



VIA CERTIFIED MAIL and E-MAIL

April 29, 2026

Brooke L. Rollins, Secretary
U.S. Department of Agriculture
1400 Independence Ave., SW
Washington, D.C. 20250
agsec@usda.gov

Doug Burgum, Secretary
U.S. Department of the Interior
1849 C Street, NW
Washington, D.C. 20240
exsec@ios.doi.gov
exsec_exsec@ios.doi.gov

Tom Schultz, Chief
U.S. Forest Service
201 14th Street, SW
Washington, D.C. 20024
tom.schultz@usda.gov

Brian Nesvik, Director
U.S. Fish and Wildlife Service
1849 C Street, NW
Washington, DC 20240
brian_nesvik@fws.gov

Re: Sixty-Day Notice of Intent to Sue for Violations of the Endangered Species Act and Administrative Procedure Act: Livestock Grazing on Prescott National Forest's Upper Verde Allotments

Secretaries Rollins and Burgum, Chief Schultz, and Director Nesvik:

Pursuant to 16 U.S.C. § 1540(g)(2)(A), on behalf of the Center for Biological Diversity (“the Center”) and Maricopa Bird Alliance, we hereby notify you of violations of the Endangered Species Act (“ESA”), 16 U.S.C. §§ 1531-1544, and its implementing regulations, 50 C.F.R. §§ 402.01-402.17, in connection with livestock grazing authorized by the U.S. Fish and Wildlife Service’s (“FWS”) and the U.S. Forest Service (collectively, the “agencies”) and unlawful damage to designated critical habitat in several allotments along the upper Verde River within the Prescott National Forest (“Prescott”), including: (1) the China Dam Allotment; (2) the Horseshoe Allotment; (3) the Muldoon Allotment; (4) the Perkinsville Allotment; (5) the Sand Flat Allotment; and (6) the West Bear/Del Rio Allotment (collectively, the “Upper Verde Allotments”).

This Notice documents violations of the ESA and Administrative Procedure Act (“APA”), 5 U.S.C. §§ 701-706, with respect to improper livestock management in yet another National Forest in Arizona. As our biological surveys have repeatedly demonstrated, designated critical habitat for imperiled species along the Verde River exists in a highly degraded state due to damage from unauthorized/trespass cattle despite being strictly off-limits to grazing.

In this Notice, we show that grazing restrictions on the allotments in question are not being followed, and that the biological opinions and concurrences currently in effect for these allotments are based on false assumptions regarding cattle exclusion and grazing permit compliance. Importantly, the assumption and requirement that cattle are effectively excluded from upper Verde River riparian critical habitat within the Prescott National Forest is demonstrably false. The ESA consultations relevant to this NOI include:

- (1) the December 30, 2002 Biological Opinion on the effects of livestock grazing on 16 allotments of the Verde River watershed on spikedace, loach minnow, and their critical habitat (AESO/SE 2-21-89-F-071);
- (2) the July 9, 2014 Biological Opinion on the Land and Resource Management Plan (“Forest Plan”) for the Prescott National Forest (AESO/SE 02EAAZ00-2013-F-0019);
- (3) the March 15, 2017 Concurrence for the China Dam Allotment (AESO/SE 02EAAZOO-2017-I-0392) (addressing critical habitat for the western yellow-billed cuckoo and narrow-headed garter snake);
- (4) the March 15, 2017 Concurrence for the Horseshoe Allotment (AESO/SE 02EAAZOO-2017-I-0393) (same);
- (5) the March 15, 2017 Concurrence for the Muldoon Allotment (AESO/SE 02EAAZOO-2017-I-0394) (same);
- (6) the March 21, 2017 Concurrence for the Perkinsville Allotment (AESO/SE 02EAAZOO-2017-I-0395) (same);
- (7) the March 2017 Concurrence for the Sand Flat Allotment;¹ and
- (8) the March 21, 2017 Concurrence for the West Bear (West Bear/Del Rio) Allotment (AESO/SE 02EAAZOO-2017-I-0397) (addressing critical habitat for the western yellow-billed cuckoo and narrow-headed garter snake).

The Prescott National Forest’s grazing authorizations, which rely on FWS’s flawed biological opinions and concurrences, allow grazing permittees to continue business as usual in the Prescott to the detriment of ESA-listed species and their habitats in violation of ESA Section 7(a)(2), which requires that all federal agencies, in consultation with FWS, “insure” that their actions will not jeopardize the continued existence of endangered or threatened species or adversely modify their critical habitat. 16 U.S.C. § 1536(a)(2).

As detailed below, new information reveals effects of the action that are affecting yellow-billed cuckoo (“cuckoo”), narrow-headed garter snake (“garter snake”), spikedace and loach minnow in a manner or to an extent not previously considered and authorized by the existing Biological Opinions and Concurrences on the Prescott’s grazing program. It also appears that BLM has never consulted with FWS concerning the impacts of livestock grazing on critical habitat of the razorback sucker in or directly adjacent to the Horseshoe Allotment.

Forest Service-authorized grazing on the Prescott’s Upper Verde Allotments has led to unlawful, unauthorized grazing due to lack of appropriate enclosure fencing. This constitutes a modification to the agency action consulted on in a manner that is harming ESA-listed species and critical habitat. The ineffectiveness of the fencing enclosures and the resulting frequent presence of cattle in riparian areas also constitutes new information that reveals effects of the

¹ The Center has not yet located the Sand Flat concurrence, but it is likely available as AESO/SE 02EAAZOO-2017-I-0396.

action that may affect listed species or critical habitat in a manner or to an extent not previously considered. The agencies' failure to reinitiate and complete ESA Section 7 consultation on the ongoing impacts of livestock grazing on threatened and endangered species and their critical habitat within the Prescott National Forest violates the ESA and its implementing regulations. Further, the Forest Service's actions authorizing grazing activities that adversely affect (and likely "take") listed species and their habitat, including designated critical habitat, without first undergoing consultation also violates Sections 7(a)(2) and 9 of the ESA, and is arbitrary and capricious. *See* 16 U.S.C. §§ 1536, 1538; 5 U.S.C. § 706.

The Forest Service's issuance of cattle grazing authorizations, including via permits, allotment management plans ("AMPs") and/or annual operating instructions ("AOIs"), is "arbitrary and capricious, an abuse of discretion," "otherwise not in accordance with law," and "without observance of procedure required by law" within the meaning of the APA, 5 U.S.C. § 706(2)(A), (D).

Prescott National Forest livestock grazing on these riparian allotments should be immediately enjoined, the agencies' grazing authorizations and the Biological Opinions and Concurrences should be vacated and remanded, and the agencies should be ordered to immediately initiate or reinitiate consultation under ESA Section 7, such that no irreversible or irretrievable commitment of resources is made which may foreclose the formulation or implementation of any reasonable and prudent alternative measures. *See* 16 U.S.C. § 1536(d).

LEGAL BACKGROUND: THE ENDANGERED SPECIES ACT

The ESA "represent[s] the most comprehensive legislation for the preservation of endangered species ever enacted by any nation." *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978). Section 9 of the ESA prohibits any "person" from "tak[ing]" any member of an endangered or threatened species without authorization from FWS. 16 U.S.C. § 1538(a)(1)(B), (G); 50 C.F.R. §§ 17.21(c), 17.31. The term "take" is defined broadly to include "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). FWS has further defined "harass" to include "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." 50 C.F.R. § 17.3. In addition, "harm" is defined to "include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." *Id.*

Under ESA Section 7, before taking any action that may have direct or indirect effects on any listed species, the action agency must consult with FWS to evaluate the impact of the proposed action. *See* 16 U.S.C. § 1536(a). The purpose of consultation is to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species . . . determined . . . to be critical." 16 U.S.C. § 1536(a)(2); *see also* 50 C.F.R. § 402.14(a). Agency "action" is broadly defined to encompass "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies." 50 C.F.R. § 402.02. According to ESA regulations, an action jeopardizes a listed species if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of

both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.” *Id.*

The evaluation of the effects of the proposed action on listed species during consultation must use “the best scientific . . . data available.” 16 U.S.C. § 1536(a)(2). Additionally, once consultation is initiated, the action agency is prohibited from making “any irreversible or irretrievable commitment of resources . . . which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures.” *Id.* § 1536(d).

Consultation under Section 7 may be “formal” or “informal” in nature. Informal consultation is “an optional process” involving all correspondence between the action agency and FWS, which is designed to assist the action agency, rather than FWS, in determining whether formal consultation is required. *See* 50 C.F.R. § 402.02. During informal consultation, the action agency requests information from FWS as to whether any listed species may be present in the action area. If so, the action agency is required to prepare and submit to FWS a “biological assessment” that evaluates the potential effects of the action on listed species and critical habitat. 16 U.S.C. § 1536(c)(1). As part of the biological assessment, the action agency must make a finding as to whether the proposed action may affect listed species. *Id.* If the action agency determines the proposed action “is not likely to adversely affect” listed species or critical habitat, and FWS concurs, the informal consultation process ends. 50 C.F.R. § 402.14(b).

However, if the proposed action “may affect” listed species or critical habitat, then formal consultation is required. *Id.* § 402.14(a); *see also* FWS, Endangered Species Consultation Handbook at 3-13 (1998) [hereinafter “Consultation Handbook”]. The result of formal consultation is a Biological Opinion (“BiOp”) from FWS, which analyzes the best available scientific data on the pre-existing status of the species and evaluates how the proposed action would impact the species’ status compared to its baseline condition.

A BiOp must include a description of the proposed action, a review of the species’ status and critical habitat, an evaluation of the environmental baseline, and an analysis of the direct and indirect effects of the proposed action, along with the cumulative effects of reasonably certain future state, tribal, local, and private actions. *See* 50 C.F.R. § 402.14(g); *see also* Consultation Handbook at 4-14 to 4-31. At the conclusion of formal consultation, FWS determines whether the proposed action—in addition to the pre-existing environmental baseline of the species—is likely to jeopardize the continued existence of a listed species or destroy or adversely modify any designated critical habitat.

If FWS concludes that the action is not likely to jeopardize listed species or result in the destruction or adverse modification of critical habitat but will result in incidental take, it must provide the action agency with a written Incidental Take Statement (“ITS”). The ITS specifies the “impact of such incidental taking on the species” and “those reasonable and prudent measures that the [FWS] considers necessary or appropriate to minimize” those impacts, as well as “terms and conditions” that the action agency must follow. 16 U.S.C. § 1536(b)(4). Should FWS determine that the action will jeopardize a listed species or adversely modify critical habitat, it must suggest reasonable and prudent alternatives to avoid such outcomes. *Id.* § 1536(b)(3)(A).

An ITS must specify the impact of incidental take on the species. 50 C.F.R. § 402.14(i)(1)(i). FWS may use a surrogate to express the amount or extent of anticipated take, provided the BiOp explains the connection between the surrogate and the take of the listed species, justifies why measuring take directly is not practical, and establishes a clear standard for determining when the take limit has been exceeded. *Id.* If an exceedance occurs, FWS and the action agency must reinitiate consultation immediately. *Id.* § 402.14(i)(5); *see also id.* § 402.16(a)(1) (requiring reinitiation of consultation “[i]f the amount or extent of taking specified in the [ITS] is exceeded”).² Immediate reinitiation of consultation is also required “[i]f new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.” *Id.* § 402.16(a)(2). Similarly, consultation reinitiation is required “[i]f the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion.” *Id.* § 402.16(a)(3).

Without a valid BiOp and ITS, any activities resulting in take of listed species are unlawful. 16 U.S.C. § 1538(a)(1)(B), (G); 50 C.F.R. §§ 17.21(c), 17.31. Anyone who undertakes or authorizes such activities may face criminal and civil federal enforcement actions, as well as civil citizen suits seeking declaratory and injunctive relief. *See* 16 U.S.C. §§ 1538(g), 1540. This includes action agencies, which bear independent responsibility for ensuring their activities comply with the ESA; an action agency “cannot abrogate its responsibility to ensure that its actions will not jeopardize a listed species” merely by relying upon a BiOp, concurrence, or other consultation document issued by FWS. *Pyramid Lake Paiute Tribe v. U.S. Dep’t of Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990); *see also Ctr. for Biological Diversity v. U.S. BLM*, No. CV-24-00141, 2026 U.S. Dist. LEXIS 68876, at *30 (D. Ariz. Mar. 30, 2026) (finding BLM violated the ESA by relying on an unlawful Concurrence that assumed—despite contrary evidence—that livestock grazing would not occur in critical habitat).

FACTUAL BACKGROUND

I. Grazing Harms Streams and Riparian-Dependent Wildlife in the Desert Southwest.

Livestock grazing has both direct and indirect effects on streams and is a leading cause of species endangerment in the Southwest, including the ESA-listed species at issue in this Notice which are specifically dependent on aquatic and riparian habitat.³

² Both the action agency and FWS have a duty to reinitiate consultation. *See Ctr. for Biological Diversity v. U.S. DOI*, No. 24-cv-04651, 2026 U.S. Dist. LEXIS 68386 (N.D. Cal. Mar. 30, 2026) (vacating 50 C.F.R. § 402.16(a) (2025), concerning the duty to request reinitiation of consultation, and reinstating prior (2023) version, under which both the action agency and FWS share responsibility for reinitiating consultation).

³ The species at issue in this Notice are: Yellow-billed cuckoo (western DPS): Listed as threatened October 3, 2014 (79 Fed. Reg. 59991), final critical habitat April 21, 2021 (86 Fed. Reg. 20815); loach minnow and spikedace: Uplisted to endangered February 23, 2012 (77 Fed. Reg. 10810), final critical habitat February 23, 2012 (77 Fed. Reg. 10810); narrow-headed garter snake: Listed as threatened July 8, 2014 (79 Fed. Reg. 38677), final critical habitat April 28, 2021 (86 Fed. Reg. 20962); razorback sucker: Listed as endangered October 23, 1991 (56 Fed. Reg. 54950), final critical habitat March 21, 1994 (59 Fed. Reg. 13374).

Scientific study on the impacts of livestock grazing on aquatic and riparian habitats in the Southwest is extensive and universally shows severe and lasting negative impacts. *See Attach. 1* (bibliography of scientific literature demonstrating that livestock grazing is detrimental to Western arid land ecosystems, including aquatic and riparian zones, and the native species that depend on them). For example, livestock directly affects riparian habitat through removal of riparian vegetation. Loss of riparian vegetation in turn raises water temperatures, reduces bank stability, and eliminates an important structural component of the stream environment that contributes to the formation of pools. Grazing physically alters streambanks through trampling and shearing, leading to bank erosion. In combination, loss of riparian vegetation and bank erosion can irreversibly alter riparian ecosystems.

Complete exclusion of cattle is widely accepted as a minimum baseline management strategy in preserving stream health. *See Attach. 1.*

II. Imperiled Wildlife on the Upper Verde River

The upper Verde River is home to numerous ESA-listed species dependent on aquatic and riparian habitat federally designated as critical to the recovery of cuckoo, garter snake, spikedace, and razorback sucker. Critical habitat for cuckoo, garter snake, and spikedace occurs on Muldoon, West Bear/Del Rio, China Dam, Sand Flat, Perkinsville, and Horseshoe allotments. In addition, Perkinsville and Horseshoe allotments also contain critical habitat for razorback sucker (*See Fig. 1* below, also *Attach. 3*). Grazing allotments along the upper Verde River are administered by the Prescott National Forest, which is charged with insuring that its actions will not jeopardize the continued existence of endangered or threatened species or adversely modify their critical habitat. 16 U.S.C. § 1536(a)(2).

A. Western yellow-billed cuckoo

Western yellow-billed cuckoo (*Coccyzus americanus*) were listed under the ESA in 2014,⁴ and received critical habitat in 2021.⁵ Cuckoo face ongoing population declines owing primarily to loss of native habitat.⁶ Once a fairly common summer resident throughout Arizona, cuckoo populations declined significantly starting in the 1970's and this directly paralleled the decline of its preferred breeding habitat, cottonwood-willow riparian forest.⁷ Despite the extraordinary ecological and biodiversity values of riparian forest ecosystems, these places have been the most disturbed and degraded land type in the western United States in large part due to cattle grazing.⁸

⁴ 79 Fed. Reg. 59992.

⁵ 86 Fed. Reg. 20798.

⁶ Wallace, C.S., Villarreal, M.L. and van Riper III, C., 2013. Influence of monsoon-related riparian phenology on yellow-billed cuckoo habitat selection in Arizona. *Journal of Biogeography*, 40(11), pp.2094-2107.

⁷ 78 Fed. Reg. 61621.

⁸ Bock, C.E., Saab, V.A., Rich, T.D. and Dobkin, D.S., 1993. Effects of livestock grazing on neotropical migratory landbirds in western North America. *Status and management of Neotropical migratory birds. USDA Forest Service, General Technical Report RM-229*, pp.296-309.

Despite the importance of ground cover, understory, and multi-layered vegetation to cuckoo survival and reproduction, cattle grazing is well-known to degrade these important features in riparian and aquatic habitats throughout the arid Southwest (*See Attach. 1*). Loss of riparian habitat regeneration caused by grazing is an acknowledged, prominent, and ongoing threat to cuckoo reproduction.⁹ According to FWS, habitat degradation associated with livestock grazing is a recognized threat in 70 out of 72 (97%) of critical habitat units.¹⁰

FWS defines overgrazing as “grazing activity [that] degrades riparian habitat attributes and prevents long-term health and persistence of these systems.”¹¹ In another example, FWS defines overgrazing as grazing activities that reduce quality and quantity of breeding habitat.¹² Cattle grazing in cuckoo critical habitat, as we document in this Notice, has significantly impacted riparian systems by decreasing herbaceous groundcover, facilitating erosion and preventing regeneration of riparian plants and trees.

B. *Narrow-headed garter snake*

The narrow-headed garter snake (*Thamnophis rufipunctatus*) is an imperiled native reptile that has declined dramatically throughout its range because of habitat destruction, modification and fragmentation.¹³ Garter snakes received ESA listing in 2014,¹⁴ and critical habitat in 2021.¹⁵ Primary Biological Features required by garter snakes include: slow-moving water with in-stream pools, off-channel pools, and backwater habitat; lentic wetlands including off-channel springs and cienegas; riparian habitat adjacent to the ordinary high water mark that includes riparian vegetation; organic structural features (e.g., dense aquatic and wetland vegetation, leaf litter) within the stream channel for thermoregulation, shelter, foraging opportunities, and protection from predators; and water quality with low or absent pollutants.¹⁶

Cattle grazing can diminish or eliminate these key features from riparian ecosystems, cienegas and other wetlands. Grazing results in removal of dense vegetation which decreases garter snake shelter, cover, foraging opportunities and protection from predators. Grazing also damages stream channels and backwater pools by trampling banks and shorelines, increasing sedimentation and fouling water quality with urine and feces. These damages extend to adjacent uplands and lead to trampled and vegetatively diminished slopes prone to erosion. According to FWS, activities that may destroy or adversely modify garter snake critical habitat include, but are not limited to, poorly managed livestock grazing, livestock grazing that results in waters heavily

⁹ 79 Fed. Reg. 48555.

¹⁰ 79 Fed. Reg. 48558.

¹¹ 86 Fed. Reg. 20808.

¹² *Id.*, 20853.

¹³ Wood, D.A., Emmons, I.D., Nowak, E.M., Christman, B.L., Holycross, A.T. and Vandergast, A.G., 2018. Conservation genomics of the Mogollon Narrow-headed gartersnake (*Thamnophis rufipunctatus*) and Northern Mexican gartersnake (*Thamnophis eques megalops*) (No. 2018-1141). US Geological Survey.

¹⁴ 79 Fed. Reg. 38677.

¹⁵ 86 Fed. Reg. 20962.

¹⁶ 85 Fed. Reg. 23623-4.

polluted by feces, and actions that would remove, diminish, or significantly alter the structural complexity of key natural habitat features in and adjacent to aquatic habitat.¹⁷

Garter snake recovery depends on riparian restoration, rather than degradation. This notice presents new information demonstrating that cattle grazing on the Prescott National Forest is diminishing riparian ecosystems, and adjacent uplands, upon which garter snakes depend and that have been designated as critical to their recovery. Despite FWS's statement that maintaining fencing and managing trespass cattle lessens impacts to critical habitat,¹⁸ we document in this Notice based on recent habitat surveys that such management is not occurring along the upper Verde.

C. Spikedace

The spikedace (*Meda fulgida*) has declined markedly in distribution and abundance throughout its range due to riparian degradation, water diversion, groundwater pumping, and introduction and spread of non-native predatory and competitive fishes.¹⁹ Despite being listed as threatened in 1986,²⁰ with critical habitat designated in 2007,²¹ spikedace were uplisted to endangered in 2012.²² Over thirty years ago, remnant subpopulations in the upper Verde River, Eagle Creek, and Aravaipa Creek in Arizona, and the Gila River in New Mexico occupied only six percent of the species' former range.²³

Spikedace typically occupy stream habitats less than a meter deep.²⁴ A dynamic diversity of instream zones (eddies, riffles, broad shallow gravel bars adjacent to fast flowing water) and periodic, recurrent flooding are essential to the feeding and reproduction of the spikedace by scouring sands and gravels.²⁵ Spikedace fry and juveniles tend to occupy shallow, peripheral portions of streams that have slow currents and sand or fine gravel substrates but will also occupy backwater habitats. According to FWS, grazing allotments "have contributed to the [spikedace's] current habitat degradation"²⁶ and any activity that affects sedimentation, water quality, and removal of riparian vegetation, such as cattle grazing, can affect spikedace habitat

¹⁷ *Id.*, 23633.

¹⁸ *Id.*, 23641.

¹⁹ Propst, D.L., Bestgen, K.R. and Painter, C.W., 1986. *Distribution, status, biology, and conservation of the spikedace (Meda fulgida) in New Mexico*. US Fish and Wildlife Service.

²⁰ 51 Fed. Reg. 23769.

²¹ 72 Fed. Reg. 13356.

²² 77 Fed. Reg. 10810.

²³ Anderson, Allison A., and A. Hendrickson. "Geographic Variation in Morphology of Spikedace, *Meda Fulgida*, in Arizona and New Mexico." *The Southwestern Naturalist*, vol. 39, no. 2, 1994, pp. 148–155. *JSTOR*, www.jstor.org/stable/3672239. Accessed 9 April. 2026.

²⁴ Propst, D.L., Bestgen, K.R. and Painter, C.W., 1986. *Distribution, status, biology, and conservation of the spikedace (Meda fulgida) in New Mexico*. US Fish and Wildlife Service.

²⁵ *Ibid.*

²⁶ The October 24, 2002, Biological Opinion for Continuation of Livestock Grazing on the Coronado National Forest (2-21-98-F-399-R1) pg. 23.

quality and should be “avoided or corrected.”²⁷ Degraded aquatic habitat is also a major factor in the establishment and domination of aquatic ecosystems by non-native fish.

D. Razorback sucker

A relatively large, endemic fish of the Colorado River basin, the razorback sucker (*Xyrauchen texanus*) was once abundant and widespread but has been extirpated from most of its geographic range due to alteration, fragmentation and degradation of freshwater streams and rivers.

