¹ GIS shapefiles available on the TNF website indicate that Bull Pasture on the Pole Hole Allotment contains portions of the East Verde River within areas occupied by cuckoos along the East Verde River. TNF has confirmed with the Pole Hollow permittee that fence lines associated with Bull Pasture do not extend north to include the occupied stretch of the East Verde River (C. Akins, TNF, 2023).

breed annually within critical habitat Unit 11, which also provides a movement corridor and migratory stop-over habitat.

Previous Consultations in the Action Area

Consultations for previous projects within the current action area affecting for listed species covered by this consultation include the following:

- Biological Opinion on the Effects to the Razorback Sucker from the Proposed Forest Service Region 3 Cedar Bench Allotment Range Permit Issuance (2-21-95-F-291), dated September 8, 1995.
- Biological Opinion On-going and Long-term Grazing on the Tonto National Forest (AESO/SE 2-21-99-F-300), dated February 28, 2002. This BO covered actions on 20 allotments on the TNF, including Deadman Mesa Allotment. The USFWS concurred with the TNF's determination that the proposed action on Deadman Mesa Allotment may affect, but is not likely to adversely affect the loach minnow or its critical habitat, razorback sucker or its critical habitat, spikedace or its critical habitat, Gila topminnow.
- Pine/Strawberry Wildland-Urban Interface Project Biological Assessment and Evaluation, ca. 2005. The TNF determined that proposed action may affect, but it not likely to adversely affect the Mexican spotted or its critical habitat. The Biological Assessment and Evaluation was conducted under the Alternative Consultation Agreement between the USFS and the USFWS, which eliminated the need to conduct informal consultations and obtain written concurrence National Fire Plan actions (69 Federal Register 101:29749)
- Fossil Creek Comprehensive River Management Plan (CRMP) Biological Opinion, dated September 28, 2020, which covered adverse effects to cuckoo, Gila topminnow, loach minnow critical habitat, and spikedace and its critical habitat. The USFWS also concurred with the TNF's determination that the proposed action may affect, but is not likely to adversely affect the Mexican spotted owl or its critical habitat.
- In 2021, TNF completed a biological evaluation assessing impacts of the Bull Springs Allotment Management Plan to listed species and their habitats. In coordination with the USFWS, TNF determined that habitat suitable for cuckoo was not likely to be present; therefore, consultation was not required.
- Four Forest Restoration Initiative (4FRI) Rim Country Project Biological Opinion, dated March 4, 2022. This BO covered adverse effects to Mexican spotted owls and their critical habitat including the North Frost Deadman PAC.

Biological Opinion Conference Opinion for the Tonto National Forest Land and Resource Management Plan, dated February 1, 2022, which covered adverse effects to Mexican spotted owl and its critical habitat, Gila topminnow, razorback sucker and its critical habitat, loach minnow and its critical habitat, spikedace and its critical habitat, and cuckoo associated with this forest-wide action. Actions evaluated in the BO include those associated with livestock grazing on the TNF.

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 but are not part of the 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.”

Effects of the Action to the Western Yellow-billed Cuckoo

Range Improvements

Construction of site-specific improvements including livestock fencing, wells, troughs, and pipeline are not anticipated to affect cuckoos as these activities would not occur within suitable habitat for the species.

Water developments, especially wells, can reduce baseflows in stream channels and springs depending on the location and amount or intensity of water withdrawals, which may in turn negatively affect components of cuckoo habitat such as riparian vegetation. Construction of a new well on the Pole Hollow Allotment and increased pumping of an existing private well to feed new troughs on the Cedar Bench Allotment are not anticipated to impact downgradient cuckoo habitat because the wells are low capacity and groundwater drawdown is not anticipated to reach the nearest surface water, which is over 1.0 mile away from either location. Notably, the East Verde River is not groundwater dependent during the summer when the new well would operate due to supplemental inputs from C.C. Cragin Reservoir.

Non-site-specific improvements may occur within cuckoo habitat. Effects to the species would be limited by conservation measure YBC-1, which restricts activities cuckoo habitat to the non-breeding season unless otherwise authorized by the TNF and USFWS, and conservation measures RI-1, RI-2, RI-3, RI-5, RI-6, and RI-8, which restrict the timing and location of new improvements and/or reduce the effects of improvements on habitat and riparian/aquatic resources. Therefore, effects of non-site-specific improvements to cuckoos would be insignificant.

Livestock Grazing

A body of evidence supports a strong link between heavy livestock grazing and degradation of mesic riparian systems that provide habitat for cuckoos. While there are some differences between habitat used by southwestern willow flycatchers and cuckoos, Appendix G of our Final Recovery Plan - Southwestern Willow Flycatcher (Flycatcher Recovery Plan) reviews the impacts of livestock grazing in southwestern riparian systems (USFWS 2002). As detailed in the Flycatcher Recovery Plan, livestock grazing, especially during the growing season (*i.e.*, leaf bud to break), can have short- and long-term negative impacts on vegetation abundance, distribution, and density due to cattle trampling vegetation, seed banks, and soils; removing new growth; hampering the recruitment of cottonwood and willow seedlings; and creating open spaces and trails. Excessive grazing can change watershed hydrology, water quality, aquatic and riparian ecology, and structure and composition of riparian plant communities. In general, excessive grazing results in general drying of riparian areas, reduction in vegetation structure and volume, changes in vegetation composition, soil compaction, increases in sedimentation and water temperature, and other effects. Heavy use by cattle can also destabilize and break down streambanks as vegetation is trampled and the physical forces of hoof impacts shear off bank

segments (Clary and Leininger 2000). The relatively cool, damp, and shady areas favored by cuckoos are also favored by livestock over the surrounding drier uplands. This can concentrate the effects of livestock within cuckoo habitat (USFWS 2014). Thus, grazing can reduce cuckoo habitat quantity and quality by altering the development, growth, and persistence of riparian vegetation.

Although the mechanisms by which loss or degradation of riparian vegetation may affect cuckoos are not well-studied, negative consequences to cuckoos can result from decreases in the quantity and quality of available habitat leading to decreased abundance in grazed areas. Such consequences can include both sub-lethal and lethal effects resulting from reduced availability of prey and foraging, sheltering, and nest sites, which can lead to increased competition and/or displacement from habitat. As competition and search effort for resources increase, cuckoos can experience reduced lifespan and fecundity.

A literature review conducted as part of the Flycatcher Recovery Plan found that improper grazing is deleterious to many riparian birds. Generally, winter grazing and lighter grazing intensities had lesser negative effects than heavier grazing, summer grazing, or year-round grazing. Similarly, riparian habitats were rehabilitated most quickly and/or completely with no grazing, and more quickly with light and/or winter grazing than with heavy, summer, and/or year-long grazing. Although much of the literature reviewed by the Flycatcher Recovery plan originated from the Great Basin and Sierra Nevada, results were still considered to be relevant to the southwest because the negative effects of grazing are generally more severe in arid environments. Negative effects of livestock grazing to riparian birds have also been observed in Arizona by Krueper et al. (2003). Following the removal of cattle from the San Pedro Riparian National Conservation Area in 1987, herbaceous riparian vegetation increased four- to six-fold. Avian abundance doubled post-removal, with the largest increases observed in riparian species, open-cup nesters, Neotropical migrants, and insectivores, all species that share characteristics with cuckoos. Though not statistically significant, cuckoo abundance also increased.

Well-managed livestock grazing can be compatible within maintenance of cuckoo habitat (USFWS 2014). As described in detail in the BA and in the following site-specific analysis, negative impacts of grazing on riparian vegetation would be reduced by the TNF's rest-rotation system, riparian utilization limits, monitoring protocols, and conservation measures. Although not specific to cuckoos, we currently use applicable sections of the Flycatcher Recovery Plan (USFWS 2002) to inform cuckoo recovery planning and conservation; therefore, we expect recommendations outlined in the plan intended to reduce the effect of livestock grazing on flycatchers will similarly reduce potential effects to cuckoos. Specific recommendations for occupied habitat outlined in the Flycatcher Recovery Plan include:

- Restricting grazing to outside the growing season until research in comparable unoccupied habitat demonstrates no negative impact.
- Continuing existing management when unoccupied habitat becomes occupied.

Within occupied habitat outside the growing season and year-round within unoccupied habitat, recommendations include:

- Conservative grazing with average utilization not to exceed 35% of palatable, perennial grasses and grass-like plants in uplands and riparian habitats.

- Extent of alterable stream banks showing damage from livestock use not to exceed 10%.
- Woody utilization not to exceed 40% on average.

Under the proposed action, livestock access to riparian habitats would vary by allotment and pasture, with access to cuckoo habitat ranging from fully-excluded to unrestricted. As such, some components of the proposed action would be conducted in general accordance with the Flycatcher Recovery Plan while others would not. Components of the proposed action that exceed recommendations include those that occur in cuckoo breeding habitat grazed during the breeding season. Components of the proposed action that are compatible with the Flycatcher Recovery Plan's recommendations are those that are within breeding habitat that would not typically be grazed during the breeding season and those that are within habitat where grazing would not occur (e.g., components exclude habitat from grazing). Because TNF's proposed utilization thresholds are described differently than the non-growing season threshold recommendations in the Flycatcher Recovery Plan, the two cannot be directly compared. However, the proposed thresholds do not appear to be substantially in excess of the recommendations. TNF has not proposed use thresholds for damage to alterable streambanks because the TNF has found such features to be difficult to locate and repeatably measure (C. Akins, TNF, pers. comm., 2024).

Overutilization of uplands by grazing livestock may negatively affect cuckoo habitat via a variety of mechanisms including altered vegetation composition, soil compaction, erosion, and soil chemistry, which in turn may contribute to increased sedimentation into drainages, changes to flood magnitude and duration, and decreased groundwater levels and surface flows, which may in turn degrade riparian habitat. As stated by the Flycatcher Recovery Plan, "consideration of uplands is essential." The Flycatcher Recovery Plan includes the following additional recommendations for the protection of uplands and watershed conditions:

- Average utilization of palatable, perennial grasses and grass-like plants not to exceed 30 to 40%.
- Use stubble height guidelines: 3 inches for short grass, 6 inches for midgrass, 12 inches for tall grass.
- Determine monitoring species prior to grazing.

Upland components of the proposed action would be conducted in general accordance with these recommendations. The TNF would implement a utilization threshold for upland herbaceous vegetation consistent with the Flycatcher Recovery Plan. Although no commitment is included in the BA, evaluating stubble height is one of the protocols the TNF may use to assess utilization (C. Akins, TNF, pers. comm. 2024). Finally, upland species to be monitored have been previously determined and would continue to be assessed as part of on-going monitoring of key areas (see *Effectiveness Monitoring*).

For both riparian and upland portions of the action area, we expect that the combination of utilization thresholds, the TNF's rest-rotation system, monitoring protocols, and conservation measures described in the BA will reduce potential effects to cuckoo habitat at a broad scale. However, as noted previously, grazing strategies and timing would vary by allotment and pasture. Monitoring strategies (e.g., density of riparian photopoints) would also vary, in part based on accessibility through rugged terrain. The current condition of pastures is also variable. Therefore, effects to cuckoos and habitat would also vary by location.

Site-specific Analysis

The following location-specific discussion includes an assessment of livestock use during the growing season, which we define as the period from leaf-bud to break. A study of riparian tree phenology conducted in eastern Arizona and western New Mexico found the phenology of study trees was controlled in large part by extremes in air temperature, especially freezing, and that phenological events at lower elevations preceded those at higher elevations (Brock 1994). Similarly, Goodrich et al. (2000) found that the first hard freeze halted riparian evapotranspiration along the upper San Pedro River in Arizona. Because leaf bud and break are strongly influenced by first and last freeze dates, we used National Weather Service (2023) averages to approximate the riparian growing season for various elevations within the LVSA's. To define the riparian growing season for low elevations such as those at the Fossil Creek and East Verde River confluences with the Verde River, we used the closest two weather stations that occur at similar elevations (~2,600 feet amsl): Lost Dutchman at 2,060 feet amsl and Carefree at 2,402 feet amsl. Average first and last freeze dates are December 14 and February 16 for Lost Dutchman and December 10 and February 5 for Carefree. From these dates, leaf bud and break are likely to occur in February and December, respectively, in the lower elevations of the action area. For higher elevations within the action area, we expect leaf bud and break to occur in April and October, respectively, which corresponds to average first and last freeze dates of October 30 and April 15 at the Tonto Natural Bridge at 4,530 feet amsl.

Location specific analysis is organized below by major drainage. This analysis is also summarized in Table 5 at the end of the section.

Fossil Creek

Uplands

Grazing in adjacent uplands is not likely to adversely affect cuckoos along Fossil Creek. As indicated by monitoring of key areas, upland range conditions on Deadman Mesa Allotment are generally stable and portions of the allotment are considered the highest producing rangeland on the TNF. Although the proposed action would represent an increase in grazing pressure on this ungrazed allotment, we anticipate that TNF's grazing strategy and monitoring protocols will be effective in minimizing impacts to downgradient riparian habitat. Similarly, upland range conditions on Cedar Bench Allotment are improving in key areas, which suggests that TNF's grazing strategy will continue to minimize downgradient impacts.

Pastures

Under the proposed action, livestock would not be permitted access to cuckoo habitat along Fossil Creek on the Deadman Mesa Allotment. Cattle would be excluded from the Upper Fossil Creek and Lower Fossil Creek pastures and, as described in the BA, the combination of rugged terrain and a proposed drift fence would preclude cattle from Fossil Creek within the Lower Mesa Pasture to the applicable boundary fence. Conservation measure AQ-1 and AQ-2 require inspection of fences prior to moving cattle onto adjoining pastures, thus reducing the potential for unauthorized access to Fossil Creek.

Livestock would continue to have access to cuckoo habitat along 0.8 mile of Fossil Creek within the Lower Plow Beam Pasture on the Cedar Bench Allotment. Grazing would be authorized from November 1 through May 31; scheduled use in Lower Plow Beam Pasture is typically 60 days or less. The 2022 Annual Operating Instructions for the Cedar Bench Allotment limited use of Lower Plow Beam Pasture to March 1 through April 30, but season of use may vary from year to

year. Because cattle would not be present during the breeding season, grazing would not alter habitat or otherwise disturb individuals during the timeframe when cuckoos and their nests, eggs, or nestlings are present.

As described above, grazing between leaf bud and break may negatively impact the regeneration and recruitment of riparian plant species that are important components of cuckoo habitat. Along the affected stretch of Fossil Creek, we expect leaf bud and break to occur in February and December, respectively. Because grazing would occur during portions of this timeframe, grazing could reduce regeneration and recruitment of riparian vegetation. Based on TNF's geospatial model, we estimate that 19 acres of habitat suitable for breeding, feeding, and/or sheltering cuckoos would be subject to grazing-related effects. The effects of the existing grazing regime on riparian vegetation at this location are unknown due to the lack of monitoring. One riparian photopoint is located on Fossil Creek within the Lower Plow Beam Pasture; however, riparian trend data is not currently available. As described in the BA, TNF will adopt this site from the Friends of the Tonto to improve future monitoring of this location.

Although monitoring data is lacking, it is our opinion that grazing pressure on riparian vegetation is likely to be of low magnitude and short duration within the Lower Plow Beam Pasture. As described in the BA, the TNF expects only a small percentage of the herd (six to 15 cattle) to move down from Cedar Bench to Fossil Creek. Generally, cattle are expected to remain dispersed throughout the remainder of the pasture due to easier access, more abundant forage, and placement of waters and supplements away from Fossil Creek. Further, scheduled use in Lower Plow Beam Pasture is typically 60 days or less. To assess the true number of cattle utilizing Fossil Creek, TNF will implement conservation measure AQ-2, which requires the 0.8-mile affected reach of Fossil Creek to be monitored and the number of livestock present reported at least once annually. Therefore, we conclude that grazing along Fossil Creek is not likely to adversely affect cuckoos. Should TNF's future monitoring efforts identify a declining trend in riparian condition at this location, TNF should reinitiate consultation at that time.

East Verde River and Tributaries, Bull Spring Canyon, and Rye/Mineral Creek

Uplands

Grazing in adjacent uplands is not expected to impact downgradient cuckoo habitat along the East Verde River, its tributaries, and Rye/Mineral creeks on the Pole Hollow Allotment. As indicated by monitoring of key areas, upland range conditions on Pole Hollow Allotment have improved and remained stable in recent years. Because the proposed action represents a continuation of the existing grazing regime, we expect TNF's grazing strategy and monitoring protocols will continue to minimize impacts to downgradient riparian vegetation.