Predation of razorback sucker fry by nonnative fishes also played an important role in the species’ demise, and between predation and habitat loss very few razorback suckers are able to reach adulthood. Razorback suckers were listed on October 23, 1991,²⁸ with critical habitat designated on March 21, 1994,²⁹ and received a Recovery Plan in 1998.³⁰

An integral part of preventing additional razorback sucker extirpation and extinction is ensuring that habitat exists for suckers to complete their life history needs, including quiet backwater tributaries that serve as nurseries for fry. Delisting of razorback suckers will not be possible until populations are secure and connected, and when they can persist in the wild reproducing and recruiting into the breeding population without human intervention. Augmenting razorback sucker populations with captive-reared individuals is an imperative conservation strategy, along with protection and restoration of potential habitat so that expansion of existing and reestablished populations can occur. Such restoration obviously includes habitats that have been legally designated as critical to razorback sucker survival and recovery. There is no room for significant cattle grazing impacts to occur in any potential razorback sucker habitat or nursery tributaries.

²⁷ *Ibid.*

²⁸ 56 Fed. Reg. 54957.

²⁹ 59 Fed. Reg. 13374.

³⁰ USFWS, Razorback Sucker (*Xyrauchen texanus*) Recovery Plan (1998)..

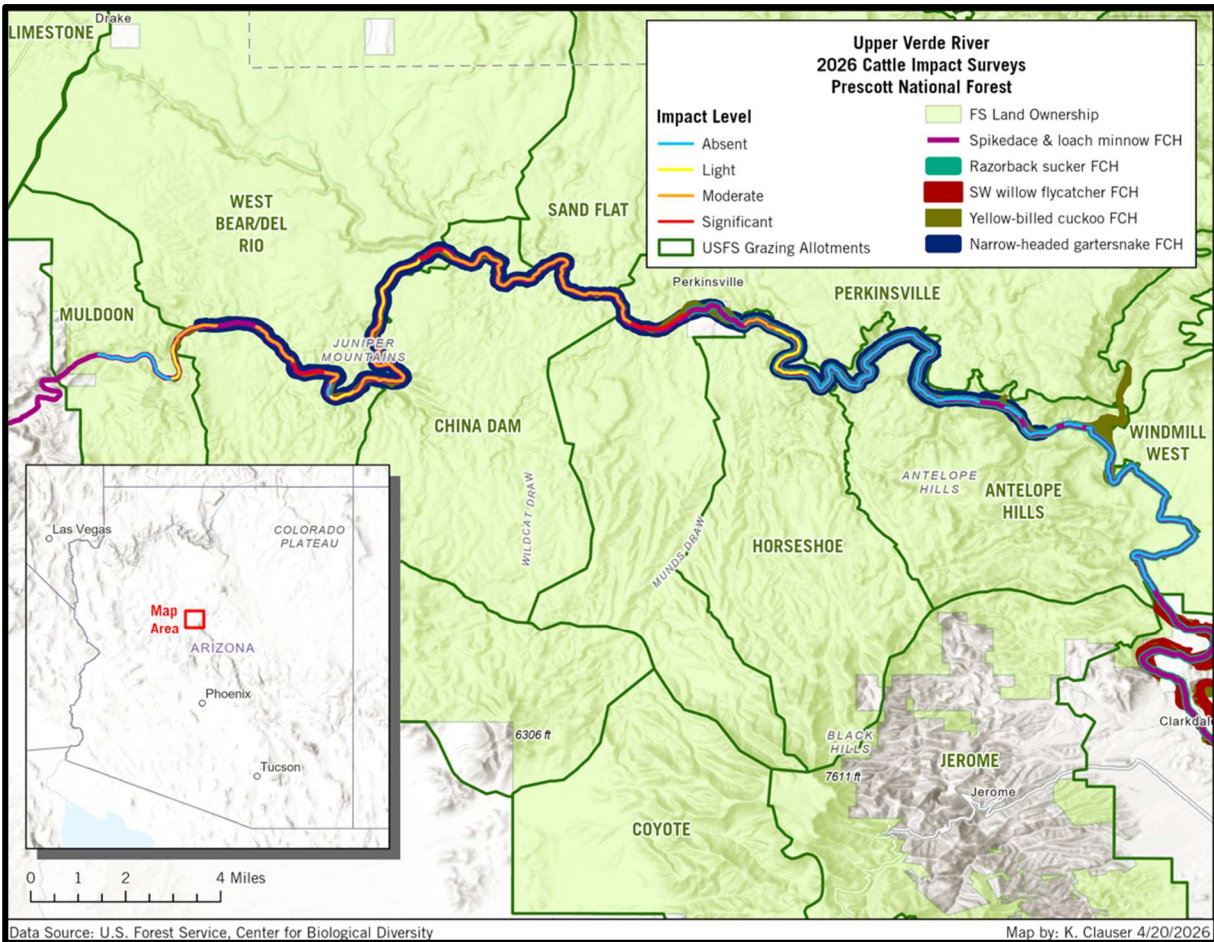


Figure 1. Overlapping critical habitat designations and 2026 cattle impact levels along the upper Verde River within grazing allotments of Prescott National Forest.³¹

III. Forest Service Consultations on the Upper Verde Allotments

Grazing on allotments within the Prescott National Forest is clearly an “activity . . . authorized” by a federal agency. *See* 50 C.F.R. § 402.02. Accordingly, the issuance of grazing authorizations, including AOIs, triggers the Prescott National Forest’s “duty under the ESA to consult with FWS to insure that [such] agency action[s] . . . on Forest Service land would not likely jeopardize the threatened species or its habitat.” *Or. Nat. Desert Ass’n v. U.S. Forest Serv.*, 465 F.3d 977, 989 (9th Cir. 2006).

The relevant ESA consultations—including the 2002 BiOp on 16 allotments, the 2014 BiOp on the Prescott National Forest Plan, and the 2017 Concurrences—all directly and explicitly state that there is no authorized grazing in the Verde River corridor, and agency determinations concerning the effects of permitting livestock on listed species are based on this mandate.

³¹ As explained in **Attach. 3**, the biological surveys depicted in Figure 1 were conducted by professional field biologists using standardized scientific methods.

A. The 2002 BiOp on 16 allotments (spikedace and loach minnow)

The 2002 BiOp assessing the impacts from proposed and ongoing livestock grazing activities on 16 allotments of the Verde River watershed addresses impacts to two ESA-listed fish: the spikedace and the loach minnow.

The BiOp asserts that livestock are excluded from riparian areas on the China Dam, Horseshoe, Muldoon, Perkinsville, Sand Flat, and West Bear/Del Rio allotments. *See* 2002 BiOp at 11 (“A total of 116 riparian acres are present on the [China Dam] allotment but are not accessible to grazing activity and are being monitored for stray cattle to ensure exclusion”); *id.* at 16 (“Approximately 149 riparian acres, adjacent to 3.4 miles of designated critical habitat potentially occupied by spikedace on the Verde River, occur within the [Horseshoe] allotment and are excluded from livestock use and will continue to be monitored”); *id.* at 40 (asserting livestock are “totally excluded” from critical habitat within the Horseshoe Allotment); *id.* at 10 (“The 3.6 perennial miles, existing within the Muldoon allotment, of critical habitat potentially occupied by spikedace on the Verde River are excluded from livestock use and monitored for stray cattle.”); *id.* at 14 (“The 417 riparian acres within the [Perkinsville] allotment, adjacent to 1.6 miles of the Verde River which is critical habitat potentially occupied by spikedace, are partially excluded from livestock use [except during livestock crossings] as well as monitored for strays and vegetative utilization.”); *id.* at 12 (“The 47 riparian acres within the [Sand Flat] allotment are adjacent to 1.7 miles of critical habitat potentially occupied by spikedace on the Verde River and are excluded from livestock use.”); *id.* at 36 (alleging livestock are “excluded” from critical habitat on Sand Flat Allotment); *id.* at 9 (asserting that livestock are “excluded” from riparian areas of the West Bear/Del Rio allotment except “during river crossings”); *id.* at 34 (same).

The 2002 BiOp concludes that authorizing cattle grazing is not likely to jeopardize the continued existence of the spikedace, or result in the destruction or adverse modification of its critical habitat in part because: “The Forest has installed fencing around the majority of the riparian corridor and implemented two monitoring regimes in order to reduce the adverse effects of the action to the spikedace and its critical habitat.” *Id.* at 70-71. The BiOp further finds “no jeopardy” to the spikedace because of “[t]he current integrity of the aquatic habitat [which] is due largely to exclusion from livestock grazing within the riparian corridor. Livestock exclusion is anticipated to continue with exception to the West Bear/Del Rio and Perkinsville allotments where access to the Verde River and riparian community is to occur” for stream crossings. *Id.* at 71.

The 2002 BiOp reaches the same conclusion with respect to the loach minnow for similar reasons: “The Forest has installed fencing around the majority of the riparian corridor in order to reduce the adverse effects of the action to the loach minnow and its critical habitat.” *Id.*

The 2002 BiOp indicates that the “consultation period” for each allotment was 10 years or less, and that this 10-year period for the six allotments at issue here expired in 2012 at the latest. *Id.* at 8, 10, 11, 12, 14, 16.

B. The 2014 Forest Plan BiOp

The 2014 Forest Plan BiOp directly reiterates that there is no grazing allowed along the upper Verde River: “Livestock grazing has not been authorized in the river corridor on the six allotments along the Verde River on the Prescott NF since 1998.” 2014 Forest Plan BiOp at 61. *See also id.* at 68 (“Grazing allotments are not currently open to livestock grazing along the riparian corridor.”); *id.* at 69 (“Livestock grazing has not been authorized in the river corridor on the six allotments along the Verde River on the Prescott NF since 1998. The allotments within the Verde Valley are fenced off from livestock grazing... Site-specific NEPA analysis and ESA section 7 consultation would be required to authorize grazing use along the river corridor.”).

The Forest Plan generally does not authorize site-specific actions, instead providing general guidance and limitations on such future decisions. As the 2014 BiOp recognizes: “Although the LRMP is not a project-specific document, it does provide the direction and guidance for designing and planning specific projects.” *Id.* at 75. The BiOp suggests that a more detailed consultation would be necessary for future, step-down actions because the Forest Plan consultation “does not eliminate the requirement for site-specific project analyses and the need for site-specific informal or formal ESA section 7(a)(2) consultation with the Fish and Wildlife Service (FWS) for individual projects implemented under the LRMP.” *Id.* at 4. Thus, consultation at the Forest Plan level is not a substitute for consultation on site-specific actions such as annual operating instruction, allotment management plans, or the issuance or renewal of livestock grazing permits.

The 2014 Forest Plan BiOp states that “grazing allotment plans, as developed under the revised LRMP, provide guidance for managing and monitoring public lands range use by livestock on the Prescott NF.” *Id.* at 77. Grazing permits have presumably been renewed under the new Forest Plan, or at least since the last spikedeace consultation occurred in 2002 and should be subject to site-specific ESA Section 7 consultation. Whether or not grazing permits (or allotment management plans) have not been updated, the site-specific consultations that the Forest Plan BiOp determined are necessary to ensure that grazing is consistent with the substantive mandates of the ESA—including the tipping point analyses that are required for future grazing authorizations—have not occurred. This promised site-specific ESA consultation process—the process that the Forest Plan BiOp relied upon to defer detailed assessment of the deleterious effects of grazing on listed species and critical habitat in the Prescott National Forest—has, to date, failed to materialize for the spikedeace, loach minnow, and razorback sucker.³² The Forest Service is in clear violation of its commitment to engage in site-specific consultation prior to authorizing grazing activities that have had—and are having—serious, deleterious effects on listed species and their habitat.

C. The 2017 allotment-specific concurrences

The Forest Service and FWS entered into informal consultation concerning livestock grazing on each of the Upper Verde Allotments that culminated in six FWS concurrences in 2017. The FWS’s concurrences for each of the allotments address, as relevant here, the narrow-headed

³² The 2017 allotment-specific concurrences discussed below address other listed species, albeit inadequately.

garter snake and the western yellow-billed cuckoo. They do not address the spokedace, loach minnow, or the razorback sucker.

FWS's 2017 concurrence for the China Dam Grazing Allotment concludes that there will be "no direct or indirect effects to" any of the listed species, including garter snake or its then-proposed critical habitat, "since no livestock grazing will be permitted in the along the Verde River Corridor." FWS, China Dam Livestock Grazing Allotment Concurrence (Mar. 15, 2017) at 2. The concurrence also states: "There would be no direct or indirect effects to the cuckoo or riparian habitat along the Verde River because livestock grazing is not permitted within these riparian corridors." *Id.* at 3.

FWS's 2017 concurrences for four other allotments—Horseshoe, Muldoon, Perkinsville, and West Bear—make nearly identical assertions. *See, e.g., id.* ("There would be no direct or indirect effects to cuckoo or riparian habitat along the Verde River because livestock grazing is not permitted within the riparian corridor."); FWS, Horseshoe Livestock Grazing Allotment Concurrence (Mar. 15, 2017) at 3 (same); FWS, Muldoon Livestock Grazing Allotment Concurrence (Mar. 15, 2017) at 3 (same); FWS, Perkinsville Livestock Grazing Allotment Concurrence (Mar. 21, 2017) at 3 (same); FWS, West Bear Livestock Grazing Allotment Concurrence (Mar. 21, 2017) at 3 (same). The Sand Flat Allotment concurrence is likely based on the same assumptions, and likely reaches the same conclusion.³³

D. Consultation summary

The 2002 BiOp addresses the impacts of livestock grazing on only the spokedace and the loach minnow and their critical habitat, and assumes that riparian habitat on the Upper Verde Allotments is fenced and protected from cattle. By its own terms, the 2002 BiOp expired in 2012. The Forest Service has not reinitiated consultation on the impacts of allotment-specific grazing authorizations on these fish since 2002.

While the 2014 Forest Plan BiOp addressed the species at issue here, it did *not* purport to address the impacts of livestock grazing authorizations on any of the individual allotments, and specifically anticipated that the Forest Service and FWS would engage in subsequent consultation to address project-specific decisions such as AMPs, permit renewals, and AOIs. In addition, that BiOp also assumed that livestock were fenced out of the riparian critical habitat of the Upper Verde Allotments.

The 2017 concurrences also assumed cattle would be excluded from the riparian areas of the six allotments, and also addressed only potential impacts to the narrow-headed garter snake and the cuckoo.

³³ The cut-and-paste nature of these concurrences makes it very likely that the concurrence for the Sand Flat Allotment contains identical statements. Further, while FWS subsequently prepared a biological opinion for the impacts of livestock grazing on the southwestern willow flycatcher within the Perkinsville Allotment in 2021, that BiOp does not address impacts to the upper Verde River, and so is not relevant to this notice letter. *See* FWS, Reinitiation of Consultation for the Ongoing Grazing of the Perkinsville Allotment Project Biological Opinion (Oct. 7, 2021).

We are aware of no site-specific consultation for the razorback sucker, whose critical habitat includes portions of the Horseshoe Allotment.

IV. 2020 Litigation Challenges the Prescott National Forest's Failure to Address Unauthorized Livestock Grazing Damage on the Prescott and Other National Forests

In 2019, the Center conducted field surveys to determine whether cattle were present within riparian areas specifically excluded from grazing along the Verde River and to document the extent and intensity of impacts from cattle grazing across the Verde River ecosystem. This effort included allotments in the Prescott National Forest. Contrary to the commitments made by the Forest Service and FWS through the ESA Section 7 process, these 2019 biological surveys documented widespread cattle grazing occupancy and damage, and nonfunctional exclusion fencing, in dozens of locations inspected across the study area. The Center compiled the findings of these surveys into a comprehensive report and provided that report to the Prescott National Forest and FWS in March 2020. *See Attach. 2 ([Ravaged River: Cattle Damage to Endangered Species Habitat in Arizona's Verde River Watershed](#))*.

On March 5, 2020, the Center provided agencies with a Notice of Intent to file suit pursuant to the ESA's citizen suit provision, 16 U.S.C. § 1540(g), with respect to 22 Verde River watershed grazing allotments on the Prescott, Coconino, and Tonto National Forests. A subsequent complaint was filed on September 17, 2021 (Case 3:20-cv-08243-DGC, D. Ariz.) that identified numerous ESA violations and resulted in a 3-year stipulated settlement agreement filed on October 5, 2021. The 2020 Notice and 2021 complaint and settlement included the Prescott National Forest grazing allotments at issue in this Notice.

Per the 2021 stipulated settlement agreement, the Prescott National Forest agreed to monitor riparian areas excluded from permitted livestock grazing on National Forest System lands within or adjoining the active grazing allotments along the Verde for the presence of livestock. If livestock were found, the Prescott National Forest agreed to initiate appropriate administrative processes to remove those livestock from the area. If the Prescott National Forest detected damage to fencing during their agreed upon monitoring efforts, they agreed to repair the fence or instruct the associated grazing permittee to repair the fence.

To summarize, the Prescott National Forest agreed to follow their own mandates and obligations for a period of three years.

The October 2021 settlement agreement also required the Prescott National Forest to provide quarterly livestock monitoring reports to the Center. The Forest Service's own reports demonstrate that unauthorized livestock grazing was persistent and ongoing during the three-year life of the settlement, from 2021-2024. Most of the allotments at issue in this Notice had unauthorized/trespass cattle issues early in the settlement period. For example, in November 2021, unauthorized/trespass cows were recorded on Muldoon, West Bear/Del Rio, Perkinsville, and Horseshoe allotments. Sporadic fence issues and subsequent cattle intrusions continued but appeared to wane over time, although allotments were only required to be monitored twice a year per the settlement agreement and only "fresh" cattle sign was reported.

By 2023, trespass grazing proved to be a consistent problem on the Perkinsville allotment, with unauthorized livestock documented in February, March, and August of that year. In January 2024, 19 unauthorized/trespass cows were removed from the off-limits riparian corridor of Perkinsville Allotment. Further instances of unauthorized/trespass cows on Perkinsville Allotment occurred in May and June 2024, as well as on the neighboring China Dam Allotment in May.

After the settlement agreement expired in the fall of 2024, Center surveys (in February 2025) revealed numerous instances of unauthorized/trespass livestock and extensive associated damage to protected critical habitat in five of the six Upper Verde Allotments at issue in this Notice. These problems only intensified in 2026 to include all six grazing allotments and higher rates of moderate to significant damage from cattle to off-limits critical habitat (*See Attach. 3*).

In the interim, since our March 16, 2020, Notice of Intent to Sue, the Center's March 2020 report, [Ravaged River, Cattle Damage to Endangered Species Habitat in Arizona's Verde River Watershed](#), the September 17, 2020 lawsuit, and the October 5, 2021 settlement, the Prescott National Forest has continued to authorize significant, destructive grazing by issuing AOIs and other approvals, despite the fact that listed species' critical habitat and occupied habitat on the allotments habitat have continued to be degraded by cattle grazing.

V. New Information Shows Continued Unauthorized Grazing and Cattle Damage in Riparian Critical Habitat within the Upper Verde Allotments.

Since the stipulated settlement agreement expired on October 5, 2024, the Center surveyed grazing allotments along the upper Verde River on the Prescott National Forest for trespass cattle and damage in 2025 and 2026. Although the Prescott National Forest purportedly prohibits cattle grazing in the riparian corridor of the upper Verde River, all surveyed allotments in the Chino Valley Ranger District included in this Notice showed escalation of cattle damage to this important riparian zone designated as critical for yellow-billed cuckoo, narrow-headed garter snake, spikedace and loach minnow recovery in 2025 and continuing in 2026. *See Attach. 3*.

This Notice provides additional documentation to the 2020 Notice and hard evidence from surveys conducted in 2025 and 2026 that livestock continue to cause significant and widespread damage to riparian and designated critical habitat across the Prescott National Forest, including in areas that ostensibly are strictly off-limits to grazing. Specifically, the additional surveys presented in this Notice document the presence of livestock and their sign (e.g., feces, fresh hoofprints, freshly trampled streambanks, grazed habitat, etc.) within fenced riparian and critical habitat and significant adverse impacts and habitat degradation in designated critical habitat within the allotments at issue, including habitat within purported livestock enclosures.

The Prescott National Forest's continued failure to exclude domestic livestock from threatened and endangered species habitat, including designated critical habitat, or to take immediate corrective action to remedy these failures, demonstrates that the Prescott National Forest's and FWS's conclusions regarding the impact of those specific grazing allotment authorizations on listed species and their designated critical habitat are based on false assumptions, and the data provided herein triggers the specific reinitiation thresholds at 50 C.F.R. § 402.16(a).

We note that the U.S. District Court for the District of Arizona issued a [decision](#) last month ordering BLM to reinitiate consultation on a grazing allotment in the Agua Fria National Monument. There, BLM and FWS based a concurrence and “not likely to adversely affect” determination on the assumption that exclosures would prevent harm to listed species by preventing cattle access to riparian habitat. The court found that assumption erroneous and ordered reinitiation of consultation based largely on survey data that the Center provided to BLM showing cattle presence and damage in supposedly closed riparian areas, similar to the data provided here in **Attachment 3**. See *Ctr. for Biological Diversity v. U.S. BLM*, 2026 U.S. Dist. LEXIS 68876, No. CV-24-00141-TUC-RM (D. Ariz. Mar. 30, 2026) (**Attachment 4**).

Most importantly, the court in that case recognized that, similar to the situation addressed in this Notice, land management agencies cannot assume that fencing will protect the riparian areas and the listed species and their critical habitat found there when evidence in the agency’s possession shows otherwise.

Specifically, the court ruled:

[T]he Concurrence [for the Horseshoe Allotment on the Agua Fria National Monument] did not account for much of the evidence showing that fences excluding livestock on a seasonal basis had not been working.

....

Furthermore, in omitting any discussion regarding the fact that preexisting fences on the Horseshoe Allotment had not been fully effective in keeping cattle out of restricted areas, the agencies entirely failed to consider an important aspect of the problem at hand. During the years that Silver Creek was technically completely closed to livestock, “moderate to heavy” livestock use was still observed at least once, and cattle had to be repeatedly removed from the area. Therefore, the agencies’ implicit reliance on the effectiveness of future fences ran counter to the evidence before them, rendering that reliance arbitrary and capricious.

...

Cattle grazing on Silver Creek would not occur at all but for Defendants’ reissuance of the permit allowing grazing on the Horseshoe Allotment, and, given the history—known to Defendants at the time of the 2018 Concurrence—of illicit cattle making their way past fences, is reasonably certain to occur. Defendants attempt to frame unauthorized grazing as a third-party action completely outside their control, but this ignores the central fact that *all* grazing on the Horseshoe Allotment is directly subject to their regulation. Therefore, the cases that Defendants cite in support of their position are inapplicable.

...

Defendants’ argument that federal agencies need not consult on unauthorized activities is unavailing where, as here, the “unauthorized” activities are a direct result of authorized activities, and are directly subject to Defendants’ regulation.

Furthermore, Defendants' failure to adequately account for the well-documented shortcomings of the existing enclosure fencing is even more glaring in the 2024 Concurrence than in the 2018 Concurrence, because even more evidence of the trespass livestock problem existed in 2024.

Id. at *13, *21-23, *28 (citations omitted).

Despite the commitments and assumptions made in the 2002 and 2014 BiOps and the 2017 concurrences, the Center has documented cattle, including with identifiable brands, in designated critical habitat for four species and within multiple areas of the Verde River corridor explicitly closed to livestock. Just as in Agua Fria National Monument, field surveys of the Upper Verde Allotments demonstrate that fencing that is supposed to exclude livestock from critical habitat and prevent cattle damage to it fails to do so. A subset of 2025-2026 survey photos, showing unauthorized/trespass cattle and subsequent damage to designated riparian critical habitat for cuckoo, narrow-headed garter snake, spikedace and loach minnow, are presented in **Attachment 3**.

The “new information” contained in our previous Notices and herein reinforces the fact that the grazing management regime implemented via grazing authorizations has failed to adequately protect riparian habitat from grazing impacts. As a result, the allotments and complexes at issue have suffered and are continuing to suffer habitat degradation that is directly attributable to livestock, and that goes beyond the effects contemplated by the BiOps and concurrences. *See* 50 C.F.R. § 402.16. Accordingly, the reinitiation of consultation is required, *see id.*, and the Prescott National Forest's issuance of AOIs and other decisions that authorize grazing that *is adversely affecting* listed species and critical habitat without a valid BiOp or concurrence in place, violates the ESA and its implementing regulations, is unlawful and unreasonable, and is arbitrary and capricious and not in accordance with law. *See* 16 U.S.C. §§ 1536, 1538; 5 U.S.C. § 706.

Moreover, even if the Prescott National Forest's selected grazing management measures could be effective at protecting and recovering riparian habitat—which is not the case—the Prescott National Forest has failed to effectively implement, monitor, or enforce its grazing management regime. Because of these management failures—e.g., the failure to monitor riparian habitat and the failure to actually exclude livestock from riparian and sensitive areas—the grazing activities authorized by the AOIs and other actions have been “modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion[s] or written concurrence[s].” 50 C.F.R. § 402.16(a)(3). For example, as documented here and in our previous Notice, livestock impacts are pervasive throughout riparian areas that the agencies assume are closed to cattle.

Assumptions that the Prescott National Forest would effectively exclude cattle from streamside habitat—and that regular monitoring of effective exclusion fencing would occur in the absence of a court settlement—have not been met. New information reveals that agency actions may affect listed species or critical habitat in a manner or to an extent not considered in 2002 BiOp, the 2014 Forest Plan BiOp, and the 2017 Concurrences, and that the agency action has been modified in a manner that causes an effect to the listed species or critical habitat not considered in those BiOps or concurrences.

Thus, the assumptions upon which the conclusions of the 2002 BiOp, the 2014 Forest Plan BiOp, and the 2017 Concurrences are based are fatally flawed, rendering the consultation documents wholly ineffective at serving their purpose of protecting imperiled native species from the continuous onslaught from herds of domestic cattle.

To summarize our concerns: Livestock activities managed by Prescott National Forest within the Upper Verde Allotments have jeopardized threatened and endangered species and adversely affected, adversely modified, and destroyed their critical habitat; are currently jeopardizing, adversely modifying and destroying their critical habitat; and will continue to jeopardize, and adversely modify and destroy their critical habitat, in violation of ESA Section 7(a)(2). The Prescott National Forest must halt these violations immediately.

LEGAL VIOLATIONS

I. The Forest Service and FWS Are in Ongoing Violation of ESA Section 7(a)(2) by Failing to Reinitiate Consultation.

Reinitiation of consultation is required and must be requested by the Forest Service and FWS where discretionary federal involvement or control over the action has been retained or is authorized by law, and if the amount or extent of taking specified in the incidental take statement is exceeded, new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, the action is modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or concurrence, or a new species is listed or critical habitat designated that may be affected by the identified action. 50 C.F.R. § 402.16(a).³⁴

The Forest Service and FWS have violated and remain in ongoing violation of the ESA by failing to reinitiate and complete consultation on the actual impacts of livestock grazing on threatened and endangered species and designated critical habitat within the Upper Verde Allotments. This results in at least two ESA violations.

First, new information reveals that the Prescott National Forest's authorization of livestock grazing within the Upper Verde Allotments has adversely affected, and will continue to adversely affect, the cuckoo, garter snake, spikedeace and loach minnow, and their designated critical habitat, in a manner and to an extent not considered in the 2002 or 2014 BiOps or the 2017 Concurrences. *See id.* § 402.16(a)(2); 16 U.S.C. § 1536(a)(2). This includes information from **Attachment 3** which demonstrates the presence of livestock within specific areas that the 2002 BiOp, 2014 BiOp, and 2017 Concurrences all assume are excluded from livestock.

Second, the action (authorization of livestock grazing) has been modified in a way that impacts listed species. *See* 50 C.F.R. § 402.16(a)(2); 16 U.S.C. § 1536(a)(2). Specifically, although the 2002 BiOp, 2014 BiOp, and the 2017 Concurrences all assume that critical habitat and riparian areas would be closed to livestock grazing, the Center's surveys have repeatedly shown that this assumption is false. To the contrary, livestock grazing is routinely degrading critical habitat and riparian areas throughout supposedly protected riparian areas within the Upper Verde Allotments.

³⁴ Both the action agency and FWS have a duty to reinitiate consultation. *See supra*, note 2.

The chronic nature of cattle grazing in off-limits riparian areas represents a modification of the authorized action.

In the absence of the required reinitiated consultation, the Forest Service and FWS are in ongoing violation of their obligation under ESA Section 7 to ensure that the Forest Service's actions are not likely to jeopardize the continued existence of the numerous ESA-listed species within the upper Verde, including the cuckoo, garter snake, spikedace and loach minnow, or result in the destruction or adverse modification of their designated critical habitat. 16 U.S.C. § 1536(a)(2).

The Center provides the Forest Service and FWS notice that the agencies' failure to reinitiate and complete consultation on final agency actions, including the issuance of term grazing permits, allotment management plans and annual operating instructions or plans, authorizing grazing on the six Upper Verde Allotments identified is in violation of Section 7(a)(2) of the Endangered Species Act.

II. The Forest Service Is in Ongoing Violation of ESA Section 7(a)(2) by Failing to Consult on Livestock Grazing's Effects on the Razorback Sucker.

The agencies' failure to consult at all on the effects of livestock grazing authorizations on the razorback sucker, for which critical habitat occurs within and adjacent to the Horseshoe Allotment, also violates ESA Section 7(a)(2). 16 U.S.C. § 1536(a)(2).

The agencies' failure to conduct *any* site-specific consultations concerning the razorback prior to authorizing grazing on a yearly basis is far from harmless. For instance, it is well established that, to satisfy its duty to ensure against jeopardy, FWS must demonstrate that the effects of the proposed action will not impair the species' chances of recovery or survival. Legally and logically, whether an action pushes a species across the jeopardy threshold depends on both the species' pre-existing status (i.e., its baseline condition) and the proposed action's additional impacts. *Nat'l Wildlife Fed'n v. NMFS*, 524 F.3d 917, 936 (9th Cir. 2008) (holding that FWS must consider whether harm from the proposed action, when added to baseline conditions, threatens to "tip[]" listed species "too far into danger"). Thus, during consultation, FWS must identify, based on the best available scientific evidence, an objective metric for determining the points at which recovery or survival is compromised—i.e., the "tipping points." *Id.* Unless FWS "knows roughly at what point survival and recovery will be placed at risk," it is impossible for FWS to "conclude that no harm will result from 'significant' impairments to habitat that is already severely degraded." *Id.* Otherwise, the duty to insure against jeopardy becomes a meaningless exercise, as even projects with seemingly minor impacts may jeopardize a species whose baseline status is severely degraded.

Although the programmatic 2014 Forest Plan BiOp mentions the razorback, it does not attempt to address the site-specific impacts of livestock grazing there.³⁵ Instead, the agencies deferred such analysis, insisting that the required analyses would occur with site-specific future analysis.

³⁵ Even if the agencies could somehow rely on the 2014 Forest Plan BiOp to address the impacts of livestock grazing authorization on the Horseshoe Allotment, the agencies would still be required to reinitiate consultation for the same reasons provided in the previous section.

Without this site-specific consultation, the Forest Service is therefore allowing destructive grazing activities to continue without answering the necessary threshold question: at what point will the survival or recovery of listed species be “appreciably” diminished in light of the degraded condition of those species and their habitat, both in the Prescott National Forest and range-wide? As a result, ongoing grazing in the Horseshoe Allotment is occurring without any assurance that such grazing will not impede the survival or recovery of listed species, in violation of Section 7 of the ESA. 16 U.S.C. § 1536(a)(2).

For these reasons, by issuing grazing authorizations (including AMPs, permit renewals, and AOIs) without undertaking a comprehensive and scientifically rigorous analysis that accurately defines the baseline condition of the razorback sucker and its critical habitat within the Horseshoe Allotment in the Prescott National Forest and assessing the impacts of ongoing grazing in the appropriate context, the agencies cannot fulfill their statutory obligations to ensure that the grazing activities there comply with the ESA. 16 U.S.C. § 1536(a)(2); *see Defs. of Wildlife v. U.S. Dep’t of Interior*, 931 F.3d 339, 353 (4th Cir. 2019) (quoting *Nat’l Wildlife Fed’n*, 524 F.3d at 930)).

III. The Forest Service Is in Ongoing Violation of ESA Section 7(a)(1) by Failing to Carry Out a Program for the Conservation of Threatened and Endangered Riparian Fish and Wildlife.

By allowing continued livestock grazing in the allotments here at issue that has for years harmed local populations of ESA-listed species and destroyed and adversely modified significant acreage of designated critical habitat in the Prescott National Forest, the Forest Service has violated—and continues to violate—its fundamental duty to affirmatively conserve these imperiled species.

In addition to the obligation to avoid jeopardizing species or destroying or adversely modifying their critical habitat under ESA Section 7(a)(2), Section 7(a)(1) imposes an obligation on all federal agencies, in consultation with FWS, to “carry[] out programs for the conservation” of listed species. 16 U.S.C. § 1536(a)(1). This provision imposes an “affirmative duty on each federal agency to conserve each of the species listed.” *Sierra Club v. Glickman*, 156 F.3d 606, 616 (5th Cir. 1998); *accord Pyramid Lake Paiute Tribe*, 898 F.2d at 1416-17 (noting that federal agencies have “affirmative obligations to conserve under [S]ection 7(a)(1)”). “Conserve” is defined by the ESA to mean *recovery*, *i.e.*, the “use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided [in the ESA] are no longer necessary.” 16 U.S.C. § 1536(a)(1).

The Forest Service’s actions—and in particular the continued authorization of livestock grazing in the allotments at issue without any serious efforts by the Prescott National Forest to modify the grazing regime in response to evidence of severe habitat degradation and/or the failure of mitigation measures to protect and restore vital habitat areas, including critical habitat areas—constitute the direct *opposite* of a program designed to avoid extirpation of ESA-listed species from Prescott National Forest land, let alone a program that is specifically aimed at *recovering* listed species. Especially because the Prescott National Forest’s discretionary authorization of livestock grazing in these allotments appears to be a significant

contributing factor to the lack of recovery of the listed species in the Prescott National Forest, Section 7(a)(1) imposes on the Forest Service an affirmative duty to immediately develop, in consultation with FWS, a comprehensive program that will timely implement all measures necessary to conserve—i.e., *recover*—ESA-listed species before local populations are wiped out entirely by the Prescott National Forest’s repeatedly unlawful actions.

IV. Section 7(d) Violations

Section 7(d) imposes an obligation on the Forest Service to avoid “mak[ing] any irreversible or irretrievable commitment of resources” until such consultation is lawfully completed. *See* 16 U.S.C. § 1536(d). Accordingly, the Prescott National Forest’s issuance of AOIs and other actions authorizing grazing on the Upper Verde Allotments—that are either (1) based on fatally flawed BiOps and/or unlawfully deficient concurrences, or (2) issued without compliance with the ESA’s procedural and/or substantive mandates—violate Section 7(d) of the ESA and must be immediately suspended until lawful consultations are completed. *See id.*

Once the Prescott National Forest initiates and/or reinitiates consultation with respect to the allotments at issue, the agency is prohibited from making any irreversible or irretrievable commitment of resources with respect to the action that may foreclose the formulation or implementation of any reasonable and prudent alternative measures. *Id.* Under those circumstances, the ESA’s policy of institutionalized caution mandates that grazing in riparian or other habitat areas that support listed species and/or provide critical habitat *must* be precluded until consultation with FWS can be completed. *See id.* (“Federal agency and the permit or license applicant shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation of any reasonable and prudent alternative measures....”). To allow the Prescott National Forest to continue to authorize grazing that is indisputably causing serious harm to ESA-listed species and their critical habitat would be exactly the kind of commitment of resources which would foreclose the implementation of other alternatives, in express violation of the ESA. *See id.*

Accordingly, pursuant to ESA Section 7(d), the Forest Service must ensure that all grazing authorizations and activities in areas likely to support listed species or that contain critical habitat are halted until the consultation deficiencies can be remedied. *See* 16 U.S.C. § 1536(d). Thus, the Prescott National Forest cannot allow livestock on the six Prescott grazing allotments in question. *See Pac. Rivers Council v. Thomas*, 936 F. Supp. 738 (D. Idaho 1996). The Forest Service and FWS must then proceed to evaluate and mitigate the direct, indirect, and cumulative impacts of grazing on the listed species that depend on the riparian habitats of the Prescott National Forest for breeding, feeding, migratory, stopover, and general habitat. Only then can the Forest Service comply with its obligation to prevent irreversible or irretrievable commitment of resources foreclosing implementation of alternatives during the consultation process. *Id.*

ESA Section “7(d) does not serve as a basis for any governmental action unless and until consultation has been initiated,” which begins with the submission of a biological assessment to FWS. *Pac. Rivers Council v. Thomas*, 30 F.3d 1050, 1056 (9th Cir. 1994). Because the Forest Service has not yet submitted a biological assessment examining the effects of grazing on listed species and designated critical habitat (despite a clear obligation to do so), the agency has not

yet begun the process of formal consultation. Accordingly, section “7(d) [cannot] serve as the basis for permitting *any* agency action” on the allotments. *Id.*

V. The Forest Service Has Violated, and Is in Ongoing Violation of ESA Section 9.

By relying on the legally deficient BiOps and concurrences to authorize activities that not only are reasonably certain to take listed species, but are in fact taking listed species in myriad ways and adversely destroying and modifying designated critical habitat, the Forest Service is in ongoing violation of ESA Section 9. Because the Prescott National Forest lacks legally adequate authorization from FWS to take such listed species or harm critical habitat in light of the deficient nature of the concurrence and BiOp, the Forest Service’s actions are in ongoing violation of ESA Section 9. *See* 16 U.S.C. § 1538(a)(1)(B).

The Center’s repeated documentation and the Prescott National Forest’s own records demonstrate that trespass cattle grazing and unauthorized permitted cattle grazing are adversely affecting listed species and their critical habitat along the upper Verde in a manner that constitutes “take,” in violation of ESA Section 9 (killing, injuring, harming, harassing, and otherwise taking members of these species).

Because the Forest Service could eliminate or at least reduce the risk of take by constructing and maintaining functional fencing, removing the trespass cattle, modifying or revoking grazing permits, and/or closing pastures that overlap with off-limits areas, the Forest Service is “caus[ing] to be committed” unlawful take of ESA-listed species. *Id.* § 1538(a), (g); *see also* 50 C.F.R. § 17.3 (clarifying that the harass prong of the take prohibition includes not only “an intentional or negligent act” but also any “omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering”). Federal courts have held that when consulting on the impacts of livestock grazing, federal agencies have a duty to address the impacts of *unauthorized* grazing that results from agency decisions. *Ctr. for Biological Diversity*, 2026 U.S. Dist. LEXIS 68876 at *22-23.

Because grazing management has demonstrably strayed from the 2002 BiOp, the 2014 Forest Plan BiOp, and the 2017 Concurrences—and because the agencies have so far failed to candidly assess or lawfully authorize the readily foreseeable effects of the proposed action to the cuckoo, garter snake, and native fishes—the Forest Service is in ongoing violation of ESA Section 9 by authorizing activities that are taking ESA-listed species in myriad ways and destroying and adversely affecting critical habitat along the upper Verde. Because the Prescott National Forest lacks legally adequate authorization from FWS to take any listed species or harm their critical habitat, the Forest Service’s actions are in ongoing violation of ESA Section 9. *See* 16 U.S.C. § 1538(a)(1)(B), (G).

As demonstrated above, the Forest Service and FWS are in ongoing violation of the ESA. *Accord Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 698 F.3d 1101, 1127-28 (9th Cir. 2012) (“In particular, [the] agency cannot meet its section 7 obligations by relying on a [BiOp] that is legally flawed or by failing to discuss information that would undercut the [BiOp’s] conclusions.”). These violations cannot be cured absent *completion* of a formal consultation process that comes to grips with the full spectrum of foreseeable effects resulting

from grazing activities across the Prescott National Forest, which culminates with a BiOp that imposes serious and meaningful terms, conditions, and measures that will actually avoid jeopardy, as well as the destruction or adverse modification of critical habitat, for all ESA-listed species that may be present in the Prescott National Forest. Moreover, until such consultation can be completed, the agencies are in ongoing violation of the ESA absent: (1) immediate suspension of the Prescott National Forest's grazing authorizations that occurred in the absence of any lawful consultation and/or that rely on the fatally flawed BiOps and concurrences identified herein; and (2) and removal from the allotments and/or complexes at issue of the livestock that are continuing to take listed species and harm habitat, including critical habitat.

Where consultations regarding the effects of grazing on listed species and/or critical habitat within the Prescott National Forest have *never* been completed—here, for the razorback sucker on the Horseshoe Allotment—the Forest Service is in clear violation of ESA Section 9's prohibition on the take of listed species. As extensively discussed above, grazing activities within the Prescott National Forest are reasonably certain to take listed species. Thus, by proceeding to authorize such activities without obtaining lawful authorization from FWS to take listed species, the Forest Service is in ongoing violation of ESA Section 9. 16 U.S.C. § 1538(a)(1)(B).

THE BROAD VIEW

Significant and unauthorized cattle damage to sensitive desert riparian zones is not a problem limited only to the Verde River. Instead, this is part of a widespread pattern that is having cumulative and potentially irreversible impacts on imperiled riparian-obligate species across the region. Recently, the Center finalized a comprehensive, three-year field survey effort and compiled a report to document the condition of cuckoo critical habitat on federal public lands in Arizona and New Mexico. *See Attach. 5 ([Grazed to Death: Livestock Production Adversely Modifying Majority of Drought-Stricken Western Yellow-billed Cuckoo Critical Habitat on Public Lands in Arizona and New Mexico, June 2024](#)).* The report concluded on the basis of the best available science (compiled through standardized survey methods applied immediately prior to or during the cuckoo nesting and breeding season) that livestock grazing has adversely modified at least 57% of the cuckoo's critical habitat on federal public lands grazing allotments in Arizona and New Mexico. The surveys demonstrated moderate to significant impacts and adverse modification of habitat on 31,509 acres (i.e., 80% of 39,170 acres of critical habitat surveyed by field biologists).

In light of the worsening, combined threats of climate change³⁶ and livestock grazing on public lands in the Southwest, the report concludes that agencies must exclude livestock from cuckoo breeding and nesting habitat, and emphasizes that eliminating livestock access to ephemeral, intermittent, and perennial drainages is essential to allow tree and shrub seedlings to grow and survive to support cuckoo breeding and nesting.

³⁶ The report explained that FWS itself has raised questions about the long-term survival and recovery prospects of the cuckoo, especially given the rapidly worsening threat of climate change.

This Notice provides specific examples of the extensive cuckoo critical habitat degradation caused by livestock in off-limits areas, especially in the Verde River corridor.

This damage includes: heavily browsed woody streamside recruitment; cattle trails meandering through riparian zones; streamside impacts resulting in shearing of banks into vertical surfaces; heavily diminished grass and herbaceous growth; myriad instances of cattle wallows and bare soils; significant removal of riparian vegetation and adjacent understory; and extensive areas of exposed, trampled, and/or compacted soils. *See* **Attach. 3**.

Also attached to this Notice is the Center’s 2024 Annual Report, completed in 2025, summarizing region-wide surveys of livestock grazing impacts to critical habitat including within the Prescott National Forest from 2017-2024. *See* **Attach. 6**. ([Livestock Damage to Aquatic and Riparian Critical Habitat in the U.S. Southwest: Field Assessment Results 2017-2024](#)).

Our findings on the Prescott National Forest, as well as across the region, are consistent with U.S. Department of Justice Senior Trial Attorney Andrew A. Smith’s observations:

“It’s well settled that cattle and riparian areas do not mix.”³⁷

The Prescott National Forest must finally live up to its long-ago commitments to exclude livestock from the upper Verde River.

And further, the Prescott National Forest must recognize that it cannot assume that fences will prevent impacts to listed wildlife and the riparian habitat they rely upon when evidence demonstrates those assumptions are false.

CONCLUSION

The Prescott National Forest has a well-documented history of accepting chronic livestock trespass, grazing permit violations and compliance issues that have persisted without consequence. For years, Center members, the general public, and federal employees and contractors have reported trespass and unauthorized cattle grazing within the Verde River watershed on the Prescott National Forest, and within occupied and designated critical habitat for threatened and endangered species. As shown by our March 16, 2020, Notice of Intent to Sue, our report, [Ravaged River, Cattle Damage to Endangered Species Habitat in Arizona’s Verde River Watershed](#), and the [Center’s 2025-2026 survey data and photographs](#), damage to these habitats, and to primary constituent elements thereof, is widespread, chronic, severe, and ongoing.

Despite extensive evidence of trespass cattle and chronic unauthorized grazing, the Prescott National Forest has yet to repair or install effective fences or otherwise meaningfully address the

³⁷ Argument Transcript, *New Mexico Cattle Growers’ Association, et al. v. United States Forest Service, et al.*, Case 1:23-cv-00150-JB-GBW, Albuquerque, NM (February 1, 2024), page 126 (quoting , Environment and Natural Resources Division Senior Trial Attorney Andrew A. Smith), available at [NM CATTLE v USFS OMNI 020124](#).

chronic, unauthorized presence of livestock grazing in the most ecologically important sections of the Verde River, including habitat for threatened and endangered species.

Now that a federal judge has recognized the reality that “the agencies’ implicit reliance on the effectiveness of future fences [runs] counter to the evidence before them, rendering that reliance arbitrary and capricious,” the status quo must finally be abandoned.

For the reasons explained above, and as demonstrated in the attached materials (*see Attachs. 1-6*), if: (1) the Forest Service or FWS fails to request reinitiation of consultation prior to the expiration of the 60-day window set forth in the ESA’s citizen suit provision; (2) the Forest Service fails to develop and implement a program to conserve listed species consistent with ESA Section 7(a)(1); or (3) the agencies fail to provide for increased protections for the listed species and critical habitat during the reinitiated consultation as required by ESA Section 7(d), we will proceed with legal action.

We urge the agencies to address these historically serious, chronic violations of federal law, and to prioritize the survival and recovery of the cuckoo, garter snake, spokedace and loach minnow over continued cattle grazing in these sensitive areas of our public lands.

Please contact Chris Bugbee or Robin Silver (contact information below) if you have any questions or if you would like to discuss this matter. Please include livestock@biologicaldiversity.org on any email correspondence.