As compared to upland grazing on the Pole Hollow Allotment, grazing in uplands on Polles Mesa north of the East Verde River on the Bull Springs Allotment has a greater potential to negatively impact downgradient riparian vegetation. Note that Pine Creek would not be subject to such effects because Rock Creek bounds the eastern edge of Polles Mesa with Pine Creek located over one mile further east. As described by the TNF, vegetation and soil condition trends are stable on Polles Mesa but these resources are in poor condition due to years of poor management. Water has previously been a limiting factor on Polles Mesa; however, TNF anticipates water will now be more reliable following the cleaning of three stock tanks in 2020 and expects livestock distribution across the landscape to improve as a result. TNF also expects vegetation and soil conditions to improve under the proposed action because their current adaptive management strategy allows for greater flexibility to adjust livestock grazing practices

in response to resource conditions. Even so, rangeland on Polles Mesa is likely to be more susceptible to undesirable grazing effects than other portions of the action area due to its poor condition. As a result, resumed grazing has the potential to increase erosion within approximately seven ephemeral tributaries to the East Verde River, which may in turn contribute to increased downstream sedimentation and changes in flood magnitude and duration. Because the East Verde River is not groundwater dependent during the summer due to supplemental inputs from C.C. Cragin Reservoir, the proposed summer grazing in adjacent uplands is not anticipated to significantly affect surface flows during these months. Because we anticipate the impacts of grazing in uplands on downgradient cuckoo habitat will be insignificant when considered on their own, we conclude the effects to cuckoo are therefore insignificant; however, grazing in uplands may contribute to the effects of grazing within riparian areas described below.

Holding Traps

We anticipate that use of holding traps on the Pole Hollow and Bull Springs allotments may affect, but is not likely to adversely affect cuckoos. With the implementation of conservation measures YBC-2 and YBC-3, livestock would be excluded from Pole Hollow Allotment's Headquarters Trap and Doll Baby Administrative Site and the Bull Springs Allotment's Belluzzi and Pocket holding traps during the cuckoo breeding season (May 25 to September 30). Any unexpected but critical range activity that must occur in these holding traps during the cuckoo breeding season would be coordinated with the District Wildlife Biologist to ensure activities do not impact cuckoos or their habitat. Because cattle would not be present during the breeding season, except for short-duration critical activities, grazing within holding traps would not alter habitat or otherwise disturb individuals during the timeframe when cuckoos and their nests, eggs, or nestlings are present. Notably, the full extent of the East Verde River and Pine Creek where cuckoos have been recorded and a portion of the unsurveyed potential habitat along the East Verde River and Rock Creek in the vicinity of LF Ranch would be protected by this exclusion.

At approximately 3,400 feet amsl, the growing season along the occupied stretch of the East Verde River is likely to extend from April through October, during which times cuckoo habitat would be subject to greater effects from grazing as compared to the non-growing season. As described in the BA, holding traps are typically used by livestock one to two times a year to aid with pasture rotations or when working livestock. Groups of livestock are generally limited up to 20 head at a time as permittees move livestock from one pasture to another, often within a 10-day window. Although these activities would occur during the growing season, effects to riparian vegetation, and thus cuckoos, are anticipated to be insignificant due to the relatively short timeframe of use and low number of cattle in holding traps. Should the proposed action result in impacts to riparian habitat, monitoring and surveys described as part of the proposed action and in conservation measures YBC-4, 5, and 6 would facilitate timely adaptive management via annual operating instructions. Further, multiple cuckoo territories persist along the East Verde River on the Pole Hollow Allotment under authorized use similar to the proposed action, which suggests this use is compatible with yellow-billed occupancy at that location.

Pastures

Approximately 2.5 miles of the East Verde River on the Cedar Bench Allotment's River Pasture near the Verde River confluence contains riparian vegetation suitable for cuckoos; TNF's model identifies potential breeding habitat at the confluence. We anticipate that the proposed action will not affect cuckoos utilizing these areas because River Pasture is excluded from grazing.

Pole Hollow Allotment's River and Cypress Thicket pastures and Bull Springs Allotment's Bull Springs and Brush Corral pastures are typically scheduled for winter use. Although livestock will not be present during much of the April through October growing season, livestock use will likely overlap the beginning and end of this time period. For example, the 2022 Annual Operating Instructions for the Pole Hollow Allotment scheduled livestock for River and Cypress Thicket pastures in April and May and in September and October, respectively (TNF 2022). Because livestock may be present during portions of the timeframe between leaf bud and break, grazing could reduce regeneration and recruitment of riparian vegetation within the segments of the East Verde River, City Creek, Bull Springs Canyon, and Rye Creek/Mineral Creek within these pastures. Grazing during the cuckoo breeding season would be limited to the months of May and September, thus grazing would not alter habitat or otherwise disturb individuals during those portions of the breeding season (late June through August) when we expect cuckoo nests, eggs, or nestlings to be present.

Grazing within Pole Hollow Allotment's Pine Creek Pasture is scheduled to rotate annually with a year of rest, spring grazing (March 15 – May 31) in year two, and fall grazing (September 1 to November 15) in year three (TNF 1994, C. Akins, TNF, pers. comm., 2024). Cuckoos using habitat along Pine Creek within this pasture would be subject to intermediate effects as compared to those using summer and winter pastures. Grazing would occur during the growing season, but grazing during the cuckoo breeding season would be limited to the months of May and September, and therefore would not alter habitat or disturb individuals during those portions of the breeding season when we expect cuckoo nests, eggs, or nestlings to be present. TNF has committed to establishing one new riparian photopoint location to monitor the condition of cuckoo habitat along Pine Creek (YBC-5).

Cattle would be present within Pole Hollow Allotment's Maverick and Homeward pastures during the cuckoo breeding season as well as during the more extensive growing season with related negative impacts to habitat quantity and quality as described above. Negative impacts of grazing on vegetation would be reduced by the TNF's rest-rotation system and riparian utilization limits, and would be tracked through monitoring protocols. TNF has committed to establishing one new riparian photopoint location to monitor the condition of cuckoo habitat along the East Verde River within the Homeward Pasture (YBC-5). Although cattle may be present during the cuckoo breeding season, the likelihood of cattle trampling, dislodging, or otherwise damaging an active nest is discountable, in part because few cuckoo nests will be present on the landscape relative to the amount of area wherein cattle will be present, and in part because we expect most cuckoo nests will be constructed beyond the reach of livestock.

Based on the extent of breeding habitat depicted in the TNF's geospatial model and the proximity to the known breeding population of cuckoos at Doll Baby Ranch, we expect a breeding population of cuckoos to be present along unsurveyed portions of the East Verde River and tributaries in the vicinity of LF Ranch on the Bullfrog, Oak Grove, and West River pastures. According to the Bull Springs Allotment Management Plan (TNF 1989), 40 to 60 adult cattle could be stocked in Bullfrog Pasture, 20 to 40 adult cattle could be stocked in Oak Grove Pasture, and up to 40 adult cattle could be stocked in West River Pasture, when scheduled. Stocking could occur for up to five months during the summer for two out of every three years with no restrictions on grazing during the cuckoo breeding season. TNF does not anticipate that all stocked animals will access the East Verde River on Oak Grove and West River pastures due to steep and rugged terrain. Bullfrog Pasture has more accessible terrain to the East Verde River,

although the pasture fence prevents access to some portions (C. Akins, TNF, pers. comm. 2024). The actual number of cattle expected to access the East Verde River from any of these three pastures is not known.

Noting that TNF has committed to placing one riparian photopoint within the Bullfrog Pasture per conservation measure YBC-5, TNF's ability to conduct photopoint and other riparian monitoring or cuckoo surveys along the East Verde River within Bullfrog, Oak Grove, and West River pastures is limited due to accessibility and safety concerns. Further, TNF cannot monitor the affected reach of the East Verde River in a manner similar to Fossil Creek on the Lower Plow Beam Pasture due to rugged terrain, lack of established trails, restrictions on motorized vehicle use within the Mazatzal Wilderness, and the 10-mile length of affected river (C. Akins, TNF, pers. comm., 2024). However, during the Bull Springs Annual Operating Instructions meeting, TNF will ask the permittee to assess livestock numbers in Oak Grove, West River, and Bullfrog pastures in the event the permittee packs into those areas (C. Akins, TNF, pers. comm., 2024). To better inform our understanding of cuckoo occupancy, TNF has committed to placing automatic recording units (ARUs) within suitable habitat in the vicinity of LF Ranch when resources allow (YBC-6); which would be used by TNF to detect cuckoos by their recorded vocalizations.

While effects to cuckoos and their habitat would be ongoing within the Pole Hollow Allotment, the Bull Springs Allotment is currently ungrazed. Photopoint data indicates improving and stable riparian trends for, respectively, the East Verde River and Pine Creek on the Bull Springs Allotment; however, the capacity of these drainages to withstand stress caused by grazing during the growing season may be compromised as a result of previous poor rangeland management of the allotment and the poor condition of Poles Mesa, where grazing in uplands may contribute to downgradient effects along the East Verde River as described above. Further, TNF's ability to quickly implement adaptive management in much of Bull Springs Allotment is limited due to difficulty of access, which in turn limits the amount of data received for use in adaptive management.