Sincerely,



Chris Bugbee
Southwest Conservation Advocate
Center for Biological Diversity
cbugbee@biologicaldiversity.org
livestock@biologicaldiversity.org



Robin Silver, M.D.
Co-founder and Board Member
Center for Biological Diversity
rsilver@biologicaldiversity.org



Taylor McKinnon
Southwest Director
Center for Biological Diversity
livestock@biologicaldiversity.org

CC: Amy Lueders, Regional Director, U.S. Fish and Wildlife Service (rdlueders@fws.gov)
Sarah Clawson, Forest Supervisor, Prescott National Forest (Sarah.Clawson@usda.gov)
Heather Whitlaw, Field Supervisor, U.S. Fish and Wildlife Service
(heather_whitlaw@fws.gov)

List of Attachments:

- Attach. 1. Grazing bibliography
- Attach. 2. 2019 Verde River report
- Attach. 3. 2025-2026 Field surveys and survey methodology
- Attach. 4. 2026 U.S. District Court decision
- Attach. 5. 2024 yellow-billed cuckoo adverse modification report
- Attach. 6. 2025 cattle grazing summary report 2017-2024

Attachment 1

Grazing Bibliography

The following bibliography is a non-exhaustive example of published scientific literature that supports that cattle grazing is detrimental to western arid land ecosystems, including aquatic and riparian zones, and the native species that depend upon them.

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RAVAGED RIVER

Cattle Damage to Endangered Species Habitat in Arizona's Verde River Watershed



The US Forest Service is Failing to Protect Arizona's Verde River

Livestock Damage Found on Seventy Percent of River Surveyed

Executive Summary

Cattle are inflicting severe and widespread damage on Arizona's Verde River and its tributaries, including 41 miles protected as a national Wild and Scenic River. This report documents a new field survey by the Center for Biological Diversity which shows that cows are trampling on and defecating throughout these once-unspoiled waterways and imperiling streamside forest habitat. Cow feces and other evidence of cattle impacts were found along nearly three-fourths of the 143 stream miles surveyed. That's despite a 1998 U.S. Forest Service agreement to install fencing and take other measures to keep livestock off the Verde, Fossil Creek and other central Arizona waterways, where thousands of people come to boat, swim, birdwatch, hike and camp.

Hundreds of cows, some of them feral, are destroying crucial habitat for 14 threatened or endangered species protected under the Endangered Species Act. These rare animals — including fish, birds, snakes, and a frog — rely on what should be healthy, lush riparian ecosystems for their survival. Ten of those species have designated or proposed critical habitat in the Verde watershed and eight of those have critical habitat directly on the Verde River and its tributary streams — the East Verde River, Fossil Creek, Red Creek, Wet Beaver Creek and Sycamore Creek. Another 14 riparian- and aquatic-dependent animals that rely on the Verde and its tributaries are recognized by the U.S. Forest Service as sensitive species in the Southwest.

The 170-mile long Verde River is already stressed by dams, drought, invasive species, urban sprawl and excessive groundwater pumping. Now these important ecosystems are being further ravaged by unauthorized cattle grazing. In addition to cow feces along the banks and polluting the water, cattle damage includes trampled river banks, incising cow trails and tracks, streambank erosion, large swaths of barren, denuded ground, and overgrazed woody and herbaceous vegetation. Conservationists have secured agreements from the U.S. Forest Service to install livestock fencing to protect habitats and facilitate wildlife recovery — but it seems that those agreements have been forgotten. Fencing to protect riparian areas was installed along hundreds of miles of southwestern rivers and creeks in Arizona and New Mexico following a 1997 lawsuit filed by the Center against the U.S. Forest Service. The resulting 1998 legal settlement applied to 14 public-land grazing allotments in the Verde River watershed which include riparian habitat for federally protected spikedace, razorback sucker, Gila topminnow, Southwestern willow flycatcher, and other species.

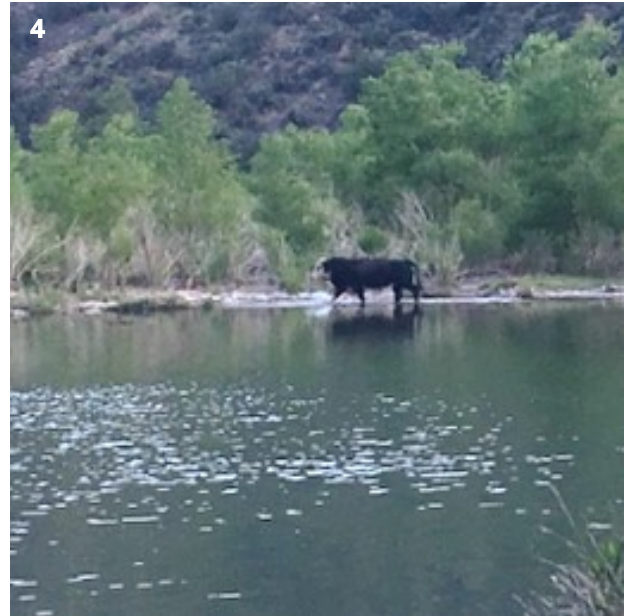
Following increasing reports of cattle wandering into protected rivers, the Center launched a field survey in 2019 of riparian areas along 143 stream miles within the Verde River watershed. Surveys were completed on the Verde and East Verde rivers and portions of major tributaries such as Wet Beaver Creek, Fossil Creek, Red Creek and others. Presence of cattle was widespread and cattle grazing damage was found along 70% of the stream miles we surveyed. Approximately 44% of stream miles were ranked with moderate to significant grazing harm and a mere 30% of stream miles had no signs of cattle at all. Damage from feral and permitted cattle was the most severe in the areas near the confluence of the Verde and East Verde rivers and Fossil Creek and reaches up and downstream from there. Fence conditions were poor, or fencing was missing entirely, in dozens of locations inspected across the study area.

This survey shows that Forest Service livestock management practices are failing to protect Arizona's riparian and aquatic habitats and the endangered animals that depend on them. The survival of wildlife that rely on healthy riparian and aquatic ecosystems in the Southwest requires that livestock exclosure fencing is properly erected, better monitored, diligently maintained and staunchly enforced. The Forest Service must work quickly to remove unauthorized livestock and improve management practices to protect imperiled species from further population declines and, ultimately, extinction.



Ravaged River: Cattle Damage to Endangered Species Habitat in Arizona's Verde River Watershed

Joe Trudeau • March 2020



- 1) A trodden streambed along Tangle Creek, Red Creek Allotment, Tonto National Forest.
- 2) Unmaintained riparian enclosure fencing, Skeleton Ridge Allotment, Tonto National Forest.
- 3) A cow-trampled spring along the Verde River, Antelope Hills Allotment, Prescott National Forest.
- 4) Cow in the river between the Brown Springs and Hackberry Allotments, Prescott and Coconino National Forests.

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Verde River, AZ 2019 Cattle Impact Suvey

Key to Map Features

Overall Grazing Impact Level

- Absent (30%)
- Light (26%)
- Moderate (8%)
- Significant (36%)
- Surveyed Grazing Allotments
- Designated Wilderness
- Wild and Scenic River
- National Forest
- Bureau of Land Management
- State Trust Land
- Private Land
- Indian Reservation

Key to Allotment Numbering

Prescott National Forest

- 1) Muldoon
- 2) West Bear/Del Rio
- 3) China Dam*
- 4) Sand Flat*
- 5) Perkinsville*
- 6) Horseshoe
- 7) Antelope Hills*
- 8) Brown Springs

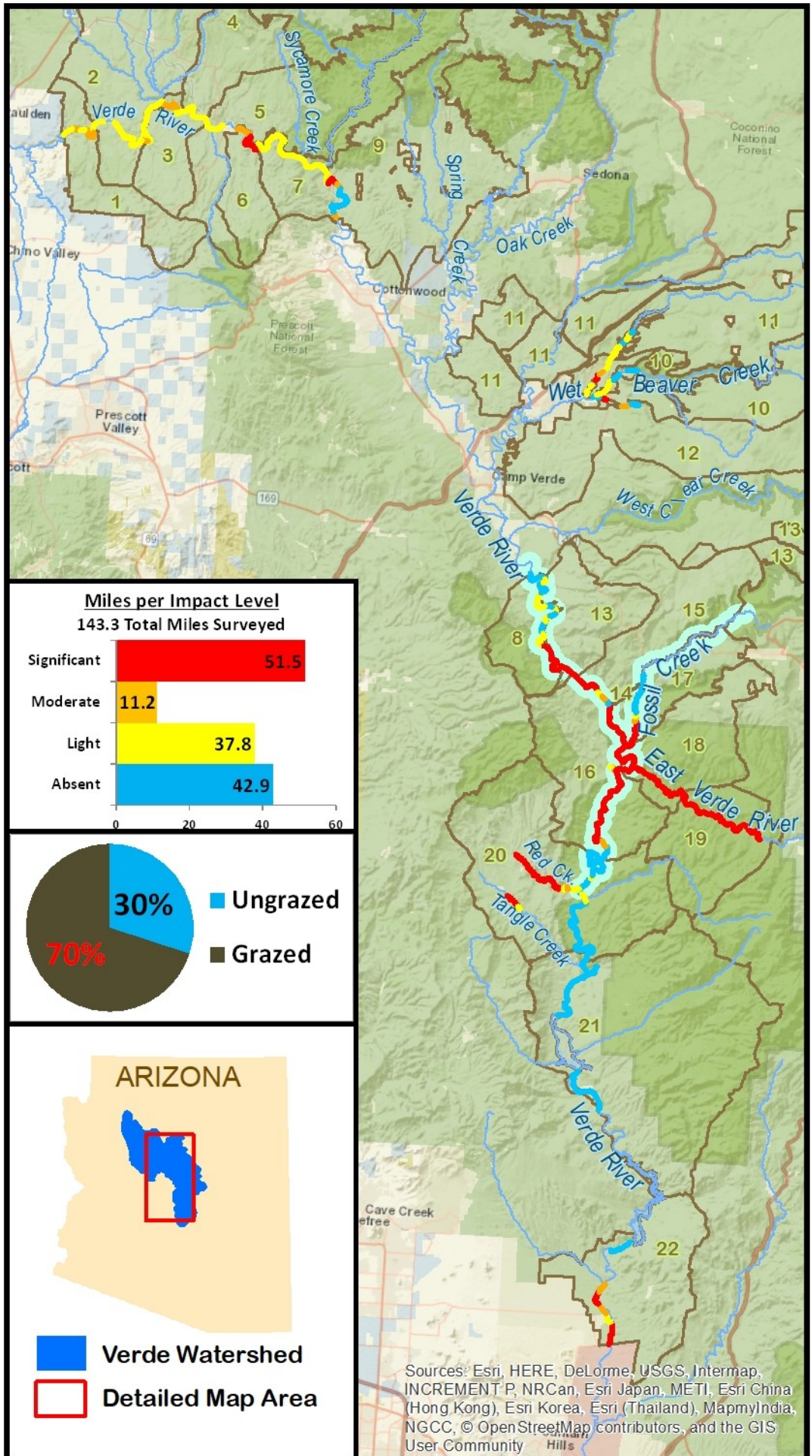
Coconino National Forest

- 9) Windmill West
- 10) Beaver Creek*
- 11) Apache Maid
- 12) Walker Basin
- 13) Hackberry/Pivot Rock*
- 14) Ike's Backbone
- 15) Fossil Creek*

Tonto National Forest

- 16) Skeleton Ridge
- 17) Deadman Mesa
- 18) Cedar Bench
- 19) Bull Springs
- 20) Red Creek*
- 21) Sears Club/Chalk Mountain*
- 22) Bartlett

* 1998 Settlement Allotment



RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Table 1: Cattle Impact Levels for all Surveyed Allotments

	Allotment Name 1998 Settlement in Red	Stream Name	Detail Map #	Cattle Impact Levels				
				Absent	Light	Moderate	Significant	Total
Prescott National Forest	Muldoon	Verde River	2		1.90	1.82		3.72
	West Bear/Del Rio	Verde River	2		8.14	0.71		8.84
	China Dam	Verde River	2		1.85	1.23		3.08
	Sand Flat	Verde River	2		1.77			1.77
	Perkinsville	Verde River	2		1.33			1.33
	Horseshoe	Verde River	2		0.32	1.16	1.98	3.46
	Antelope Hills	Verde River	2		8.71		0.50	9.21
Prescott & Coconino NFs	Border of Antelope Hills & Windmill West	Verde River	2	3.05		0.85	0.45	4.35
	Border of Brown Springs, & Hackberry/Pivot Rock	Verde River	4	5.01	4.24		4.38	13.63
Coconino National Forest	Beaver Creek	Wet Beaver Creek	3	1.58	1.84			3.42
		Red Tank Draw	3		1.78	0.38	0.47	2.63
		Walker Creek	3	0.12			0.64	0.76
	Apache Maid	Red Tank Draw	3	1.01	1.66			2.68
	Walker Basin	Walker Creek	3	0.69		0.79		1.47
Coconino & Tonto	Border of Skeleton Ridge & Fossil Creek	Verde River	4	0.16	0.47	0.59	2.10	3.32
	Border of Fossil Creek & Deadman Mesa*	Fossil Creek	4	0.68				0.68
Tonto National Forest	Border of Cedar Bench & Skeleton Ridge*	Verde River	4				1.03	1.03
	Skeleton Ridge	Verde River	4	0.86		0.53	10.56	11.96
	Border of Deadman Mesa & Skeleton Ridge	Fossil Creek	4	2.42	0.35	0.34	2.14	5.25
	Border of Cedar Bench & Skeleton Ridge*	Fossil Creek	4				0.67	0.67
	Skeleton Ridge	Houston Creek	5		0.14	0.39		0.53
	Cedar Bench	Verde River	5				3.74	3.74
		East Verde River	5				5.96	5.96
	Bull Springs	East Verde River	5	0.26			7.90	8.16
	Border of Skeleton Ridge & Red Creek	Verde River	5	1.38				1.38
	Red Creek	Red Creek	5		1.43	0.81	5.07	7.31
		Tangle Creek	5		0.26		1.20	1.46
		Verde River	5	12.60	0.80			13.40
	Sears Club/Chalk Mountain	Verde River	6	10.19				10.19
		Sycamore Creek	6	1.20				1.20
	Bartlett	Verde River	7	1.67	0.81	1.59	2.67	6.73
	Total Mileage of Each Impact Level			42.88	37.79	11.17	51.47	143.31

* May include portions of Ike's Backbone Allotment. Allotment status is undetermined and may have been reassigned to Skeleton Ridge.

Table 2: Rare wildlife of riparian and aquatic ecosystems of the Verde River Watershed, Arizona

Native Fish		Birds	Amphibians & Reptiles	Insects	Mollusks
ESA-Listed	Not ESA-Listed				
Gila chub (<i>Gila intermedia</i>) ¹	Roundtail chub (<i>Gila Robusta</i>) ⁶	Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) ¹	Chiricahua leopard frog (<i>Rana chiricahuensis</i>) ⁴	Parker's Cylloepus riffle beetle (<i>Cylloepus parkeri</i>) ^{6,7} [possibly extinct]	Verde rim springsnail (<i>Pyrgulopsis glandulosa</i>) ^{6,7,8}
Loach minnow (<i>Tiaroga cobitis</i>) ¹	Headwater chub (<i>Gila nigra</i>) ⁶	Yellow billed cuckoo (<i>Coccyzus americanus</i>) ⁵	Narrow-headed gartersnake (<i>Thamnophis rufipunctatus</i>) ⁵	A caddisfly (<i>Wormaldia planae</i>) ^{6,8}	Page springsnail (<i>Pyrgulopsis morrisoni</i>) ^{6,7,8}
Spikedace (<i>Mega fulgida</i>) ¹	Sonora sucker (<i>Catostomus insignis</i>) ⁶	Mexican spotted owl (<i>Strix occidentalis lucida</i>) ⁴	Northern Mexican gartersnake (<i>Thamnophis eques megalops</i>) ⁵		Fossil springsnail (<i>Pyrgulopsis simplex</i>) ^{6,7,8}
Razorback sucker (<i>Xyrauchen texanus</i>) ¹	Desert sucker (<i>Catostomus clarkii</i>) ⁶	Bald eagle (<i>Haliaeetus leucocephalus</i>) ⁶	Lowland leopard frog (<i>Lithobates yavapaiensis</i>) ⁶		Brown springsnail (<i>Pyrgulopsis sola</i>) ^{6,7,8}
Gila topminnow (<i>Poeciliopsis occidentalis</i>) ²	Longfin dace (<i>Agosia chrysogaster</i>) ⁶	Common black hawk (<i>Buteogallus anthracinus</i>) ⁶	Northern leopard frog (<i>Lithobates pipiens</i>) ⁶		
Desert pupfish (<i>Cyprinodon macularius</i>) ²	Speckled dace (<i>Rhinichthys osculus</i>) ⁶				
Woundfin (<i>Plagopterus argentissimus</i>) ³					
Colorado pikeminnow (<i>Ptychocheilus lucius</i>) ³					

1 = Endangered species with final designated critical habitat

2 = Endangered species without designated critical habitat in the Verde watershed

3 = Same as above (#2) but an experimental, non-essential population

4 = Threatened species with final designated critical habitat

5 = Threatened species with proposed critical habitat

6 = USFS Southwestern Region Sensitive Species (ESA-listed species are also USFS sensitive species)

7 = Endemic to riparian sites within the Verde Watershed

8 = Globally/critically imperiled but not listed under ESA (NatureServe)

See maps 8 through 15 for species-by-species reporting on cattle impacts to critical habitats.

Methodology: Field Survey, Data Analysis, and Mapping

The purpose of this survey was to determine if cattle are present in riparian areas that have been closed to grazing through grazing exclosures or which contain habitat for species protected under the Endangered Species Act, and to quantify those impacts. Based on prior legal agreements, and in many cases codified in agency planning documents and annual grazing instructions, the allotments identified for survey should have functional exclosures to keep cattle out of the surveyed riparian and aquatic ecosystems. These data are the most comprehensive, quantifiable, and up to date (as of summer/fall 2019) inspections of riparian conditions and cattle occupancy for the study area.

During the summer and fall of 2019, field surveyors documented conditions along almost 145 miles of ten named streams on US Forest Service lands in the Verde River watershed (Map 1 and Table 1). Surveyed streams were within or adjacent to 22 public lands grazing allotments, ten of which were included in the 1998 settlement (Table 1). All 22 allotments contain habitat for federally protected species (see maps). Aquatic, riparian, xeri-riparian, floodplain, terrace, and upland habitats were carefully investigated for evidence of livestock presence such as tracks, feces, trails, carcasses, live animals, and river crossing locations. In addition, exclosure fencing, gates, allotment boundary fencing, corrals, and other range developments were opportunistically inspected for evidence of use or maintenance. In total, over 200 miles were walked in order to gather the range of data reported here. All data is supported by more than 1,700 georeferenced photographs documenting evidence of livestock presence and their impacts. Surveyors walked the length of riparian areas and adjacent uplands, and using the ESRI Survey 123 data collection app on iPad tablets, documented the severity and extent of cattle impacts within these ecosystems following a standardized protocol that recorded impacts in the following six impact categories (see Table 9 for more detailed information):

- (1) Severity of grazing impacts on herbaceous vegetation and grasses.
- (2) Severity of browsing impacts on streamside woody regeneration.
- (3) Severity and (4) extent of ground disturbances from trailing, trampling, and wallowing.
- (5) Severity and (6) extent of streambank degradation.

Multiple georeferenced photo points were taken along each segment to document evidence of livestock impacts, conditions of fencing and other range infrastructure, or other observations such as ungrazed areas or cultural sites. Observations of cattle impacts were collected for 350 distinct segments, each generally $\frac{1}{4}$ to 1 mile in length, and averaging 0.41 miles long. Segments were field-delineated based on topography, access, and trends in impact severity. At each segment endpoint, a condition score was recorded for each of the six impact categories along a range of 0 to 4 based on the severity and extent of the particular impact. A segment was rated 0 for a particular category if no evidence of impact was seen, 1 if impacts were limited, 2 if impacts were light and scattered, 3 if impacts were moderate and widespread, and 4 if impacts were severe and pervasive.

Following field surveys, each segments "overall impact level" (which is defined as absent, light, moderate or significant) was calculated. To determine overall impact level, the condition severity scores for each segment endpoint were collated and weighted. Generally, if specific category impacts were light or limited in four categories, the overall impact was considered light. If impact severity in five or more categories were light, then the overall impact was evaluated as moderate. Overall impact scores of moderate also included combinations of limited, light and moderate scores in all six categories. If three or more categories conditions were moderate, then the overall impact level rose to significant. If at least one impact category was severe or pervasive, then the overall impact level was evaluated as significant (weighting matrix is provided in Table 10). Each survey segment was color coded for its overall impact level (see maps). Segments were linked together across full river extents, and the mileage of overall impact level for each allotment, stream, or critical habitat unit was then calculated. Results are presented in this report on a series of maps and tables.

The Devastating Impact of Livestock on Southwestern Rivers

More than a century of livestock grazing in southwestern riparian ecosystems has led to a decline in insect, fish, reptile, amphibian, bird, mammals, ground cover, biomass, and native vegetation,¹ making grazing the most destructive widespread activity wrought on desert rivers and watersheds since the arrival of American settlers. Decades of scientific research comparing grazed and ungrazed areas have documented that livestock grazing in the arid Southwest negatively effects water quality and quantity, stream channel morphology, hydrologic function, soil stability, streambank vegetation, and aquatic and riparian wildlife - proving that livestock grazing is an ecological catastrophe.²

US Forest Service scientists have concluded that grazing is the most studied threat to riparian areas in the American West³ and that livestock use is incompatible with maintenance of habitat for wetland and riparian wildlife.⁴ Livestock grazing effects have contributed to the listing of many threatened and endangered species, including the yellow-billed cuckoo,⁵ spikedace and loach minnow,⁶ Northern Mexican and narrow-headed gartersnakes,⁷ and others in the Verde River.