Therefore, it is our opinion that the proposed action is likely to adversely affect cuckoos by negatively affecting the quantity and quality of habitat within all grazed pastures on the Bull Springs and Pole Hollow allotments where breeding habitat is present. Declines in habitat quantity and quality would harm cuckoos via injury caused by reductions in individuals' ability to breed, feed, and/or shelter. Specifically, we expect cattle grazing along the East Verde River and its tributaries within the Bull Springs Allotment will reduce the quantity and alter the structure of riparian vegetation, which would reduce the number of cuckoos supported by the area. Based on TNF's 2024 geospatial model of cuckoo breeding habitat, we estimate that 243 acres of cuckoo breeding habitat would be negatively impacted by grazing on the Bull Springs Allotment's Bullfrog, Oak Grove, and West River pastures.

Because TNF can more readily implement adaptive management due greater accessibility, we do not expect the proposed action to cause new declines in cuckoo habitat along the East Verde River, Pine Creek, and Rye Creek/Mineral Creek within the Pole Hollow Allotment. New habitat declines are also not expected on the Bull Springs Allotment within Bull Spring Canyon because grazing within Brush Corral and Bull Spring pastures will have little overlap with the riparian growing season. However, years of past grazing has likely reduced the abundance and altered the structure and composition of cuckoo habitat in these areas and we expect the proposed action would suppress regeneration of riparian vegetation that would occur in the absence of grazing.

Table 5. Summary of Effects to Yellow-billed Cuckoos by Allotment and Pasture.

Allotment	Pasture/Holding Trap	Typical Season of Use	Drainage	Acres Modeled Breeding Habitat	Effects Summary
Deadman Mesa	Upper Fossil Creek Pasture	Not Scheduled	Fossil Creek	44	No effects; grazing excluded.
Deadman Mesa	Lower Fossil Creek Pasture	Not Scheduled	Fossil Creek	0	No effects; grazing excluded.
Deadman Mesa	Lower Mesa Pasture	Winter	Fossil Creek	8	No effects; habitat not accessible to livestock.
Cedar Bench	Lower Plow Beam Pasture	Winter	Fossil Creek	19	Effects insignificant.
Cedar Bench	River Pasture	Not Scheduled	East Verde River	20	No effects; grazing excluded.
Pole Hollow	River Pasture	Winter	East Verde River	98	Likely to adversely effect.
Pole Hollow	Maverick Pasture	Summer	East Verde River, Limestone Canyon	28	Likely to adversely effect.
Pole Hollow	Homeward Pasture	Summer	East Verde River, Limestone Canyon	24	Likely to adversely effect.
Pole Hollow	Headquarters Holding Trap	Spring and/or Fall	East Verde River	118	Effects insignificant.
Pole Hollow	Cypress Thicket Pasture	Winter	City Creek, Mineral Creek, Rye Creek	9	Likely to adversely effect.
Pole Hollow	Pine Creek Pasture	Spring and Fall	Pine Creek	120	Likely to adversely effect.
Bull Springs	Belluzzi Holding Trap	Spring and/or Fall	East Verde River, Rock Creek	204	Effects insignificant.
Bull Springs	Pocket Holding Trap	Spring and/or Fall	East Verde River	126	Effects insignificant.
Bull Springs	Bullfrog Pasture	Summer	East Verde River	136	Likely to adversely effect.
Bull Springs	Oak Grove Pasture	Summer	East Verde River	46	Likely to adversely effect.
Bull Springs	West River Pasture	Summer	East Verde River	61	Likely to adversely effect.
Bull Springs	Bull Springs Pasture	Winter	Bull Spring Canyon	55	Likely to adversely effect.
Bull Springs	Brush Corral Pasture	Winter	Bull Spring Canyon	0.2	Likely to adversely effect.

Therefore, while we expect that current conditions will be maintained under the proposed action, we also expect that cuckoo habitat will be less abundant and of lower quality under the proposed action than it would be if grazing were not authorized, thereby reducing the number of cuckoos

Pole Hollow Allotment and Brush Corral/Bull Spring pastures would otherwise support. Based on TNF's model, approximately 334 acres of breeding habitat currently occur within these pastures that would be subject to such impact; the extent of cuckoo habitat that would occur in the absence of grazing cannot be quantified with reasonable certainty.

Effects to Recovery

In *Wild Fish Conservancy v. Salazar*, 628 F.3d 513 (9th Cir.2010), the Ninth Circuit held that the USFWS must identify when a species would pass the tipping point for recovery and determine whether the proposed action would cause the species to reach that tipping point. The tipping point at which the ability to recover the cuckoo is compromised is difficult to determine in the absence of a recovery plan. However, the range of the cuckoo is relatively broad and populations in other locations (e.g., along the Colorado River, in southeastern Arizona, in other states) would not be affected by the proposed action. Further, effects to local populations of cuckoos along Fossil Creek on the Cedar Bench Allotment, and along the East Verde River within holding traps on the Pole Hollow and Bull Springs allotments would be insignificant. While adverse effects are anticipated within pastures on the Pole Hollow and Bull Springs allotments, conservation measures and TNF's rest-rotation grazing strategy would reduce the impacts of the proposed action such that they are not anticipated to preclude the continued existence of cuckoos in these areas. Therefore, the proposed action is unlikely to reduce the species' potential for recovery.

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).

The TNF's BA describes cumulative effects to cuckoos associated with the proposed development of a 159-acre resort community, Canyon River Ranch, on privately-owned land southeast of the Doll Baby Ranch Administrative Site. Based upon subsequent discussions between TNF staff with knowledge of the project and the Town of Payson, TNF has determined this project is not reasonably certain to occur because it is not actively proceeding towards construction (C. Akins, TNF, pers. comm, 2024). Therefore, we do not consider cumulative effects from this action reasonably certain to occur and do not address them in this BO.

Cumulative effects to cuckoos may result from activities conducted at the LF Ranch base property, a private inholding associated with the Bull Springs Allotment. This property is located along an unsurveyed segment of the East Verde River we consider likely to be occupied by breeding cuckoos. Activities associated with this property include but are not limited to, occasional livestock presence, livestock herding, branding, sorting/shipping, feeding, watering, roping, providing care, raising and/or birthing at different times of the year. These activities are usually isolated and short in duration and would have minimal effects to cuckoos utilizing nearby areas.

Climate change is likely to exacerbate existing threats to cuckoos and their habitat, now and into the near future. As described in our 2021 critical habitat designation (USFWS 2021), climate change is expected to result in an overall warmer, drier climate in the southwestern U.S., with periodic episodic precipitation events. In rivers that depend on snowmelt, these changes are expected to result in more winter flooding and reduced summer stream flows. The amount of surface and groundwater available to regenerate and sustain riparian forests is expected to decline overall with persistent drought, favor the spread of tamarisk and other nonnative

vegetation, and increase fire frequency. Precipitation events under most climate change scenarios within the range of the cuckoo will decrease in frequency and increase in severity. Changes may reduce available nesting sites and patch size and affect prey abundance as a result of lower humidity in riparian areas from reduced moisture retention, through periods of prolonged desiccation, and through increased likelihood of scouring flood events. We expect these changes will contribute to the cumulative effects of the proposed action on cuckoos.

As described under the Environmental Baseline, approximately 200 head of unauthorized feral cattle remain within the Verde River corridor, some of which may encroach into portions of the action area near the river. We expect these cattle could negatively impact cuckoo habitat where unauthorized cattle occur until such time as they are removed. Within the action area, effects to cuckoos from unauthorized cattle are most likely to occur near the confluences of the Verde River with Fossil Creek and the East Verde River. Similarly, cattle that are authorized under this or other actions may make their way into areas where they are not scheduled, for example, as a result of broken fences. Effects from unscheduled cattle are not considered part of the proposed action because such cattle are not authorized; however, these events are expected to occur on occasion throughout the timeframe of the action. TNF and their permittees will prioritize removal of unscheduled cattle per conservation measure G-1, which will minimize, but not remove, effects to cuckoos where unscheduled cattle occur in cuckoo habitat.

CONCLUSION

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the western DPS of the yellow-billed cuckoo. Critical habitat for this species does not occur within the action area; therefore, the proposed action will have no effect to critical habitat for cuckoo.

We base this conclusion on the following:

On the Deadman Mesa Allotment, cattle would be excluded from cuckoo habitat along Fossil Creek within Upper Fossil Creek and Lower Fossil Creek pastures and the combination of rugged terrain, and a proposed drift fence would preclude cattle from Fossil Creek within the Lower Mesa Pasture. Conservation measure AQ-1 and AQ-2 require the USFS to inspect the applicable boundary fences prior to moving cattle onto adjoining pastures, thus reducing the potential for unauthorized access to Fossil Creek.