Grazing impacts on riparian areas fall into four categories: impacts on streamside vegetation, stream channel morphology, water quality/quantity, and streambanks.⁸ Collectively, these impacts to vegetation, soils, and water lead to losses of wildlife habitat, reduced stream flow, increased pollution, and eradication of plant and animal species.⁹ Grazing on riparian plants reduces vegetative cover and exposes soil to erosion, which in combination with streambank trampling leads to increased erosion and turbidity.¹⁰ Grazing animals congregating in riparian areas feed on native tree and shrub regeneration, disrupting their reproductive cycle and leading to destabilized streambanks,¹¹ increased water temperatures, loss of hiding and breeding cover, and defecation and urination directly in the water. Reduced rainfall infiltration into soil¹² and increased sediment loads combine to exacerbate riparian ecosystem decline and increase stream down-cutting.¹³

Grazing in adjacent arid uplands and river terraces is equally as disastrous, with impacts to biological soil crusts, vegetation, soils, and wildlife.¹⁴ A comprehensive review of grazing impacts in the Southwest concluded that no current grazing management system used by land managers is appropriate for the Sonoran Desert.¹⁵ Cattle grazing also negatively impacts high elevation montane riparian meadows and creeks through hydrologic changes, soil compaction, erosion, bank instability, and siltation.¹⁶ Often, these impacts can have greater effects on wildlife than do wildfires.¹⁷

The only widely accepted way to eliminate cattle impacts and restore stream health is the exclusion of domestic grazers. When maintained, grazing exclosure fencing protects riparian areas and leads to rapid recovery of vigorous native vegetation¹⁸ which is critical to maintain streambank stability and provide habitat to riparian and aquatic wildlife.¹⁹ Furthermore, removal of livestock from sensitive ecosystems such as Southwestern riparian areas is a critical component of adapting to climate change.²⁰ Prominent fish scientists have concluded that livestock grazing has been a major factor in eliminating native fishes from portions of their historic ranges²¹ and that habitat degradation is most easily reversed by excluding livestock from the riparian area.²²

As briefed here, the scientific literature documenting the impacts of livestock grazing on ecosystems is extensive, and universally shows severe and lasting negative impacts.²³ Livestock removal leads to a rapid regrowth of riparian willow shrub communities²⁴ and reestablishment of high-quality habitat²⁵ and avian populations.²⁶ But full recovery of mature deciduous forests and the diversity that comes with them takes decades of cattle exclusion,²⁷ meaning monitoring, enforcement, and maintenance of riparian exclosures is crucial. Like many Southwestern rivers, the Verde River and its incredible native wildlife have endured abuse and neglect for too long. Complete exclusion of livestock animals is urgently needed to protect critical habitat and ensure the recovery and viability of native wildlife.

Plate 1: Comparison of Grazed and Ungrazed Riparian Habitats - Upper Verde

Two very different scenes of the Upper Verde River in the Antelope Hills Allotment, Prescott NF



AREA GRAZED BY CATTLE

Photo ID	1417
Date	7/15/19
Latitude	N 34.85091
Longitude	W 112.06744
Allotment	Antelope Hills

Impacts: Tracks, trails, bank shearing, erosion, sedimentation, feces at waters edge, grazed grasses and herbs, browsed shrubs and trees. Trails descend to river via side canyon to the north from the Windmill West Allotment.



AREA NOT GRAZED BY CATTLE

(2 miles downstream of photo above)

Photo ID	1441
Date	7/15/19
Latitude	N 34.83515
Longitude	W 112.05015
Allotment	Antelope Hills

Notes: Dense native herbaceous plants cover the banks, including yerba mansa, indicating an undisturbed riparian ecosystem. Well-formed banks and hummocks are resistant to erosion and filter pollutants.

Plate 2: Comparison of Grazed and Ungrazed Riparian Habitats - Lower Verde

Two scenes of the Verde River comparing the Skeleton Ridge and Red Creek Allotments, Tonto NF.



AREA GRAZED BY CATTLE

Photo ID	103
Date	5/30/19
Latitude	N 34.31752
Longitude	W 111.67937
Allotment	Skeleton Ridge

Impacts: Tracks, trails, low angle bank shearing, erosion, sedimentation, fresh feces at waters edge, heavy grazing on grasses down to stubble, browsed trees, lack of any tree regeneration. Area smelled strongly of urine and feces.



AREA NOT GRAZED BY CATTLE

(27 miles downstream of photo above)

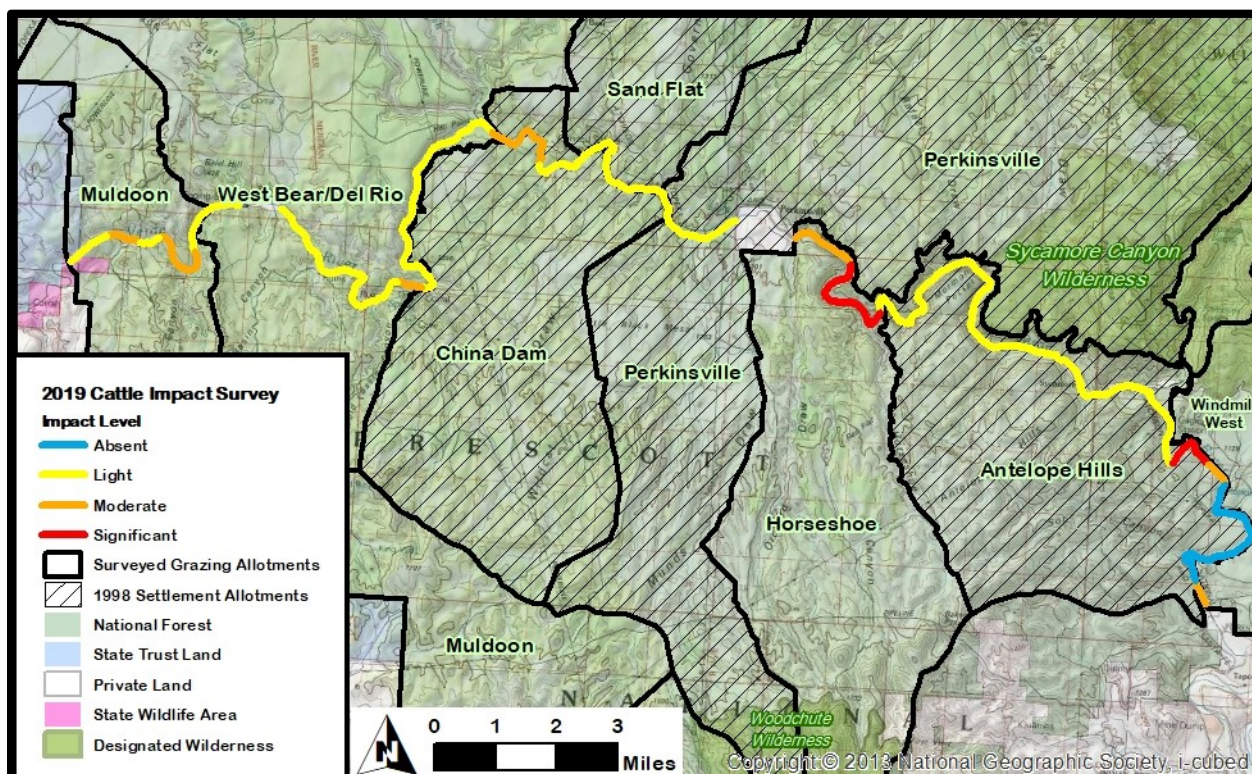
Photo ID	678
Date	6/20/19
Latitude	N 34.09939
Longitude	W 111.70477
Allotment	Red Creek

Notes: Dense grass and herbaceous plants over 4 feet tall cover the banks. Well-formed banks are resistant to erosion and filter pollutants. Multi-storied deciduous trees and tree regeneration provide bird habitat.

RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Map 2: Upper Verde River from the State Wildlife Area to the End of Forest Service Land

Color-coded survey segments follow river centerline on all maps. Colors correspond to grazing impact level.



Cattle Impacts to Threatened and Endangered Species Critical Habitats in UPPER VERDE Allotments

STUDY AREA	Public Land Grazing Allotment	Muldoon	West Bear/Del Rio	China Dam	Sand Flat	Perkinsville	Horseshoe	Antelope Hills
	1998 Settlement Allotment	No	No	Yes	Yes	Yes	No	Yes
	National Forest Unit	Prescott	Prescott	Prescott	Prescott	Prescott	Prescott	Prescott
	Stream Surveyed	Verde	Verde	Verde	Verde	Verde	Verde	Verde
CRITICAL HABITAT	S.W. Willow Flycatcher							YES
	Yellow-billed cuckoo	YES	YES	YES	YES	YES	YES	YES
	N. Head Gartersnake	YES	YES	YES	YES	YES	YES	YES
	N. Mex. Gartersnake	YES	YES	YES	YES	YES	YES	YES
	Loach Minnow	YES	YES	YES	YES	YES	YES	YES
	Spikedace	YES	YES	YES	YES	YES	YES	YES
GRAZING IMPACT	Razorback Sucker					YES	YES	YES
	Absent (3.0 Miles)	0	0	0	0	0	0	3.0
	Light (24.0 Miles)	1.9	8.1	1.9	1.8	1.3	0.3	8.7
	Moderate (5.7 Miles)	1.8	0.7	1.2	0	0	1.2	0.8
	Significant (3.0 Miles)	0	0	0	0	0	2.0	1.0
	Total (35.7 Miles)	3.7	8.8	3.1	1.8	1.3	3.5	13.5

2019 FIELD SURVEYS DOCUMENTED THAT 91% OF THE UPPER 35.7 MILES OF THE VERDE RIVER HAD RECENTLY BEEN IMPACTED BY CATTLE GRAZING AND TRAMPLING.

Upstream of Perkinsville, impacts were widespread and fresh cattle evidence was documented. Downstream of Perkinsville, the Horseshoe and Antelope Hills Allotments were most significantly impacted, and live tagged cattle were observed in the riparian area.

Cattle impacts were recorded on 32.7 miles (91%) of the Upper Verde River.

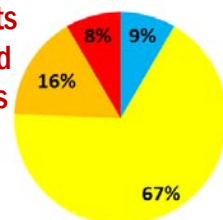


Plate 3: Cattle Impact Examples in two Upper Verde River Allotments

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	1311
Date	7/17/19
Latitude	N 34.87525
Longitude	W 112.16061
Allotment	Horseshoe

Impacts: Tracks , trampled vegetation, feces in water and at waters edge, grazing on grasses and herbs, streambank shearing and degradation.



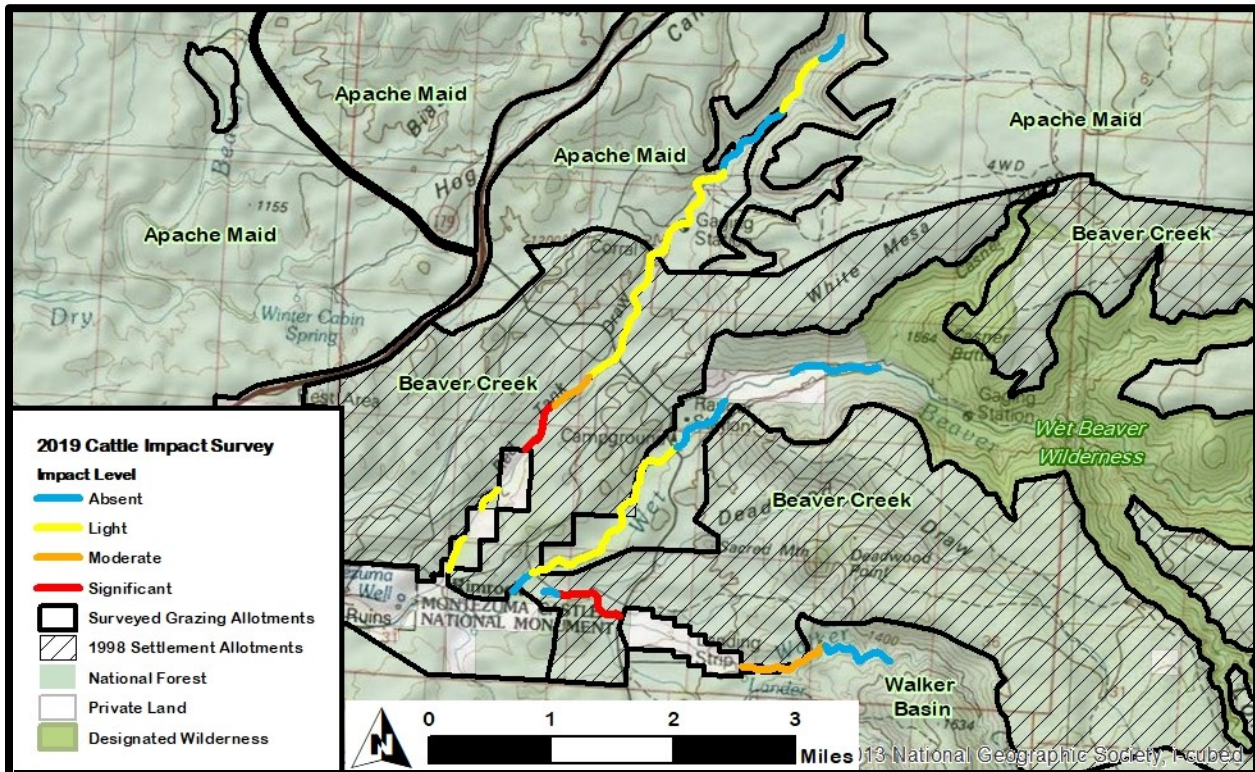
AREA GRAZED BY CATTLE

Photo ID	1192
Date	7/18/19
Latitude	N 34.9104
Longitude	W 112.25908
Allotment	China Dam

Impacts: Tracks destroying biological soil crust near high water limit of flooding.

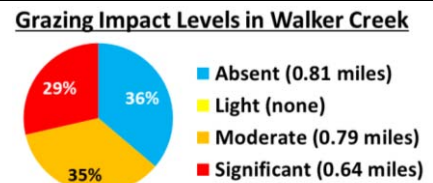
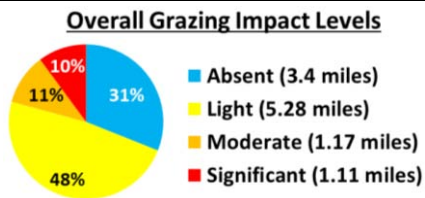
RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Map 3: Wet Beaver Creek and Tributaries (Walker Creek and Red Tank Draw)



STUDY AREA	Public Land Grazing Allotment	Apache Maid	Beaver Creek	Walker Basin
	1998 Settlement Allotment	No	Yes	No
	National Forest Unit	Coconino	Coconino	Coconino
	Stream Surveyed	Red Tank Draw	Wet Beaver Creek, Walker Creek, and Red Tank Draw	Walker Creek
CRITICAL HABITAT	Yellow-billed Cuckoo	YES	YES (all 3 streams)	YES
	Gila Chub	YES	YES (Walker and Red Tank)	YES
	Loach Minnow		YES (Wet Beaver)	
	Spikedace		YES (Wet Beaver)	
GRAZING IMPACT	Absent (3.4 miles)	1.01	1.7	0.69
	Light (5.28 miles)	1.66	3.62	
	Moderate (1.17 miles)		0.38	0.79
	Significant (1.11 miles)		1.11	
	Total (10.96 miles)	2.68	6.81	1.47

69% OF THE 10.96 MILES SURVEYED IN THE WET BEAVER CREEK WATERSHED UPSTREAM FROM MONTEZUMA'S CASTLE NATIONAL MONUMENT HAVE DOCUMENTED CATTLE IMPACTS.



THE MOST SEVERELY IMPACTED REACHES ARE ADJACENT TO PRIVATE LAND ON WALKER CREEK AND RED TANK DRAW ON THE BEAVER CREEK ALLOTMENT.

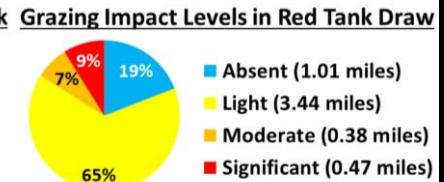
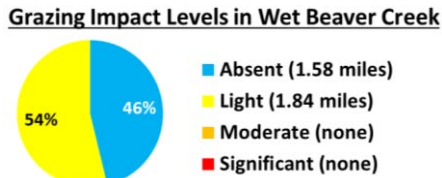


Plate 4: Cattle Impact Examples in the Beaver Creek Allotment

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	1695
Date	10/6/19
Latitude	N 34.66919
Longitude	W 111.73379
Allotment	Beaver Creek
Stream	Red Tank Draw

Impacts: Tracks and trails along creeks edge, sheared and destabilized banks from cattle climbing out of creek leading to increased erosion and sedimentation.



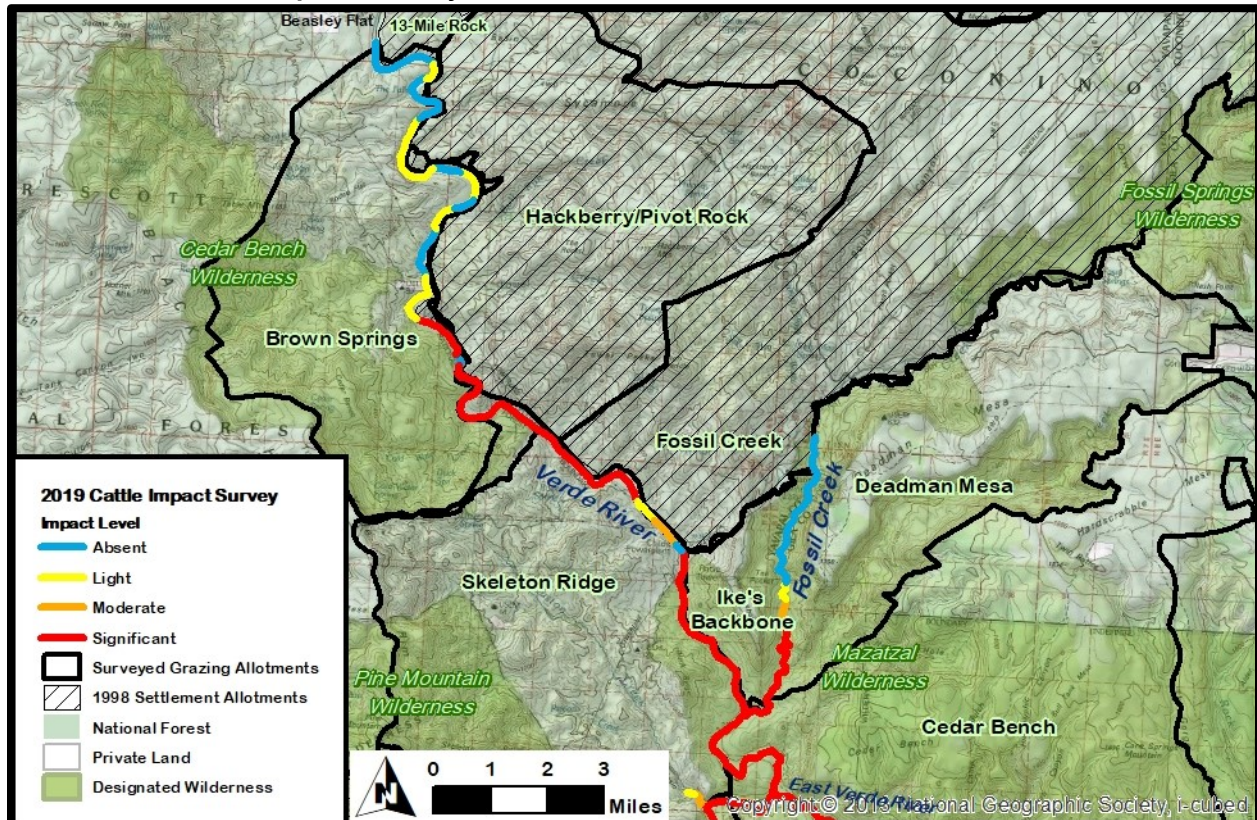
AREA GRAZED BY CATTLE

Photo ID	1646
Date	10/7/19
Latitude	N 34.6505
Longitude	W 111.72913
Allotment	Beaver Creek
Stream	Walker Creek

Impacts: Trampled area near creek, feces near waters edge.

RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Map 4: Beasley Flat to Confluence with East Verde River



STUDY AREA	Public Land Grazing Allotment	Brown Springs	Hackberry/Pivot Rock	Fossil Creek	Skeleton Ridge	Deadman Mesa	Cedar Bench
	1998 Settlement Allotment	No	Yes	Yes	No	No	No
	National Forest Unit	Prescott	Coconino	Coconino	Tonto	Tonto	Tonto
	Stream Surveyed	Verde River	Verde River	Verde River, Fossil Creek	Verde, Fossil, Houston Cks.	Verde River, Fossil Creek	Verde River
CRITICAL HABITAT	S.W. Willow Flycatcher	YES	YES				
	Yellow-billed cuckoo	YES	YES		YES		YES
	N. Head Gartersnake	YES	YES	YES	YES	YES	YES
	N. Mex. Gartersnake	YES	YES	YES	YES	YES	YES
	Loach Minnow			YES		YES	YES
	Spikedace	YES	YES	YES	YES	YES	YES
	Razorback Sucker	YES	YES	YES	YES		YES

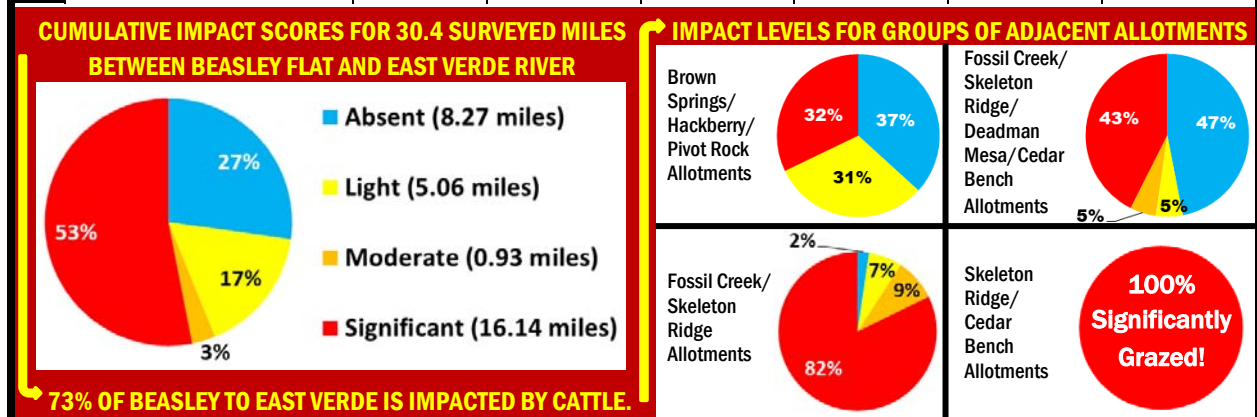


Plate 5: Cattle Impact Examples from Beasley Flat to the East Verde River

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	274
Date	6/6/19
Latitude	N 34.3818
Longitude	W 111.75508
Allotment	Between Brown Springs and Hackberry/Pivot Rock
Stream	Verde River

Impacts: Tracks and trails along rivers edge, sheared and trampled banks, browsing and grazing, feces in abundance.



AREA GRAZED BY CATTLE

Photo ID	124
Date	5/30/19
Latitude	N 34.32784
Longitude	W 111.69367
Allotment	Skeleton Ridge
Stream	Verde River

Impacts: Heavy use trails inside the exclosure fencing. Trampling, feces, wallows, grazing and browsing abundant.

Plate 6: Cattle Impact Examples on Lower Fossil Creek

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	946
Date	6/26/19
Latitude	N 34.31134
Longitude	W 111.66826
Allotment	Between Skeleton Ridge and Deadman Mesa
Stream	Fossil Creek

Impacts: Heavy browsing on *Alnus* regeneration. Also, feces at waters edge, tracks, trails, trampling, and streambank shearing in this location.