We anticipate that some effects to cuckoos in the action area would be insignificant. Specifically, effects to cuckoos and 19 acres of their habitat along 0.8 mile of Fossil Creek on the Cedar Bench Allotment's Lower Plow Beam Pasture would be insignificant because the TNF expects only a small percentage of the herd (six to 15 cattle) to move down into Fossil Creek and grazing is typically scheduled for 60 days or less outside the breeding season. Livestock presence would be monitored via conservation measure AQ-2, which requires the USFS to monitor the 0.8-mile affected reach of Fossil Creek at least once annually.

Grazing in holding traps on the Pole Hollow and Bull Springs allotments is anticipated to result in insignificant effects to cuckoos. Conservation measures YBC-2 and YBC-3 would exclude cattle from holding traps during the breeding season except for short-duration critical activities. Although these activities would occur during the growing season, effects to riparian vegetation are anticipated to be insignificant due to the relatively short timeframe of use (generally a 10-day

window) and low number of cattle present at any one time (<20 head). Should the proposed action result in degradation of riparian habitat, proposed photopoint monitoring and cuckoo surveys described in conservation measures YBC-4, 5, and 6 would facilitate timely adaptive management via annual operating instructions.

Grazing of approximately 577 acres of potential breeding habitat along the East Verde River, its tributaries, Mineral and Rye Creeks, and Bull Spring Canyon on the Pole Hollow and Bull Springs allotments would adversely affect cuckoos. Of the 577 acres of habitat where adverse effects would occur, habitat quality and abundance may be reduced on 243 acres while the remaining acreage is expected to persist in its current condition. Implementation of conservation measures and TNF's rest-rotation grazing strategy would reduce the impacts of the proposed action such that they are not anticipated to entirely preclude the continued existence of cuckoos in these areas; rather, we anticipate that they would result in some lethal and some non-lethal adverse effects by reducing availability and quality of habitat that would otherwise provide shelter and support breeding and feeding. Within the action area, the majority of habitat where adverse effects would occur is along the East Verde River and its tributaries. The entire population of cuckoos using this drainage would not be adversely affected; approximately 515 acres or 52% of the habitat ($n = 983$ acres) would be negatively impacted, while the remaining habitat would not be grazed or occurs within holding traps where effects to cuckoos would be insignificant. To better inform our understanding of cuckoo occupancy, TNF has committed to placing ARUs or, if accessibility improves, conducting protocol surveys within suitable habitat in the vicinity of LF Ranch when resources allow (YBC-6).

Finally, while the proposed action is expected to adversely affect cuckoos within 577 acres of habitat within the action area, the range of the cuckoo is relatively broad and populations in other locations within Arizona and other states would not be affected by the proposed action. Regional populations of cuckoos along the Verde River and its tributaries outside the action area would not be affected by the proposed action. No cuckoo critical habitat would be affected as none occurs within the action area.

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 TNF for the exemption in section 7(o)(2) to apply. The TNF has a continuing duty to regulate the activity covered by this incidental take statement. If the TNF (1) fails to assume and implement the terms and conditions or (2) fails to require the permittees 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 impact of incidental take, the TNF must report the progress of the action and its impact on the species as specified in the incidental take statement [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

We anticipate that take of cuckoos is reasonably certain to occur as a result of the proposed action. The incidental take is expected to be in the form of harm that would result from reduced habitat abundance and quality leading to death or injury of cuckoos by impairing behavioral patterns such as breeding, feeding, and/or sheltering. The impacts to habitat resulting in take would affect cuckoos utilizing approximately 577 acres of potential breeding habitat along the East Verde River, its tributaries, Mineral and Rye Creeks, and Bull Spring Canyon on the Pole Hollow and Bull Springs allotments.

The USFWS anticipates incidental take of cuckoos will be difficult to detect for several reasons. First, baseline survey data is not available for most of the habitat where we expect adverse effects to occur. While TNF's conservation measures call for the use of ARUs or protocol surveys to improve understanding of cuckoo distribution when resources allow, surveying all potential cuckoo breeding habitat to protocol is not feasible in part due to limited access. Further, while ARUs can be used to confirm cuckoo presence, their ability to assess population size, breeding status, reproductive output, and habitat use is limited. Second, where survey data is available, the number of cuckoos often varies from season to season at the site level, making it difficult to establish a population size for a given location. Lastly, cuckoo home range size varies, with individual estimates ranging from 3.7 to 533.7 acres (Laymon and Halterman 1985; Halterman 2009; McNeil et al. 2013; Sechrist et al. 2013; Dillon and Moore 2020). Thus, directly estimating the number of cuckoos present within negatively impacted habitat is not feasible in the absence of survey data.

Per 50 CFR 402.14(i)(1)(i), a surrogate may be used to express the amount or extent of anticipated take when it is not practical to express, or monitor take in terms of individuals of the listed species. Therefore, we use the acreage of adversely affected TNF-modeled potential breeding habitat as a surrogate to express take of cuckoos that would occur as a result of the proposed action. The modeled habitat is an appropriate surrogate because it provides the best information available regarding areas cuckoos rely on for breeding, feeding, and sheltering during the breeding season within the action area. As described in the preceding effects analysis, adverse effects to cuckoos resulting from impacts to habitat occur when the abundance, distribution, structure, and/or density of vegetation is altered as a result of livestock consuming vegetation; trampling plants, seedbanks, and soils; and creating open spaces and trails.

Within the action area, 1,116 acres are mapped as potential cuckoo breeding habitat. For reasons described in the effects analysis and conclusion, we expect cattle grazing along the East Verde

River and its tributaries on the Bull Springs Allotment's Bullfrog, Oak Grove, and West River pastures to reduce the quantity and quality of 243 acres of cuckoo habitat; implementation of conservation measures and TNF's rest-rotation grazing strategy would reduce the impacts of the proposed action such that they are not anticipated to entirely preclude the continued existence of cuckoos in these areas. We also expect current suppressed habitat conditions to be maintained within 334 acres of cuckoo habitat along the East Verde River, Pine Creek, and Rye Creek/Mineral Creek within the Pole Hollow Allotment and in Bull Spring Canyon on Bull Springs Allotment. Therefore, we express incidental take separately by location to reflect our differing expectations regarding adverse effects.

The following amounts of incidental take are authorized:

- Declines in quantity and quality of 243 acres of cuckoo breeding habitat along the East Verde River within the Bull Springs Allotment's Bullfrog, Oak Grove, and West River pastures.
- Continued suppression of habitat quality on 334 acres of cuckoo breeding habitat at current levels with no new measurable declines in habitat quantity and quality along the East Verde River, Pine Creek, Rye/Mineral Creek, and Bull Spring Canyon within the Pole Hollow Allotment's River, Maverick, Homeward, and Cypress Thicket pastures and Bull Springs Allotment's Bull Springs and Brush Corral pastures.

Across the 1,116 acres of cuckoo breeding habitat on the four LVSA's, take will be considered exceeded if cattle grazing causes measurable declines in quantity and quality outside the 243 acres of cuckoo breeding habitat within the Bull Springs Allotment's Bullfrog, Oak Grove, and West River pastures. Take will also be exceeded if cattle grazing causes measurable declines in 334 acres of cuckoo breeding habitat in other portions of the Bull Springs Allotment or within the Pole Hollow Allotment. Because TNF's monitoring strategy relies heavily on photopoint monitoring, we define measurable declines in terms of changes observable in photopoint data; however, riparian declines can be assessed using the best available information and is not limited to that obtained through photographs. Based on criteria TNF uses to define healthy versus degraded sycamore - Fremont cottonwood communities (C. Akins, TNF, pers. comm. 2024) and potential impacts of grazing to riparian vegetation described in the Flycatcher Recovery Plan, we consider measurable declines to have occurred when a combination of the following is observed for two consecutive years and attributed to the proposed action:

1. The riparian area is contracting.
2. Native riparian plants lack vigorous growth.
3. Bank stabilizing species (*e.g.*, Muhly bunch grass [*Muhlenbergia* sp.], narrow-leaf willow [*Salix exigua*], and sedge [*Carex* spp.]) are declining.
4. Invasive species are becoming more abundant.
5. Vertical and horizontal cover of riparian and xeroriparian vegetation has decreased.
6. Seedling recruitment after two consecutive 10% chance (10-year flood return interval) to 20% chance (5-year flood return interval) flood events is lacking.
7. Changes in representation of various size classes have occurred such that adequate age structure for recovery and maintenance of riparian vegetation is reduced.

EFFECT OF THE TAKE

In the accompanying biological opinion, we have determined that the level of anticipated take is not likely to result in jeopardy to the western DPS of the yellow-billed cuckoo. Although we anticipate some incidental take to occur, the implementation of the conservation measures proposed should ultimately result in avoidance and minimization of adverse effects.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

Reasonable and prudent measures refer to “those actions the Director considers necessary or appropriate to minimize the impacts of the incidental take on the species” (50 CFR § 402.02). Reasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the action, and may involve only minor changes. Reasonable and prudent measures may include measures implemented inside or outside of the action area that avoid, reduce, or offset the impact of incidental take (50 CFR § 402.14 (i)(2)).

The USFWS believes the following reasonable and prudent measure is necessary and appropriate to minimize take of the cuckoo:

1. The TNF shall monitor yellow-billed cuckoo incidental take resulting from the proposed action and report to us the findings of that monitoring.

Terms and Conditions

Terms and conditions are actions designed to implement the reasonable and prudent measures. In order to be exempt from the prohibitions of section 9 of the Act, the TNF 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.

1. The TNF shall use the best available information (*e.g.*, photopoint data, vegetation measurements, aerial imagery, geospatial data) to monitor the condition of potential cuckoo breeding habitat within areas where livestock presence is authorized.
2. Riparian photopoint monitoring specified in conservation measure YBC-5 shall be conducted at least once annually. For any given location, photographs shall be collected during the same season each year to reduce variability in vegetation condition attributable to seasonality and to facilitate year to year comparisons.
3. When interpreting riparian photopoint images, TNF shall use and report annually on the following characteristics of degraded sycamore-Fremont cottonwood communities to assess whether riparian decline has occurred:
 - i. The riparian area is contracting.
 - ii. Native riparian plant growth is repressed.
 - iii. Bank stabilizing species (*e.g.*, Muhly bunch grass [*Muhlenbergia* sp.], narrow-leaf willow [*Salix exigua*], and sedge [*Carex* spp.]) are declining.
 - iv. Invasive species are becoming more abundant.
 - v. Vertical and horizontal cover of riparian and xeroriparian vegetation has decreased.

- vi. Seedling recruitment after 10% chance (10-year flood return interval) to 20% chance (5-year flood return interval) flood events is lacking.
 - vii. Changes in representation of various size classes have occurred such that adequate age structure for recovery and maintenance of riparian vegetation is reduced.
4. Should declines in quality or quantity of riparian habitat be determined to have occurred in any single year, TNF shall take steps necessary to determine whether the declines are attributable to activities conducted under the proposed action such as livestock grazing. Information used to inform this determination may be collected during a site visit or by other means sufficient to confirm the cause.
 5. TNF shall provide an annual report no later than January 31 of each year summarizing that year's incidental take assessments and other monitoring efforts within the LVSAs including ARU deployment, yellow-billed cuckoo protocol surveys, and riparian photopoint results. The report shall also discuss any fence line/exclusion failure and/or unscheduled livestock in potential cuckoo breeding habitat within the LVSAs including descriptions of corrective actions taken. The report shall consider recommendations for modifying or refining these terms and conditions to enhance yellow-billed cuckoo populations and protection.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the USFWS' Law Enforcement Office, Robert Fortiz, Special Agent, Chandler, Arizona Investigations Office, Post Office Box 6342, Chandler, Arizona, 85246, telephone: 480/967-7900, within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and 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.

1. When cuckoos are newly detected within an area, every effort should be made to conduct follow-up protocol surveys to better inform our understanding of cuckoo abundance, habitat use, and breeding status within the surrounding area.
2. Per conservation measure YBC-5, TNF will continue to complete protocol surveys in the vicinity of Doll Baby Ranch. Such surveys should be completed every 2-3 years.
3. Within the riparian and aquatic monitoring program TNF will develop in support of the 2023 Forest Plan, include a landscape-scale strategy to assess the condition of riparian areas subject to grazing. Characters assessed should be related to the integrity of the

system (*e.g.*, vegetation structure, recruitment and cover, bank stability) and not reliant on indirect measures (*e.g.*, livestock utilization thresholds).

4. Develop a landscape-scale strategy to assess cuckoo occupancy as well as the effects of grazing in difficult to access areas of potential cuckoo habitat. Potential examples include tasking permittees with photopoint monitoring and head of cattle assessments along riparian corridors, use of drones to assess habitat condition, and ARU deployments.
5. We recommend that the TNF install exclusionary fence along the East Verde River and Fossil Creek where grazing is authorized during the vegetation growing season. Where fence installation is not feasible, TNF should consider excluding cattle from pastures containing riparian vegetation during the growing season.
6. We recommend the TNF continues efforts to remove feral livestock from Verde River.

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

REINITIATION NOTICE

This concludes formal consultation on the Lower Verde Subbasin Grazing Allotments. As provided in 50 CFR §402.16, reinitiation of 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 biological opinion or written concurrence; 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.

Please refer to the consultation number, 2013-0015867-S7 in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Laura Stewart (laura_r_stewart@fws.gov/602-834-7193) or Mary Fugate (mary_fugate@fws.gov).

Approved:

**HEATHER
WHITLAW**

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HEATHER WHITLAW
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February 12, 2025

Heather Whitlaw, Field Supervisor
Arizona Ecological Services Office

Date

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APPENDIX A – CONCURRENCES

Spikedace

Spikedace were once present in the Verde River from its headwaters downstream to the Camp Verde area. Surveys last found spikedace in the Verde River in 1999 (M. Brouder, USFWS pers. comm. 2002). As part of management and recovery actions, spikedace were translocated into Fossil Creek between 2007 and 2018, and were last monitored and detected in 2023 (B. Hickerson, AGFD, pers. comm. 2018, K. Shollenberger, Marsh & Associates, LLC, pers. comm. 2023). These detections were in Fossil Creek above a fish barrier located near the downstream end of Deadman Mesa. The Fossil Creek fish barrier was constructed to provide habitat within the stream that would be free of nonnatives so that spikedace could become established. Spikedace are not anticipated to persist below the barrier due to the presence of nonnative fish such as green sunfish and smallmouth bass in lower Fossil Creek. Monitoring in 2020 below the barrier did not detect spikedace (Shollenberger et al. 2021).

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

- Due to the low numbers of spikedace recently detected and the presence of nonnative fish in lowermost Fossil Creek, we anticipate that spikedace are either absent or, if present in the action area, are at extremely low numbers and not likely to persist. Therefore, the effects of the action would be discountable.

Stocking of spikedace as a recovery action is ongoing. Should species monitoring conducted in association with that stocking detect additional spikedace in the future, this determination may need to be re-evaluated.

Spikedace and Loach Minnow Critical Habitat

Fossil Creek is the only portion of the proposed project area that is designated critical habitat for loach minnow. The Upper Fossil and Lower Fossil pastures in the Deadman Mesa Allotment are excluded from grazing, and portions of Fossil Creek in the Lower Mesa Pasture are or will be inaccessible due to topography as well as a drift fence to be constructed before pasture use. Approximately 0.8 mile of Fossil Creek is accessible to grazing in the Lower Plow Beam Pasture of the Cedar Bench Allotment. This constitutes approximately 0.6% critical habitat designated in the Verde River Subbasin Unit critical habitat unit for loach minnow. The critical habitat designation for spikedace includes additional area within the Verde River Subbasin Unit, and the 0.8 mile of Fossil Creek affected by the proposed action constitutes approximately 0.4% of the area designated for spikedace.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect spikedace and loach minnow critical habitat. Effects of the proposed action would be insignificant for the following reasons:

- The TNF has determined that the 0.8 mile of Fossil Creek that would be accessible to cattle under the proposed action will be used for less than 60 days each year (approximately March 1 through April 30) and access would be limited to six to 15 cattle. Generally, cattle will remain dispersed throughout the remainder of the pasture due to easier accessibility, more abundant forage, and placement of waters and supplements away from Fossil Creek. Monitoring will occur to determine the number of cattle present

in the riparian area per conservation measure AQ-2.