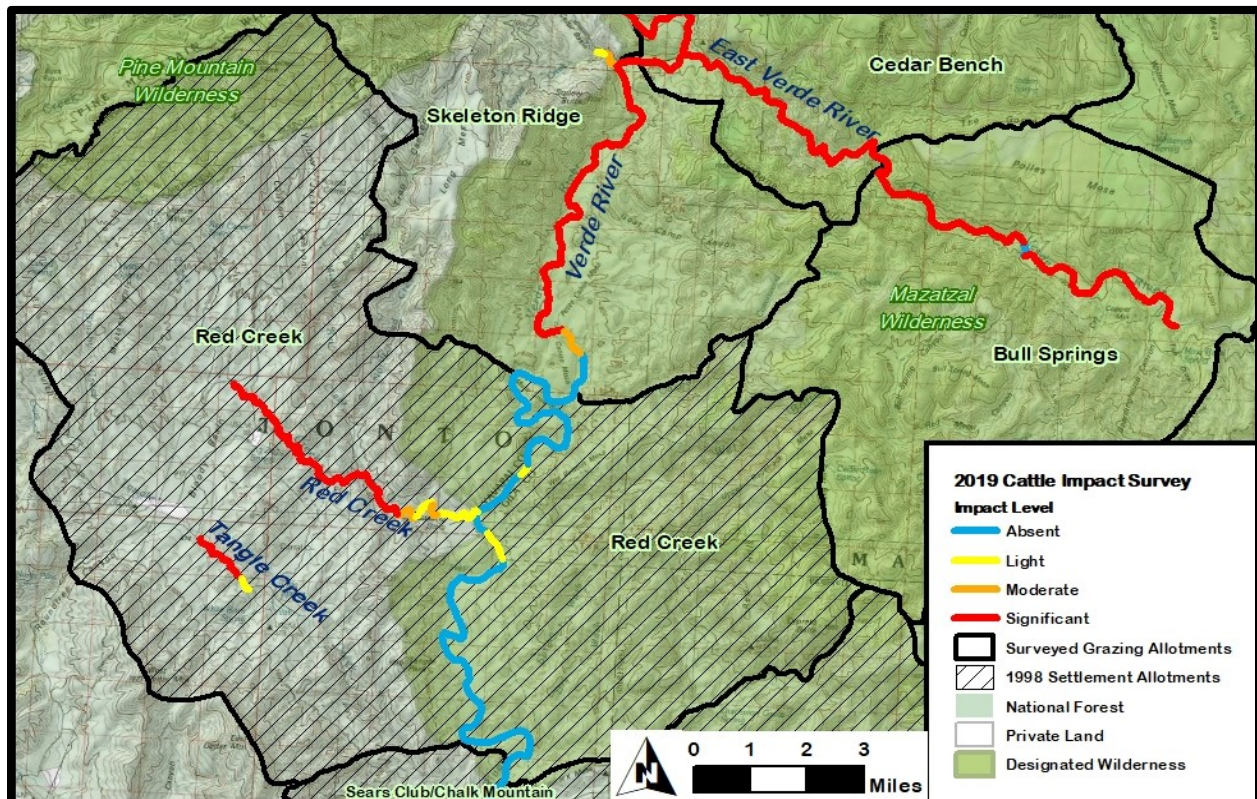
AREA GRAZED BY CATTLE

Photo ID	967
Date	6/25/19
Latitude	N 34.32689
Longitude	W 111.66365
Allotment	Between Skeleton Ridge and Deadman Mesa
Stream	Fossil Creek

Impacts: Trampling and feces at waters edge, tracks, streambank shearing, and grazing on grasses and sedges.

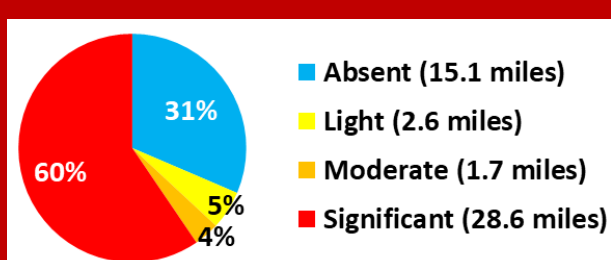
RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Map 5: East Verde River to Southern Boundary of Red Creek Allotment



STUDY AREA	Public Land Grazing Allotment	Skeleton Ridge	Cedar Bench	Bull Springs	Red Creek
	1998 Settlement Allotment	No	No	No	Yes
	National Forest Unit	Tonto	Tonto	Tonto	Tonto
	Stream Surveyed	Verde River	Verde & E. Verde R.	East Verde R.	Verde, Red & Tangle Ck
CRITICAL HABITAT	Southwest Willow Flycatcher	YES	YES		YES
	Yellow-billed Cuckoo	YES	YES		YES
	Narrow Headed Gartersnake	YES	YES	YES	YES
	Northern Mexican Gartersnake	YES	YES		YES
	Loach Minnow		YES		
	Spikedace	YES	YES		
	Razorback Sucker	YES	YES		YES

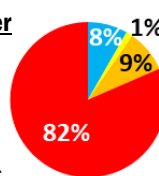
CUMULATIVE IMPACT SCORES FOR 48.1 SURVEYED MILES BETWEEN EAST VERDE RIVER & SEARS CLUB ALLOTMENT



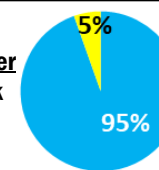
69% OF THE VERDE RIVER IS IMPACTED BY CATTLE.
60% OF SURVEY MILES ARE SIGNIFICANTLY IMPACTED.

VERDE RIVER SURVEYS

Verde River
Skeleton Ridge/
Cedar Bench
Allotments

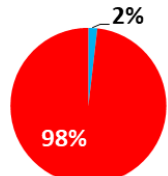


Verde River
Red Creek
Allotment

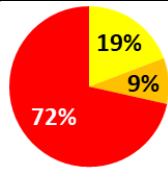


TRIBUTARY SURVEYS

East Verde
Cedar Bench/
Bull Springs
Allotments



Red & Tangle Creeks
Red Creek
Allotment



Notes: 1) Red and Tangle Creeks do not contain designated or proposed Critical Habitat but do provide habitat for listed species. 2) Tangle Creek was surveyed to determine if additional surveying is warranted. 3) 0.53 miles of Houston Creek are included in Verde River Totals

Plate 7: Cattle Impact Examples along the East Verde River

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	905
Date	6/26/19
Latitude	N 34.27501
Longitude	W 111.63396
Allotment	Cedar Bench
Stream	East Verde River

Impacts: Extreme grazing down to stubble, feces at water edge, heavy browsing on woody shrubs and trees, trampled and sheared streambanks.



AREA GRAZED BY CATTLE

Photo ID	798
Date	6/27/19
Latitude	N 34.24148
Longitude	W 111.56232
Allotment	Bull Springs
Stream	East Verde River

Impacts: Fresh feces in the river. Dozens of live cattle seen in this area.

Plate 8: Cattle Impact Examples along Red Creek

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	426
Date	6/14/19
Latitude	N 34.16174
Longitude	W 111.74378
Allotment	Red Creek
Stream	Red Creek

Impacts: Feces on a rock in the creek.

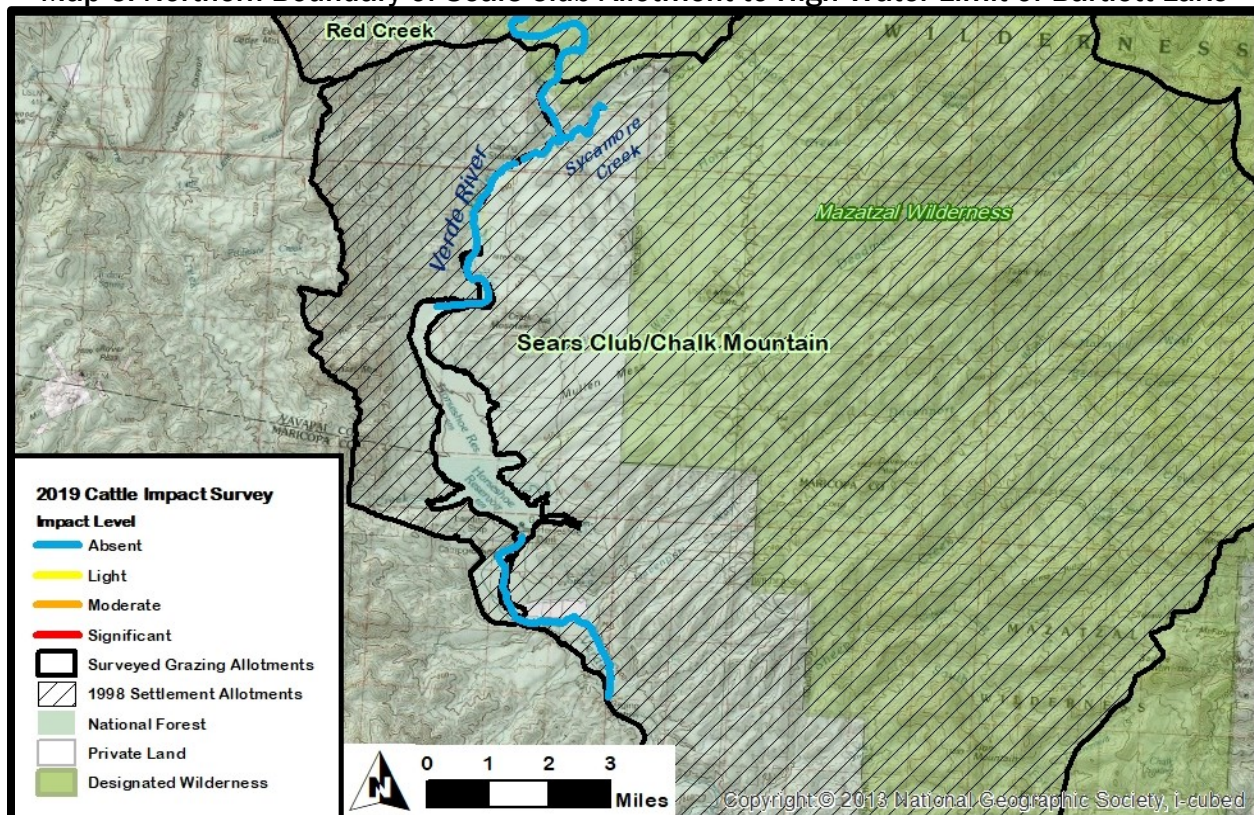


AREA GRAZED BY CATTLE

Photo ID	658
Date	6/14/19
Latitude	N 34.16985
Longitude	W 111.76977
Allotment	Red Creek
Stream	Red Creek

Impacts: Feces at the waters edge, tracks and trampled banks, and heavily grazed grasses, rushes, and sedges.

Map 6: Northern Boundary of Sears Club Allotment to High Water Limit of Bartlett Lake



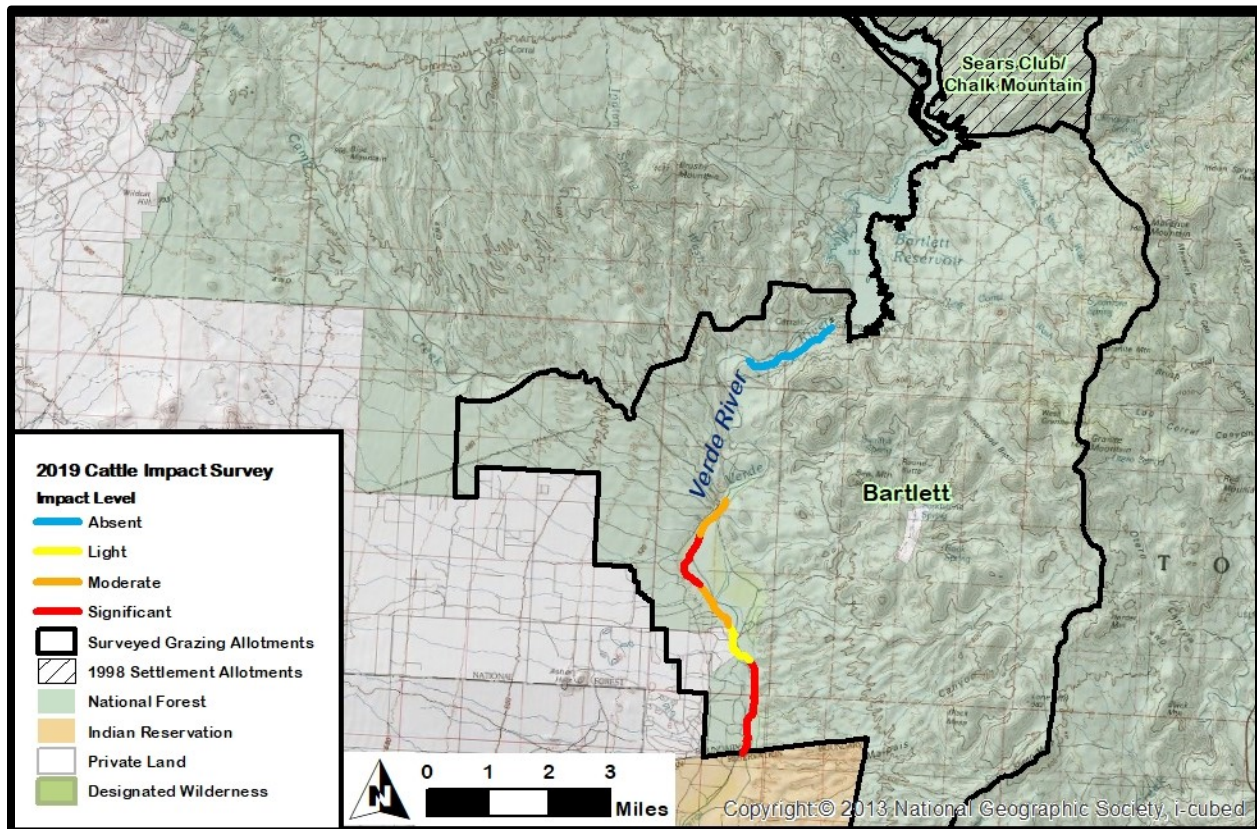
STUDY AREA	Public Land Grazing Allotment	Sears Club/Chalk Mountain
	1998 Settlement Allotment	Yes
	National Forest Unit	Tonto
	Stream Surveyed	Verde River, Sycamore Canyon
CRITICAL HABITAT	Southwest Willow Flycatcher	YES
	Yellow-billed Cuckoo	YES
	Northern Mexican Gartersnake	YES
	Razorback Sucker	YES

Notes: 1) 1.2 miles of Sycamore Creek were surveyed and are included in Verde River Totals.
2) Surveys could not be completed below the USGS Gaging Station due to dangerously high dam release flooding.
3) Horseshoe Reservoir was not surveyed because of recreational impacts and seasonally high water levels.

No cattle impacts were observed in the 11.4 surveyed miles of the Verde River or Sycamore Canyon in the Sears Club/Chalk Mountain Allotment.

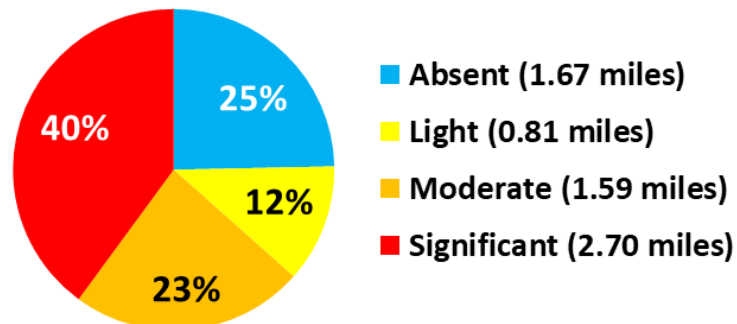
RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Map 7: Outlet of Bartlett Reservoir to Boundary of Fort McDowell Indian Reservation



STUDY AREA	Public Land Grazing Allotment	Bartlett
	1998 Settlement Allotment	No
	National Forest Unit	Tonto
	Stream Surveyed	Verde River
CRITICAL HABITAT	Yellow-billed Cuckoo (formerly)	The entirety of this river section, including sections not surveyed, was recently eliminated from the latest revised critical habitat.

Notes: 1) Surveys could not be completed upstream from Needle Rock due to dangerously high dam release.
2) Bartlett Reservoir was not surveyed because of recreational impacts and seasonally high water levels.
3) Surveyed reaches nearest Fort McDowell Indian Reservation included many wild horse impacts.



75% OF THE 6.73 MILES SURVEYED BETWEEN BARTLETT RESERVOIR AND THE FORT MCDOWELL RESERVATION WERE IMPACTED BY CATTLE OR HORSES.

63% OF MILES SURVEYED WERE DOCUMENTED WITH MODERATE TO SEVERE IMPACTS.

Plate 9: Cattle Impact Examples in the Bartlett Allotment

Additional photos of cattle impacts, evidence of presence, and fencing condition available by request.



AREA GRAZED BY CATTLE

Photo ID	1033
Date	7/2/19
Latitude	N 34.71442
Longitude	W 111.65513
Allotment	Bartlett
Stream	Verde River

Impacts: Feces along a heavily used trail leading from uplands to a break in the fence where cattle enter the riparian area.



AREA GRAZED BY CATTLE

Photo ID	1083
Date	7/1/19
Latitude	N 34.72932
Longitude	W 111.65264
Allotment	Bartlett
Stream	Verde River

Impacts: Tracks and trampling at the river's edge under a cottonwood tree, with heavily grazed grasses and browsed shrubs.

RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Table 3: Land Ownership of Fish Critical Habitat in the Verde Watershed

Species →	Loach Minnow		Spikedace		Gila Chub		Razorback Sucker	
OWNERSHIP	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent
Public (Federal)	75.33	52.3%	103.11	56.3%	10.44	55.8%	84.89	67.6%
Private	55.85	38.8%	66.66	36.4%	7.52	40.2%	34.42	27.4%
State	12.29	8.5%	12.36	6.8%	0.74	4.0%	4.67	3.7%
Tribal	0.42	0.3%	0.89	0.5%	0	0%	1.66	1.3%
TOTAL	143.90	100.0%	183.02	100.0%	18.70	100.0%	125.64	100.0%

Table 4: Cattle Impacts to Fish Critical Habitats in the Verde Watershed

Species →	Loach Minnow		Spikedace		Gila Chub		Razorback Sucker	
IMPACT LEVEL	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent
Absent	7.72	16.9%	12.89	19.5%	1.82	24.2%	28.88	40.5%
Light	26.21	57.3%	30.91	46.7%	3.44	45.7%	14.54	20.4%
Moderate	6.10	13.3%	6.69	10.1%	1.16	15.4%	3.13	4.4%
Significant	5.74	12.5%	15.76	23.8%	1.11	14.7%	24.74	34.7%
TOTAL	45.77	100.0%	66.25	100.0%	7.53	100.0%	71.29	100.0%

Table 5: Summary of Cattle Impacts to Public Land Fish Critical Habitats

Species →	Loach Minnow	Spikedace	Gila Chub	Razorback Sucker
% of All Critical Habitat Surveyed in 2019 (Only USFS land was surveyed)	31.8%	36.2%	40.3%	56.7%
% of Critical Habitat in Public Ownership (All Federal Lands)	52.3% (95.8% USFS)	56.3% (96.9% USFS)	55.8% (100% USFS)	67.6% (99.7% USFS)
% of Public Land Critical Habitat Surveyed in 2019 (USFS Land Only)	60.8%	64.3%	72.1%	84.0%
% of Surveyed USFS Critical Habitat Grazed by Cattle	83.1%	80.5%	75.8%	59.5%

RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Table 6: Land Ownership of Bird and Reptile Critical Habitat in the Verde Watershed

Species →	Southwestern Willow Flycatcher (SWWF)		Yellow-Billed Cuckoo (YBC)		Northern Mexican Gartersnake (NMGS)		Narrow-Headed Gartersnake (NHGS)	
OWNERSHIP	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent
Public (Federal)	43.68	55.6%	118.15	59%	123.63	62.4%	165.71	67.5%
Private	28.58	36.4%	68.09	34%	60.63	30.6%	66.27	27.0%
State	4.67	5.9%	12.23	6.1%	12.36	6.2%	11.69	4.8%
Tribal	1.66	2.1%	1.73	0.9%	1.66	0.8%	1.66	0.7%
TOTAL	78.59	100.0%	200.2	100.0%	198.28	100.0%	245.33	100.0%

Table 7: Cattle Impacts to Bird and Reptile Critical Habitats in the Verde Watershed

Species →	SWWF		YBC		NMGS		NHGS	
IMPACT LEVEL	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent
Absent	25.62	71.7%	32.35	39.73%	28.88	32.1%	15.91	17.5%
Light	1.17	3.3%	29.49	36.22%	29.53	32.8%	29.52	32.5%
Moderate	0.93	2.6%	7.06	8.67%	6.88	7.6%	6.88	7.6%
Significant	8.02	22.4%	12.53	15.39%	24.74	27.5%	38.60	42.5%
TOTAL	35.74	100.0%	81.43	100.0%	90.03	100.0%	90.91	100.0%

Table 8: Summary of Cattle Impacts to Public Land Bird and Reptile Critical Habitats

Species →	SWWF	YBC	NMGS	NHGS
% of All Critical Habitat Surveyed in 2019 (Only USFS land was surveyed)	45.5%	40.7%	45.4%	37.1%
% of Critical Habitat in Public Ownership (All Federal Lands)	55.6% (99.4% USFS)	59% (97.3% USFS)	62.4% (99.8% USFS)	67.5% (99.9% USFS)
% of Public Land Critical Habitat Surveyed in 2019 (USFS Land Only)	81.8%	68.9%	72.8%	54.9%
% of Surveyed USFS Critical Habitat Grazed by Cattle	28.3%	60.27%	67.9%	82.5%

Map 8: Cattle Impacts to Loach Minnow Critical Habitat

Cattle Impacts to Loach Minnow Final Critical Habitat (CH)

Key to Map Features

Loach Minnow Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (16.9%)

Light (57.3%)

Moderate (13.3%)

Significant (12.5%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Loach Minnow Critical Habitat

Prescott National Forest

- 1) Muldoon
- 2) West Bear/Del Rio
- 3) China Dam*
- 4) Sand Flat*
- 5) Perkinsville*
- 6) Horseshoe
- 7) Antelope Hills*