- Conservation measures RP-1 and RP-2 will minimize or prevent the entry of equipment or vehicles into riparian areas or streams, thereby minimizing sediment increase as a result of the proposed action.
- Livestock will not trail along the stream banks and riparian areas as provided in RP-3, and there is no need for cattle to cross Fossil Creek as part of the proposed action as all portions of the Cedar Bench Allotment are located south of Fossil Creek, thereby preventing increases in sedimentation from trailing.
- Livestock will be moved from critical areas if utilization reaches limits of recommended allowable use as described in the BA and annual operating instructions.
- The permittee will ensure any livestock observed in unscheduled areas are removed and/or complete necessary fence repairs.
- We do not anticipate the proposed action will significantly affect spikedace and loach minnow critical habitat Primary Constituent Element (PCE) 1(b) (appropriate microhabitat types including pools, runs, riffles, and rapids over sand, gravel, cobble, and rubble substrates with low or moderate amounts of fine sediment and substrate embeddedness) as only six to 15 cattle will be present for 60 days or less each year. While some sediment may be generated by this use, we believe this increase in sediment over baseline conditions will be insignificant.
- Similarly, we do not anticipate the proposed action will significantly affect PCE 2 (abundant aquatic insect food base) or PCE 3 (streams with no or no more than low levels of pollutants). We anticipate that the level of cattle excrement that may enter the stream and affect water quality and/or prey base would be insignificant because only six to 15 cattle will be present for 60 days or less each year.

We do not anticipate that the proposed action would affect the remainder of PCE 1 (perennial flows, water depth, stream gradient, or water temperatures), PCE 4 (perennial flows and connectivity), PCE 5 (nonnative aquatic species presence); or PCE 6 (flow regime).

Gila Topminnow

Gila topminnows were reintroduced into Fossil Creek from 2007 through 2010. The species was considered to be established in the creek by 2013 and was recorded in multiple reaches of Fossil Creek from 2013 through 2016 (Robinson 2014, Robinson and Crowder 2015, Robinson 2016, Robinson et al. 2017). Surveys conducted at multiple locations along the length of Fossil Creek in 2020 recorded Gila topminnow at only a single location 0.9 mile downstream of Fossil Creek Dam. Observers noted that Gila topminnows did not appear to be widespread throughout the creek, but that Gila topminnow may also have been present at other discrete locations (Shollenberger et al. 2021). Fossil Creek was most recently surveyed for Gila topminnow in 2023 (K. Shollenberger, Marsh & Associates, LLC, pers. comm. with M. Fugate, USFWS, 2023). No topminnows were detected and the topminnow location from 2020 no longer provided suitable cover due to fluctuations in water levels.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect Gila topminnow. Effects of the proposed action would be discountable for the following reasons:

- Gila topminnows are not anticipated to persist below the fish barrier due to the presence of nonnative fish such as green sunfish and smallmouth bass in lower Fossil Creek. Monitoring in 2020 below the barrier and in 2023 along the length of Fossil Creek did not detect Gila topminnow (Shollenberger et al. 2021, K. Shollenberger, Marsh & Associates, LLC, pers. comm. with M. Fugate, USFWS, 2023).
- Cattle access to Fossil Creek would be limited to 0.8 mile below the fish barrier. Due to the low numbers of Gila topminnows recently detected in the creek and the presence of nonnative fish below the barrier, we anticipate that Gila topminnow are either absent or occur at extremely low numbers within the stretch of Fossil Creek where cattle would be authorized.

Fish surveys are conducted along Fossil Creek periodically. Should future surveys detect Gila topminnow downstream of the fish barrier, this determination may need to be re-evaluated.

Razorback Sucker and Critical Habitat

Razorback suckers are present only in small numbers in those portions of the Verde River adjacent to the action area. While the species historically occurred in the Verde River (Minckley 1973), reintroductions that have occurred on multiple occasions as recently as 2023 have largely been unsuccessful. Because razorbacks are a long-lived species and can disperse over long distances, the USFWS considers razorback suckers to occur, albeit at low numbers, within the Verde River above Horseshoe Dam.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect razorback suckers. Effects of the proposed action would be insignificant for the following reasons:

- The TNF has determined that the 0.8 mile of Fossil Creek that would be accessible to cattle under the proposed action will be used for less than 60 days each year (approximately March 1 through April 30) and access would be limited to 6 to 15 cattle. Generally, cattle will remain dispersed throughout the remainder of the pasture due to easier accessibility, more abundant forage, and placement of waters and supplements away from Fossil Creek. Monitoring will occur to determine the number of cattle present in the riparian area per conservation measure AQ-2. Any minimal effects from this action would decrease as they move downstream over the 0.8 mile before reaching the Verde River and any razorback suckers there.
- Conservation measures RP-1 and RP-2 will minimize or prevent the entry of equipment or vehicles into riparian areas or streams, thereby minimizing sediment increases caused by the proposed action.
- Livestock will not trail along the stream banks and riparian areas as provided in RP-3, and there is no need for cattle to cross Fossil Creek as part of the proposed action as all portions of the Cedar Bench Allotment are located south of Fossil Creek, thereby

preventing increases in sedimentation from trailing. The allotment does not include any actions directly on the Verde River.

- Livestock will be moved from critical areas if utilization reaches limits of recommended allowable use as described in the BA and annual operating instructions.
- The permittee will ensure any livestock observed in unscheduled areas are removed and/or complete necessary fence repairs.

The USFWS designated critical habitat for razorback sucker in 1994, including 114 miles of the Verde River and the associated 100-year floodplain from the western boundary of the Prescott National Forest west of Perkinsville, Arizona downstream to Horseshoe Dam, including Horseshoe Lake to full pool elevation. PCEs of razorback sucker critical habitat include water, physical habitat, and biological environment. We do not anticipate that the proposed action will affect the quantity or quality of water delivered to a specific location or the hydrologic regime.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect razorback sucker critical habitat. Effects of the proposed action would be insignificant for the following reasons:

- The permittee will inspect the Cedar Bench Allotment's Lower Plow Beam Pasture fence prior to use to ensure cattle are excluded from accessing the Verde River. Livestock will not graze Bull Springs Allotment's River Pasture, which is adjacent to the Verde River and razorback sucker critical habitat.
- Livestock accessing the lowermost 0.8 mile of Fossil Creek in the Lower Plow Beam Pasture will be within the designated critical habitat at the confluence of Fossil Creek and the Verde River and could generate some sediment within this area. We anticipate the amount of sediment will be insignificant as the TNF has indicated approximately six to 15 cattle will use this area less than 60 days per year. The BA indicates that cattle would be more likely to use other portions of the pasture that provide better forage and are more easily accessible.
- We anticipate that the proposed action would have minimal inputs of sediment, but that these would be insignificant and would not affect the physical habitat PCE (habitat used for spawning, nursery, feeding, rearing, or movement). While the proposed action may result in some sediment disturbance and vegetation removal in and along Fossil Creek, we believe these effects would be insignificant due to limited number of cattle accessing Fossil Creek and the limited season of use.

With respect to the PCE for biological environment, we conclude that no portion of the proposed action would result in barriers to razorback sucker movement within the Verde River, nor would they result in an increase in nonnative species which may compete with or prey on razorback sucker or their young (should reproduction be occurring).

Mexican Spotted Owl and Critical Habitat

Two Mexican spotted owl Protected Activity Centers (PACs) occur within the LVSA. Seventy acres (10% of the 687-acre PAC) of the North Frost Deadman PAC intersect the southern end of the action area on Pole Hollow Allotment's Wilderness Pasture. This PAC's entire nest core area is located outside the action area. The Cove PAC is located mostly outside the northeast boundary of Cedar Bench Allotment, but three acres (<1% of the 600-acre PAC) occur within the

action area on the Ranch Pasture. There are no established PACs within or adjacent to Deadman Mesa or Bull Springs allotments.

As defined in the Mexican spotted owl Recovery Plan (Recovery Plan; USFWS 2012), recovery habitat is suitable habitat that occurs outside of PACs and within the action area primarily consists of ponderosa pine-Gambel oak, mixed conifer, and riparian forest. Recovery habitat is divided into nest/roost or foraging/dispersal recovery habitat. The TNF estimates 578 acres of recovery habitat is present within the LVSA (Figure A-1). Of this, 131 acres are modeled as foraging/non-breeding habitat and 293 acres have a 50% or greater probability of being nest/roost habitat. The remaining 154 acres have not yet been categorized and will be field verified as actions occur in the area (C. Akins, TNF, pers. comm. 2024).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect Mexican spotted owls. Effects of the proposed action would be insignificant for the following reasons:

- Construction of site-specific improvements including new livestock fencing, wells, troughs, and pipeline are not anticipated to disturb Mexican spotted owls or affect their habitat as these activities would not occur within PACs or recovery habitat.
- Non-site-specific improvements would cause small amounts of ground disturbance as well as temporary increases in noise and human presence within Mexican spotted owl recovery habitat. During the breeding season, these disturbances would be minimized within PACs by conservation measure MSO-2, which restricts use of mechanized equipment, off-road ATVs/UTVs, corrals, and maintenance of corrals, buildings, or earthen stock tanks to the non-breeding season unless otherwise approved by the TNF and coordinated with the USFWS. Conservation measure RI-3 would prevent construction of any new corrals or structures within the boundaries of a PAC. Therefore, we expect that the effects of non-site-specific improvements to Mexican spotted owls and the key components of recovery habitat would be insignificant.
- As described in the Recovery Plan (USFWS 2012), improper management of livestock grazing may adversely affect the owl primarily through four indirect effects: 1) diminished prey availability and abundance; 2) increased susceptibility of habitat to destructive fires; 3) degradation of riparian and meadow plant communities; and, 4) impaired ability of plant communities to recover or develop into more suitable spotted owl habitat.
- The potential for livestock grazing to indirectly affect Mexican spotted owls via one or more of these pathways would be limited by TNF's implementation of a rest-rotation grazing system, riparian and upland utilization limits, and monitoring protocols. TNF would employ an adaptive management strategy to modify the grazing prescription as needed to achieve desired resource conditions. Further, grazing-related effects to riparian recovery habitat modeled along Fossil Creek would be limited to <0.8 mile on the Cedar Bench Allotment where cattle are not excluded. Therefore, we expect the effects of livestock grazing on Mexican spotted owls and key components of recovery habitat within the LVSA to be insignificant.

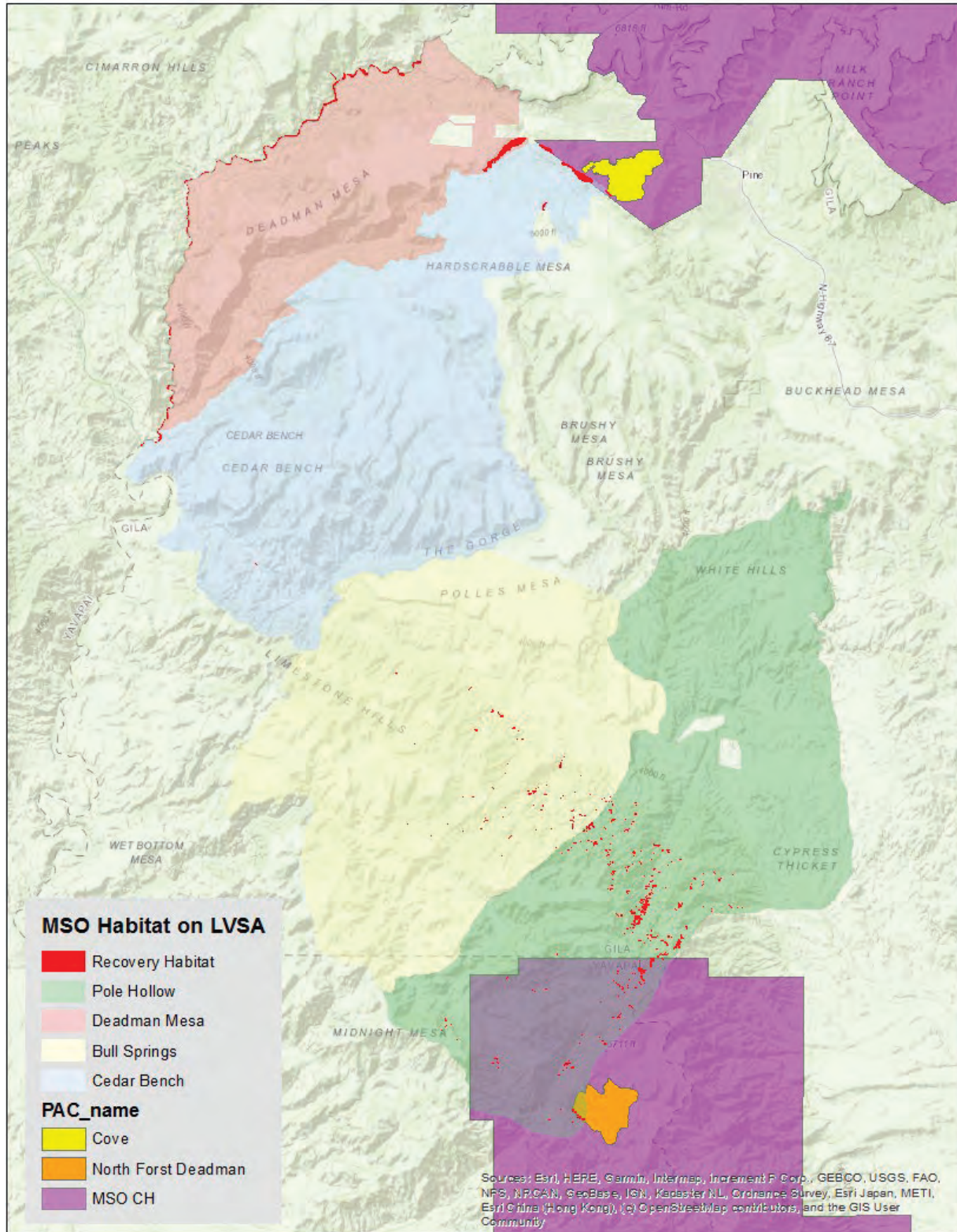


Figure A-1. Predicted Mexican Spotted Owl Recovery Habitat within the Lower Verde Subbasin Allotments (TNF 2024).

In 2004, the USFWS designated critical habitat for the Mexican spotted owl on approximately 8.6 million acres of Federal lands in Arizona, Colorado, New Mexico, and Utah (USFWS 2004). The PCEs of critical habitat within mixed conifer, pine-oak, and riparian forest types are related to forest structure and maintenance of adequate prey species; PCEs for canyon habitat, which does not occur within the action area, are identified separately.

Critical habitat in the LVSAs is split between the Basin and Range West (BR-W-4) and Upper Gila Mountain (UGM-10) critical habitat units (Figure 6). Seventy acres of critical habitat in UGM-10 intersects the extreme northeast portion of Cedar Bench Allotment on the Ranch and FU pastures. Within the southwestern part of Pole Hollow Allotment in BR-W-4 CHU, 6,880 acres occur within the Wilderness Pasture.

We concur with your determination that the proposed action may affect but is not likely to adversely affect Mexican spotted owl designated critical habitat. Effects of the proposed action would be insignificant for the following reasons:

- No site-specific improvements would occur within Mexican spotted owl critical habitat.
- Non-site-specific improvements could result in small amounts of ground disturbance within critical habitat, which would result in insignificant changes to residual plant cover, a PCE related to the maintenance of adequate prey species. No other PCEs related to prey species and no PCEs related to forest structure would be affected by ground disturbance.
- Livestock grazing would occur within both critical habitat units within the action area. PCEs related to forest structure and prey species may be influenced by grazing due to preferential grazing of certain species and size classes as well as reductions in residual plant cover. However, such effects would be limited by TNF's implementation of a restoration grazing system, riparian and upland utilization limits, and monitoring protocols. TNF would employ an adaptive management strategy to modify the grazing prescription as needed to achieve desired resource conditions. Therefore, we expect the effects of livestock grazing on the PCEs of critical habitat within the LVSAs to be insignificant.

APPENDIX B – CONFERENCE REPORT FOR NONESSENTIAL EXPERIMENTAL 10(j) POPULATIONS

Mexican Wolf (inside non-essential experimental boundary)

Section 10(j) of the Act authorizes listed species to be released as experimental populations outside their currently occupied range, but within probable historic habitat, to further species conservation. Before making a release, the USFWS determines by rulemaking whether a population is “essential” or “nonessential” to the survival of the species in the wild. Experimental populations are also referred to as “10(j)” populations.

The USFWS designated a nonessential experimental population for Mexican wolf in 1998 and updated the boundaries in 2015 to include most of Arizona and New Mexico south of Interstate 40 (USFWS 1998, 2015). This broad 10(j) population area is broken into three zones. Of these, Zone 1 contains the core reestablishment efforts and is identified as the area where Mexican wolves may be initially released or translocated. Zone 1 includes the full extent of the action area on the Pleasant Valley Ranger District. The action area occurs south of the current occupied range of the Mexican wolf and the nearest recent location of a collared individual occurred over 100 miles to the east near Pinetop-Lakeside, Navajo County (USFWS 2024).

We concur with your determination that the proposed action would not jeopardize the continued existence of the Mexican wolf for the following reasons:

- Mexican wolves have not been reported from the action area.
- Any Mexican wolves that were to occur within the action area are included as part of the USFWS’ designated nonessential experimental population. By definition, a nonessential experimental population is not essential to the continued existence of the species. Thus, no proposed action impacting a designated 10(j) population could lead to a jeopardy determination for the entire species.