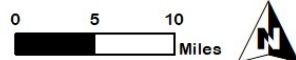
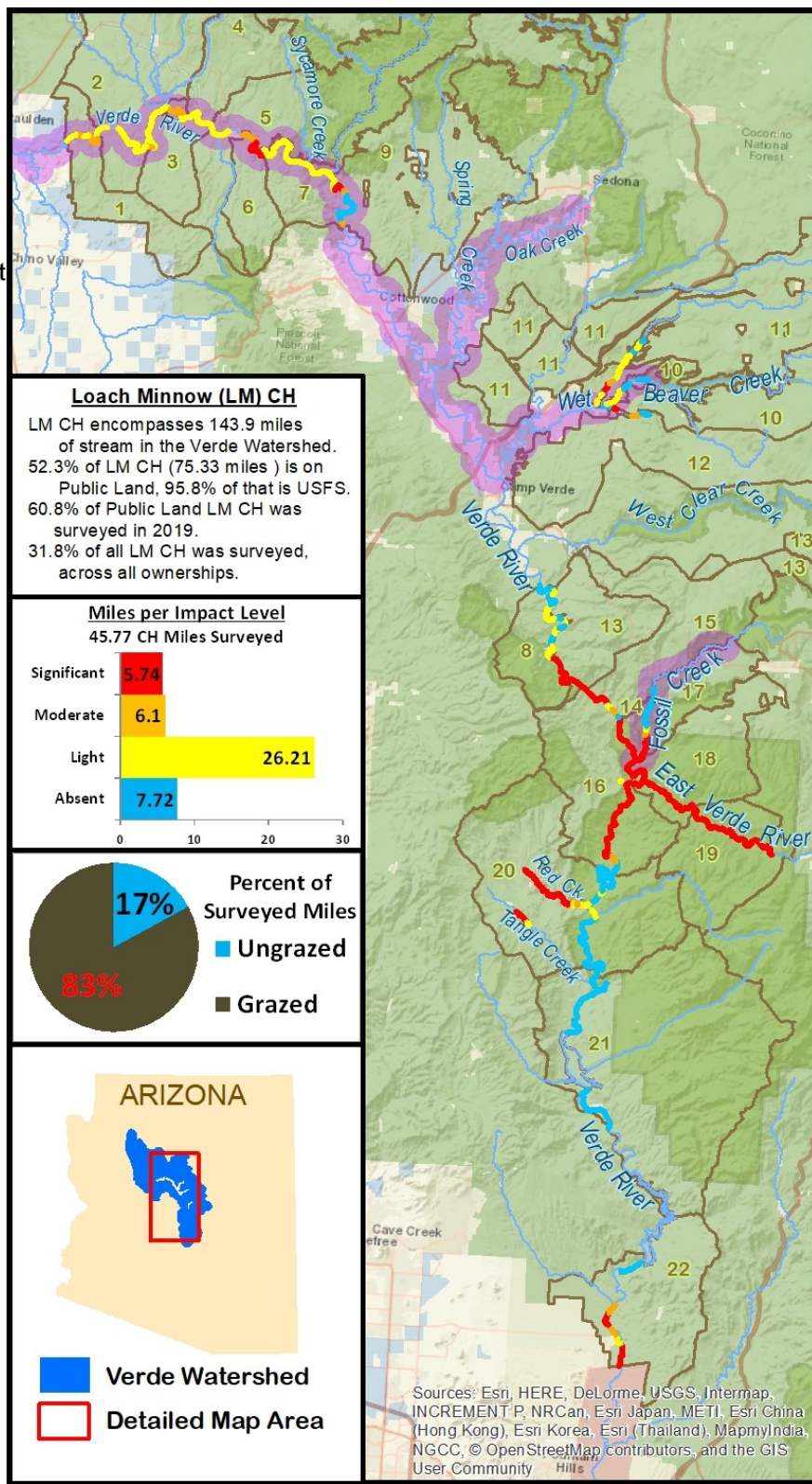
Coconino National Forest

- 9) Windmill West
- 10) Beaver Creek*
- 14) Ike's Backbone
- 15) Fossil Creek*

Tonto National Forest

- 17) Deadman Mesa
- 18) Cedar Bench

* 1998 Settlement Allotment



Map 9: Cattle Impacts to Spikedace Critical Habitat

Cattle Impacts to Spikedace Final Critical Habitat (CH)

Key to Map Features

Spikedace Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (19.5%)

Light (46.7%)

Moderate (10.1%)

Significant (23.8%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Spikedace Critical Habitat

Prescott National Forest

1) Muldoon

2) West Bear/Del Rio

3) China Dam*

4) Sand Flat*

5) Perkinsville*

6) Horseshoe

7) Antelope Hills*

8) Brown Springs

Coconino National Forest

9) Windmill West

10) Beaver Creek*

13) Hackberry/Pivot Rock*

14) Ike's Backbone

15) Fossil Creek*

Tonto National Forest

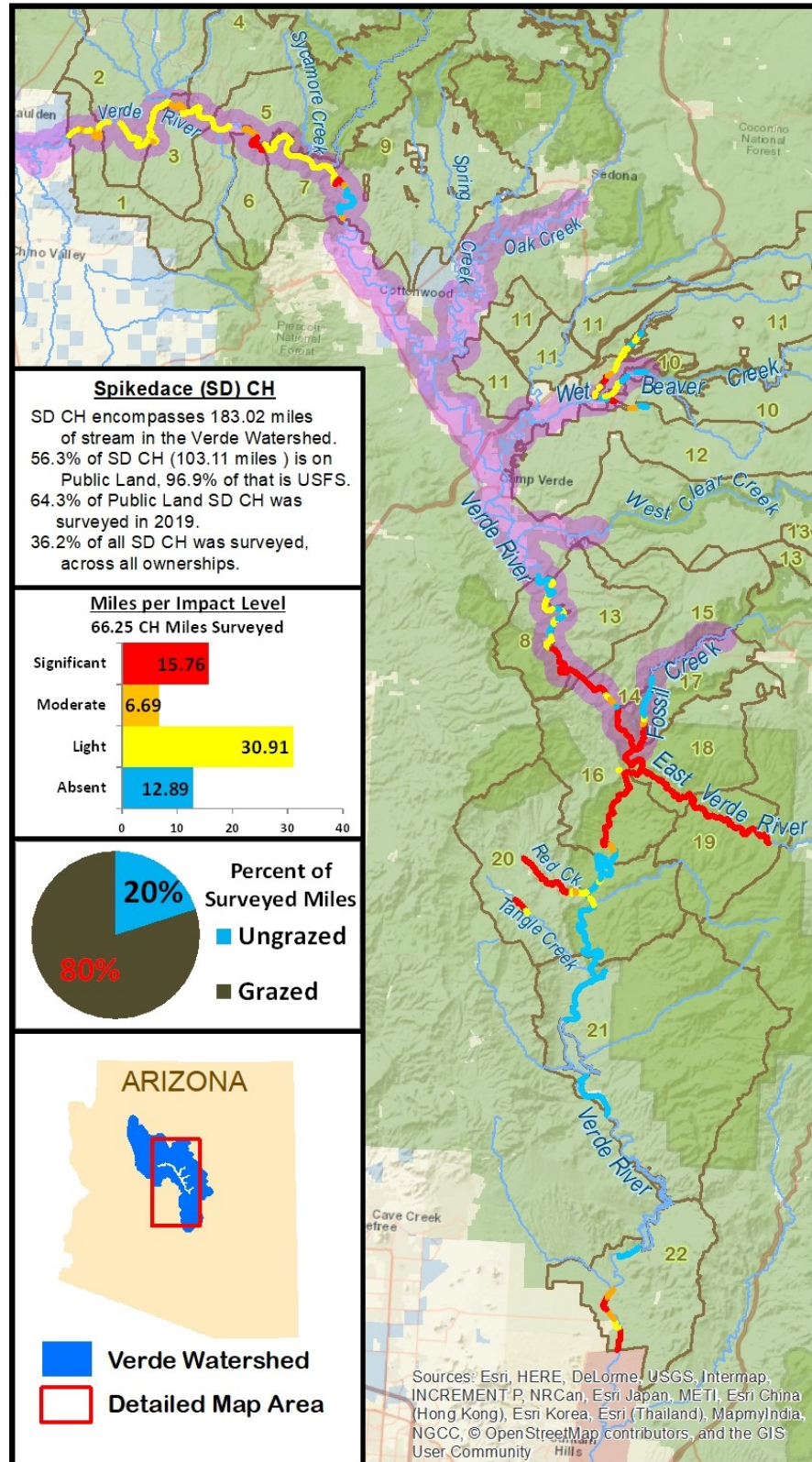
16) Skeleton Ridge

17) Deadman Mesa

18) Cedar Bench

* 1998 Settlement Allotment

0 5 10 Miles



Map 10: Cattle Impacts to Gila Chub Critical Habitat

Cattle Impacts to Gila Chub Final Critical Habitat (CH)

Key to Map Features

Gila Chub Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (24.2%)

Light (45.7%)

Moderate (15.4%)

Significant (14.7%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments

with Gila Chub

Critical Habitat

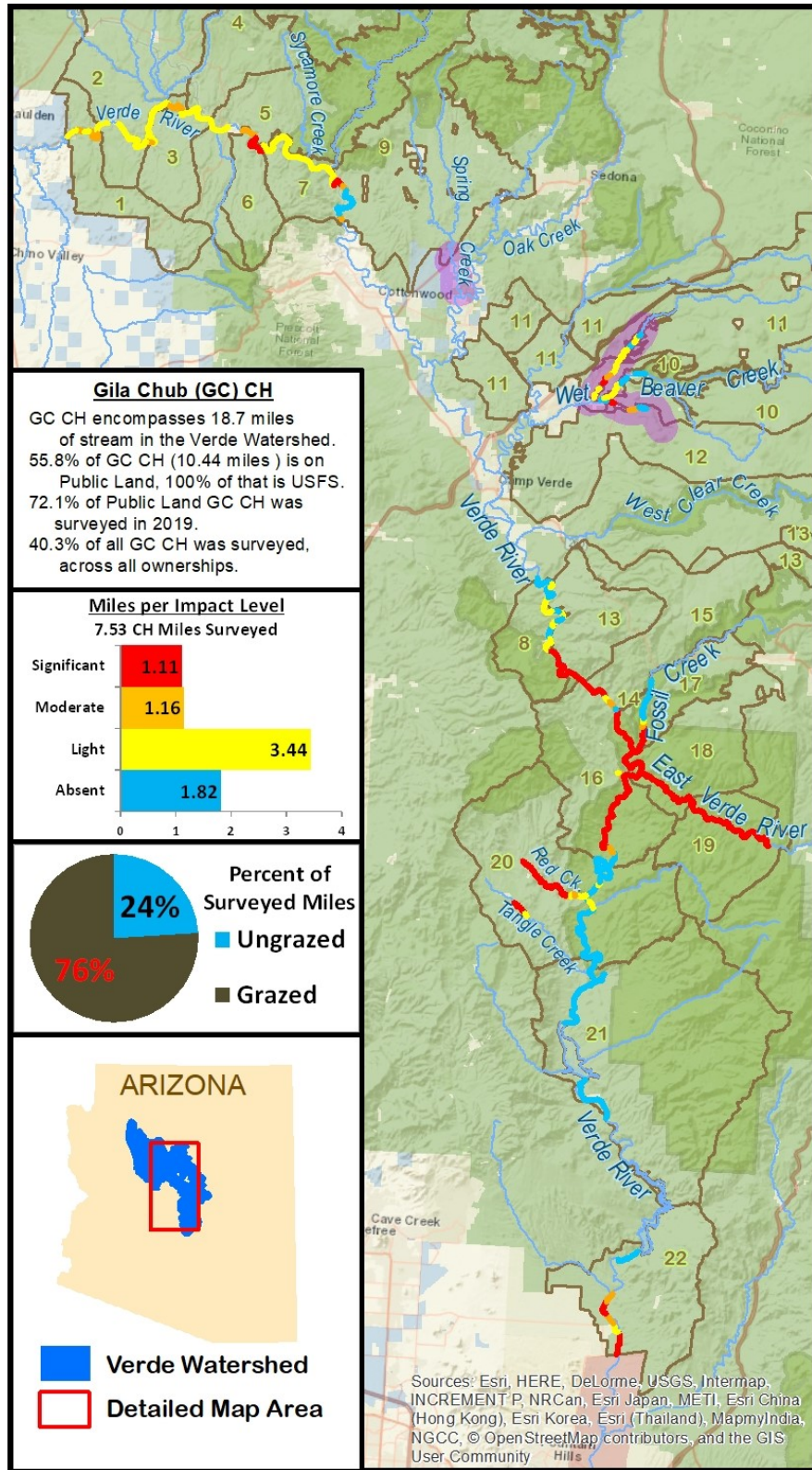
Coconino National Forest

10) Beaver Creek*

11) Apache Maid

12) Walker Basin

* 1998 Settlement Allotment



Map 11: Cattle Impacts to Razorback Sucker Critical Habitat

Cattle Impacts to Razorback Sucker Final Critical Habitat (CH)

Key to Map Features

Razorback Sucker CH

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (40.5%)

Light (20.4%)

Moderate (4.4%)

Significant (34.7%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Razorback Sucker Critical Habitat

Prescott National Forest

5) Perkinsville*

6) Horseshoe

7) Antelope Hills*

8) Brown Springs

Coconino National Forest

9) Windmill West

13) Hackberry/Pivot Rock*

14) Ike's Backbone

15) Fossil Creek*

Tonto National Forest

16) Skeleton Ridge

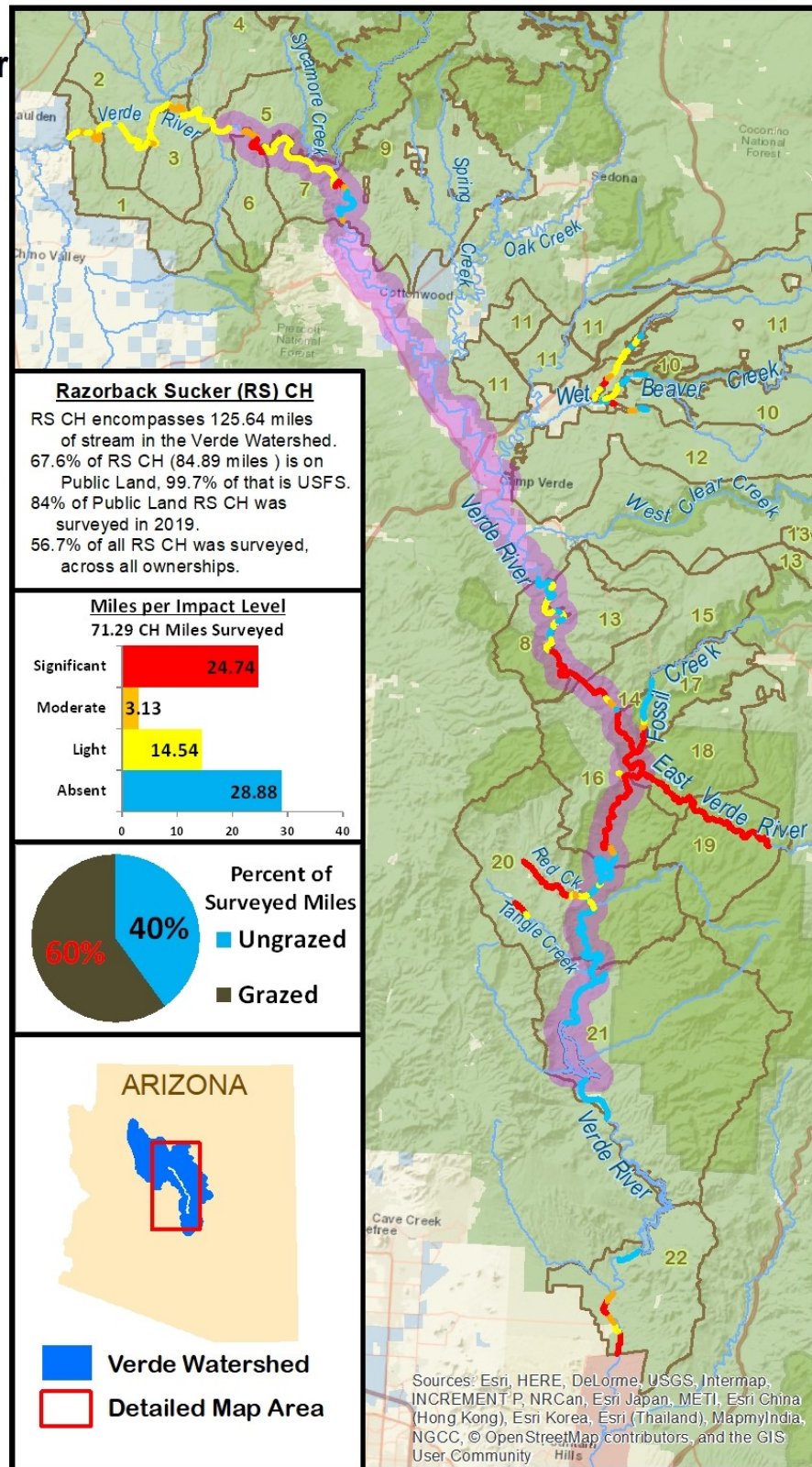
17) Deadman Mesa

18) Cedar Bench

20) Red Creek*

21) Sears Club/Chalk Mountain*

* 1998 Settlement Allotment



Map 12: Cattle Impacts to Southwestern Willow Flycatcher Critical Habitat

Cattle Impacts to Southwestern Willow Flycatcher Final Critical Habitat (CH)

Key to Map Features

Flycatcher Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (71.7%)

Light (3.3%)

Moderate (2.6%)

Significant (22.4%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Southwestern Willow Flycatcher Critical Habitat

Prescott National Forest

7) Antelope Hills*

8) Brown Springs

Coconino National Forest

9) Windmill West

13) Hackberry/Pivot Rock*

Tonto National Forest

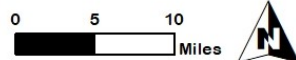
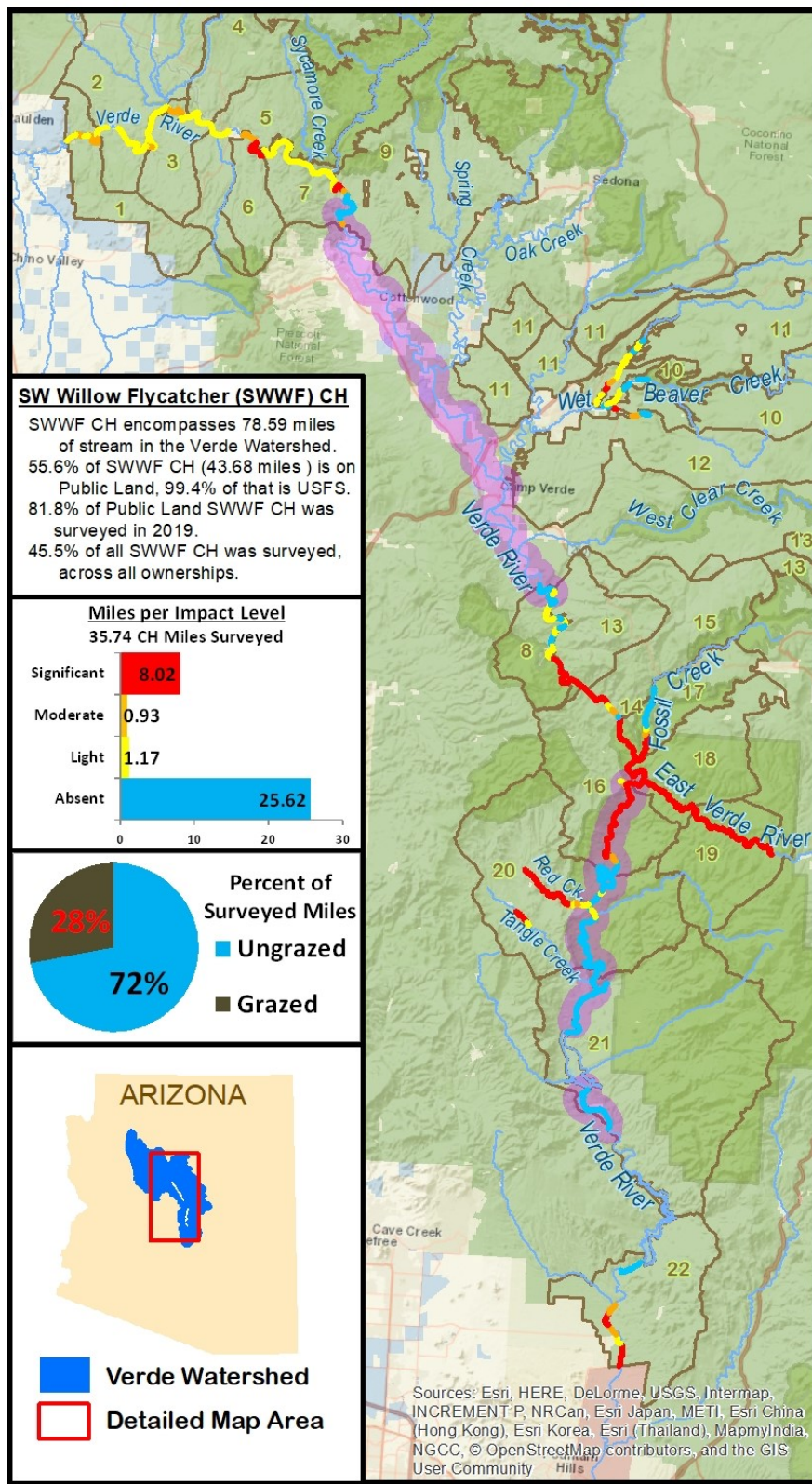
16) Skeleton Ridge

18) Cedar Bench

20) Red Creek*

21) Sears Club/Chalk Mountain*

* 1998 Settlement Allotment



Map 13: Cattle Impacts to Yellow-Billed Cuckoo Critical Habitat

Cattle Impacts to Yellow-Billed Cuckoo Proposed Critical Habitat (CH)

Key to Map Features

Cuckoo Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (39.73%)

Light (36.22%)

Moderate (8.67%)

Significant (15.39%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Yellow-Billed Cuckoo Proposed Critical Habitat

Prescott National Forest

- 1) Muldoon
- 2) West Bear/Del Rio
- 3) China Dam*
- 4) Sand Flat*
- 5) Perkinsville*
- 6) Horseshoe
- 7) Antelope Hills*
- 8) Brown Springs

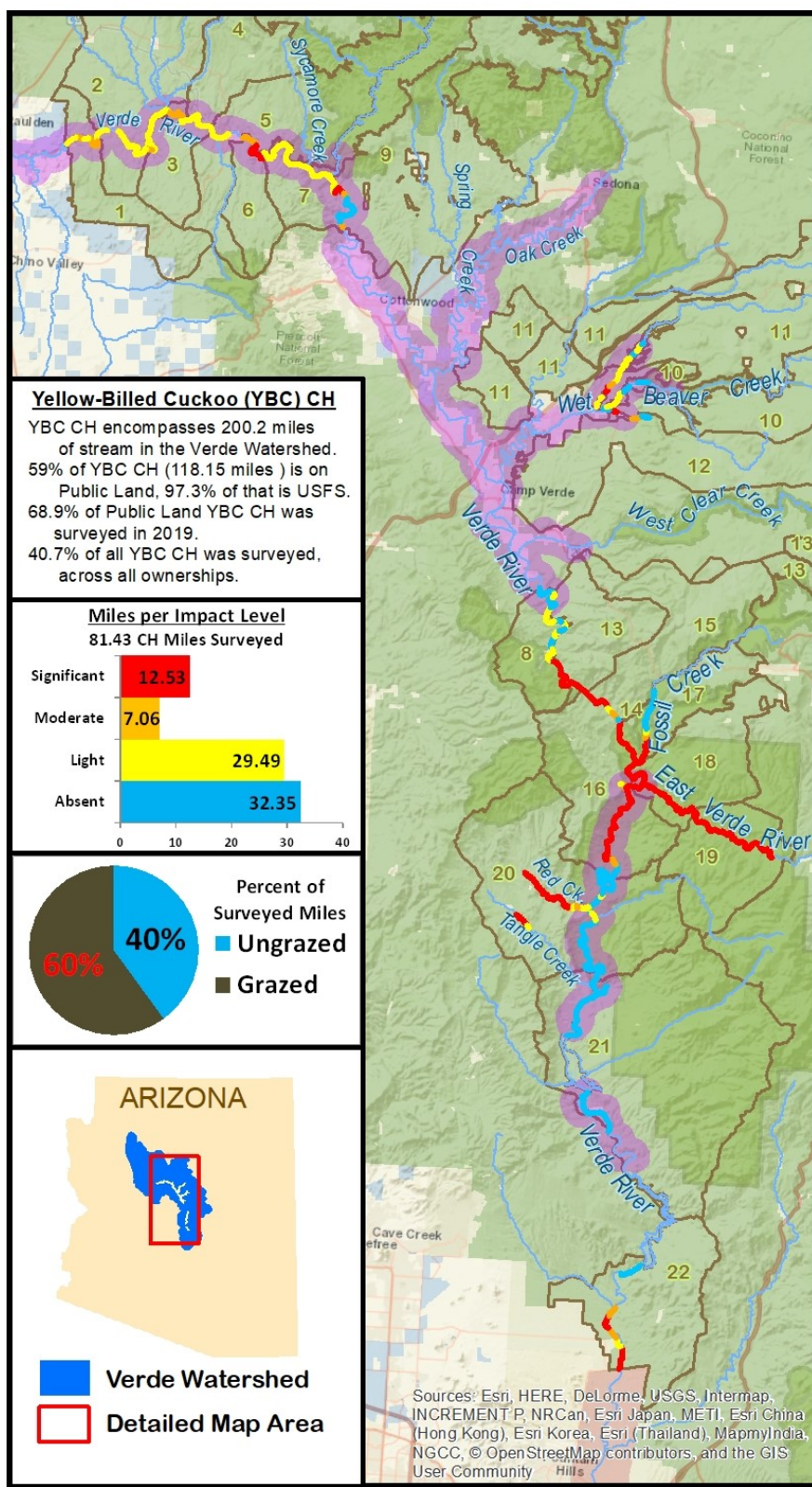
Coconino National Forest

- 9) Windmill West
- 10) Beaver Creek*
- 11) Apache Maid
- 12) Walker Basin

Tonto National Forest

- 16) Skeleton Ridge
- 18) Cedar Bench
- 20) Red Creek*
- 21) Sears Club/Chalk Mountain*

* 1998 Settlement Allotment



Map 14: Cattle Impacts to Northern Mexican Gartersnake Critical Habitat

Cattle Impacts to Northern Mexican Gartersnake Proposed Critical Habitat (CH)

Key to Map Features

NMGS Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (32.1%)

Light (32.8%)

Moderate (7.6%)

Significant (27.5%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Northern Mexican Gartersnake Critical Habitat

Prescott National Forest

1) Muldoon

2) West Bear/Del Rio

3) China Dam*

4) Sand Flat*

5) Perkinsville*

6) Horseshoe

7) Antelope Hills*

8) Brown Springs

Coconino National Forest

9) Windmill West

11) Apache Maid (NMGS CH in

Oak Creek not surveyed)

13) Hackberry/Pivot Rock*

14) Ike's Backbone

15) Fossil Creek*

Tonto National Forest

16) Skeleton Ridge

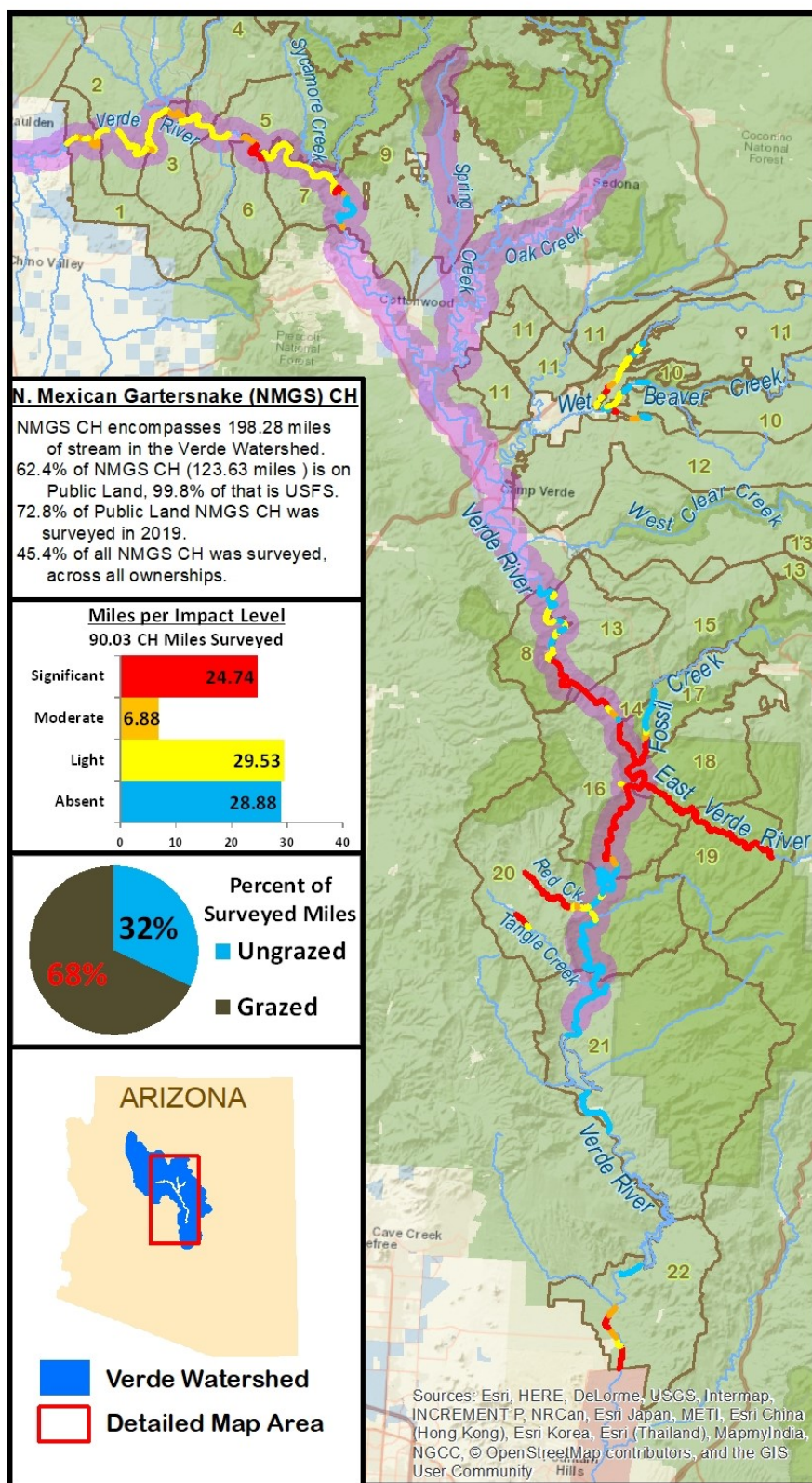
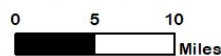
17) Deadman Mesa

18) Cedar Bench

20) Red Creek*

21) Sears Club/Chalk Mountain*

* 1998 Settlement Allotment



Map 15: Cattle Impacts to Narrow-headed Gartersnake Critical Habitat

Cattle Impacts to Narrow-headed Gartersnake Proposed Critical Habitat (CH)

Key to Map Features

NHGS Critical Habitat

1 mile buffer to aid viewing

Grazing Impact Level in CH

Absent (17.5%)

Light (32.5%)

Moderate (7.6%)

Significant (42.5%)

Surveyed Grazing Allotments

Designated Wilderness

National Forest

State Trust Land

Private Land

Indian Reservation

Surveyed Allotments with Narrow-headed Gartersnake Critical Habitat

Prescott National Forest

1) Muldoon

2) West Bear/Del Rio

3) China Dam*

4) Sand Flat*

5) Perkinsville*

6) Horseshoe

7) Antelope Hills*

8) Brown Springs

Coconino National Forest

9) Windmill West

11) Apache Maid (NHGS CH along Oak Creek not surveyed)

13) Hackberry/Pivot Rock*

14) Ike's Backbone

15) Fossil Creek*

Tonto National Forest

16) Skeleton Ridge

17) Deadman Mesa

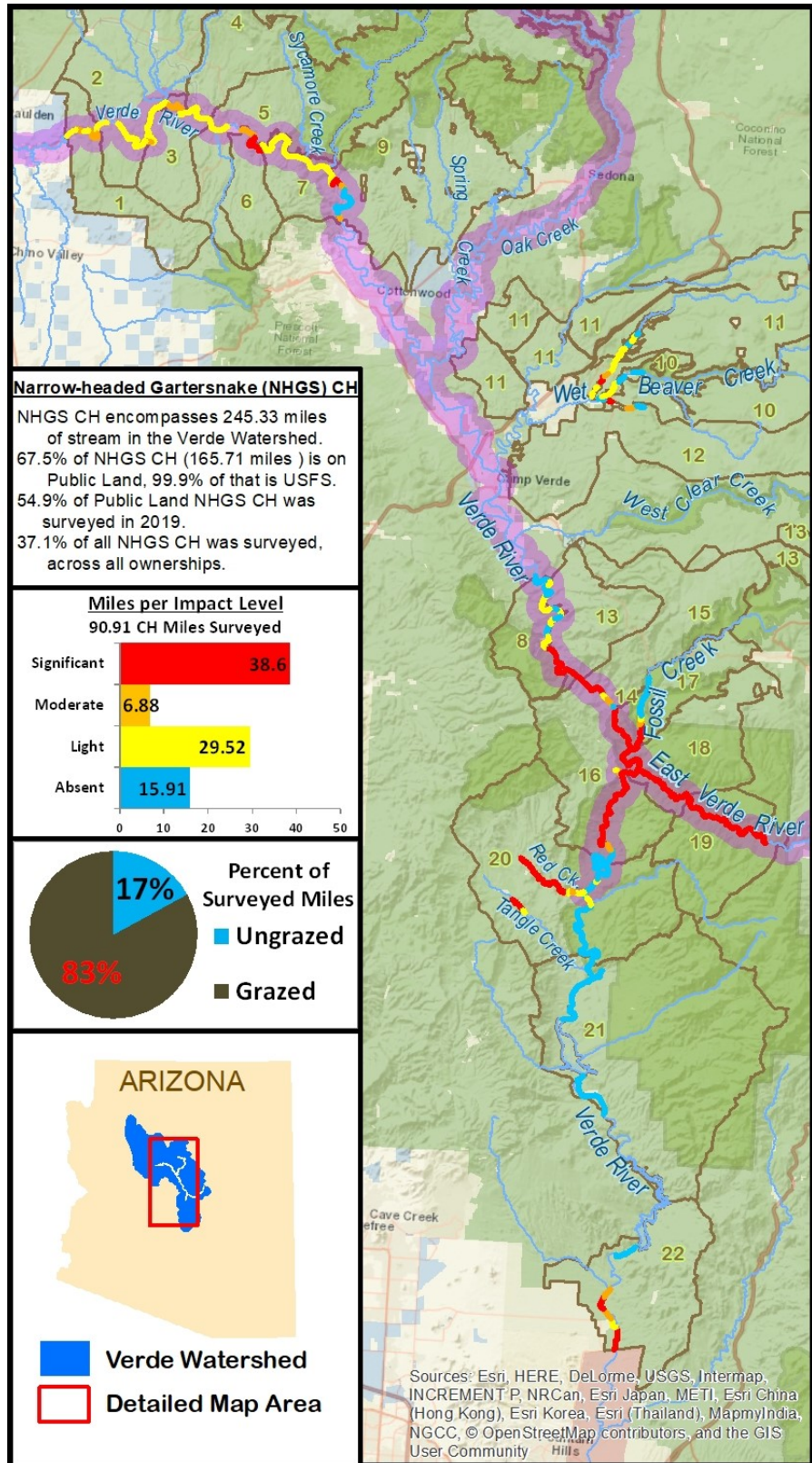
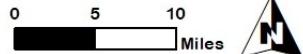
18) Cedar Bench

19) Bull Springs

20) Red Creek*

* 1998 Settlement Allotment

0 5 10 Miles



Conclusion and Management Recommendations

Surveys of almost 145 miles of river in the Verde Watershed documented extensive and at times severe and pervasive cattle impacts to riparian wildlife habitat in 21 of 22 surveyed grazing allotments on the Prescott, Coconino, and Tonto National Forests. A combination of feral and unauthorized cattle and horses have damaged habitat for fourteen federally protected wildlife species, including eight with critical habitat on the Verde River and its tributaries. Trampled streambanks, diminished tree and shrub regeneration, overgrazed grasses and herbs, and impaired water quality are common impacts in all allotments except for the Sears Club/Chalk Mountain Allotment on the Tonto National Forest. A database of over 1700 georeferenced photos stores documentary evidence of widespread and enduring cattle occupancy of failing riparian exclosures.

The most severely impacted portion of the study area is the stretch downstream of Browns Spring Ranch to Red Creek and Tangle Creek in the Red Creek Allotment. This area includes dozens of miles of contiguous significantly impacted habitat along the Verde Wild and Scenic River, Fossil Creek Wild and Scenic River, and the East Verde River in the Fossil Springs and Mazatzal Wilderness Areas. Red Creek, while not being designated as Critical Habitat, does support native fish protected by the ESA, such as Gila topminnow. A short stretch of Tangle Creek was surveyed, and results indicate that further surveys should be conducted in the remainder of the creek. As with Red Creek, Tangle Creek is not Critical Habitat, but a globally imperiled insect has been documented there. Current levels of grazing likely threaten the beetle's survival. Cattle use was documented along almost the entire Upper Verde River on the Prescott National Forest, a spring-fed oasis which has been closed to grazing for more than a decade. In most segments, impacts were light and scattered, but select areas were significantly impacted, such as below Perkinsville and below Sycamore Creek. Fence inspections suggest that range managers and livestock permittees are failing to maintain basic range infrastructure, consistent with many reports to the Forest Service from local conservationists.

Unmaintained or entirely missing fencing renders grazing exclosures useless across much of the study area. Many fences have been destroyed by flooding events, some apparently a decade ago or more, and there has been little effort to monitor or repair breaches. Areas where natural barriers such as cliffs were assumed to impair cattle movement have proven to be ineffective. Cattle move freely between uplands and riparian areas in most areas surveyed due to porous allotment boundaries and exclosure fences and barriers, as well as gates which appear to have been left open for years. Immediate removal of feral and unauthorized livestock is urgently needed. However, due to the prevailing condition of exclosure fencing, the problem will not be solved through animal removal alone. Hundreds of miles of fencing are in need of repair or replacement, and in many cases existing locations are insufficient and fencing should be moved further into the uplands to protect the full floodplain and flood-prone side canyons where fence failures are common.

Cattle stocking rates must be evaluated and in most cases should be reduced dramatically. Access to riparian areas has artificially inflated perceived range carrying capacity by allowing more water to be available to livestock. If riparian exclosures are maintained, the ability to stock existing numbers of cattle will not be feasible. The Red Creek Allotment is a particularly good example, as cattle congregate in Red and Tangle Creeks. Without access to these waters, the upland range cannot sustain current stocking levels. Upland conditions, which in many cases are severely overgrazed and erosion prone, are contributing to the ferocity of floodwaters which destroy fencing in side canyons, as well as contribute sediment to fish habitat. Reduced upland stocking is needed to restore watershed conditions that support functioning riparian areas and hydrology.

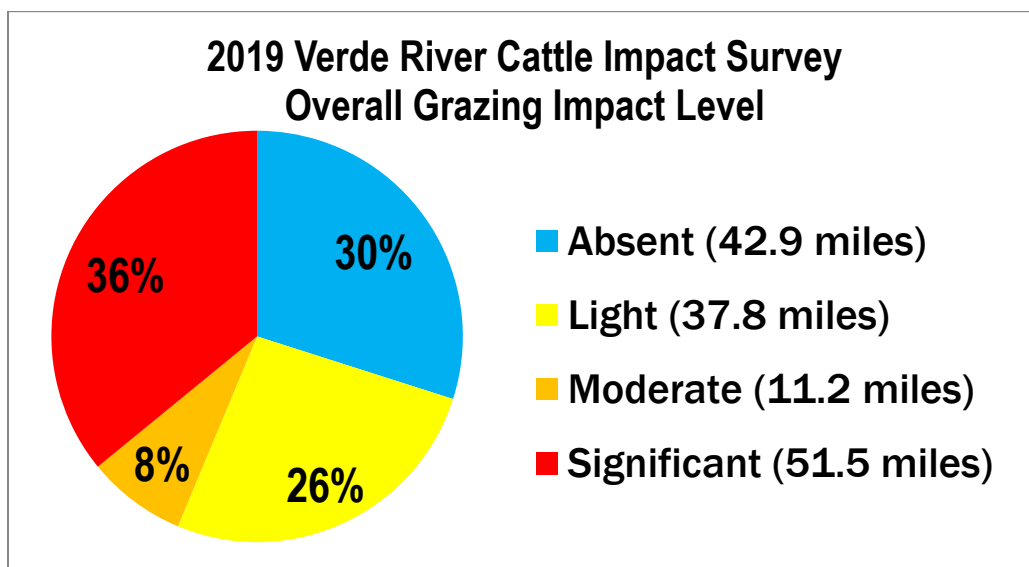
The US Forest Service is failing in its duty to conserve federally protected species. Additional resources for monitoring, enforcement, and maintenance of riparian exclosures are needed in order to protect critical habitat and ensure that long-term species recovery is accomplished. The Center for Biological Diversity will continue to watchdog agency mismanagement and identify areas of concern.

RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Table 9: Condition Descriptors And Severity Scores For Six Cattle Impact Categories				
Category	Condition 1	Condition 2	Condition 3	Condition 4
Grazing Evidence On Grasses And Herbaceous Growth	LIMITED Less than 1% of the grasses impacted.	LIGHT Few to some patches of grazed area or selective grazing in patches.	MODERATE Multiple grass patches grazed, more than 20% of grass impacted in patches.	SEVERE/HEAVY Multiple patches grazed, low grass heights less than 1 inch. More than 30% grazed in patches
Browse Pressure/Woody Stems	LIMITED Less than 1% of woody stems impacted	LIGHT Browsing limited to multiyear stems	MODERATE Browse pressure on near channel woody recruitment	HEAVY/SEVERE Multiple green-line or near channel recruitment browse
Ground Cover Disturbance/Intensity	LIMITED Limited to transient evidence of use.	LOW Isolated trailing and cow trails developing.	MODERATE Multiple trails and the presence of wallows and rutting areas. Some bare soils.	SEVERE Trails, plus wallows, rutting and compaction leading to denuded ground and larger areas of bare soils.
Ground Cover Disturbance/Extent	LIMITED Few examples of disturbance.	SCATTERED Trails or disturbances in more than one location in segment.	MODERATE Trails meander through entire segment and there are multiple moderate level disturbances (see above).	PERVASIVE Multiple locations of disturbance and multiple types of disturbances, including severe moderate and low (see above).
Streambank Degradation/Intensity	LIMITED No visible signs, but other cattle impact on both sides of river that evidence crossing.	LOW Trails leading to streambank and water's edge.	MODERATE Trailing and trails creating unstable banks, some chiseling, or in low relief banks-muddy compaction	SEVERE Trailing leading to shearing and removal of a portion of the streambank leaving vertical surfaces.
Streambank Degradation/Extent	LIMITED Isolated example of streambank entry.	SCATTERED Bank degradation of any intensity in more than one location.	MODERATE Multiple examples of low and moderate bank degradation (see above).	PERVASIVE Multiple examples of low, moderate, and severe degradation (see above).

RAVAGED RIVER: 2019 VERDE RIVER CATTLE IMPACT SURVEY

Table 10: Weighting For Overall Impact Levels Of Stream Reach Segments. Based On Condition Scores (0-4) From Six Categories Of Cattle Impacts.			
ABSENT	LIGHT IMPACT	MODERATE IMPACT	SIGNIFICANT IMPACT
All zeros	Any combination of One's & twos & zeros	At least (5) twos with any other number	Any time there are (3) threes with any other combination of numbers
		Any combination of twos, threes, and one's	Any combination of numbers with at least (1) four
	<i>(unless (5) twos-then moderate)</i>	<i>(unless (3) threes-then significant)</i>	
BLUE	YELLOW	ORANGE	RED



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- ⁵ [60 Fed. Reg. at 10707](#) ("Overuse by livestock has been a major factor in the degradation and modification of riparian habitats in the United States ... Livestock grazing in riparian habitats typically results in reduction of plant species diversity and density, especially of palatable plants like willow and cottonwood saplings.")
- ⁶ [77 Fed. Reg. at 10,818](#) ("Impacts associated with roads and bridges, changes in water quality, improper livestock grazing, and recreation have altered or destroyed many of the rivers, streams, and watershed functions in the ranges of the spikedace and loach minnow.")
- ⁷ [79 Fed. Reg. at 38718](#) ("We found numerous effects of livestock grazing that have resulted in the historical degradation of riparian and aquatic communities that have likely affected northern Mexican and narrow-headed gartersnakes.")
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2026 Cattle Impact Surveys of Critical Habitat Within Areas Closed to Grazing Along the Upper Verde River in Prescott National Forest

Center for Biological Diversity
April 2026

From February 18-22, 2025, and from March 9-10, 2026, the Center for Biological Diversity conducted systematic surveys of designated critical habitat on the upper Verde River allotments of Prescott National Forest, to assess the degree of cattle impacts and to document unauthorized cattle (See **Appendix A** for survey methodology). The impetus of these surveys was to obtain updated documentation of riparian ecosystem conditions following completion of a 3-year court settlement to remove unauthorized cattle from along the Verde River, which expired in 2024.

The Center herein documents evidence of livestock presence in areas designated closed to livestock and significant, extensive cattle damage to this important riparian zone designated as critical for yellow-billed cuckoo, narrow-headed garter snake, and spikedace recovery. In 2026, 40% of the 33.75 miles surveyed along the upper Verde showed moderate to significant damage to critical habitat by cattle (See Table 1). Although there are still no cattle authorized in the riparian corridor of the Verde River, all surveyed allotments in the Chino Valley Ranger District showed escalation of cattle damage in 2025 and continuing in 2026, since our previous court settlement ended (See Table 2, Figures 1-12).

Center surveys reveal that grazing exclosures are failing to prevent livestock intrusion and damage and are thereby failing to protect the Primary Constituent Elements (PCEs) or Physical and Biological Features (PBFs) of endangered species habitat, defined by FWS as required to ensure survival, reproduction, and recovery of endangered species. For example, cuckoos require dense, multi-layered and regenerating riparian vegetation (e.g., cottonwood, willow, mesquite) for nesting, cover, and shade and an herbaceous understory (e.g., sedges, grasses) for foraging or cover. Standing water with low levels of pollutants (e.g., sediments, heavy metals, pesticides) is required to support invertebrates and fish prey base for narrow-headed garter snakes. Stable banks and channels are required to prevent soil loss, erosion and sedimentation of streams, all of which can irreversibly alter riparian ecosystems and eliminate habitat features required by native fish.

Examples of degradation of critical habitat caused by livestock documented herein through photographs, maps and tables include: browsed woody streamside recruitment; trails meandering through riparian zones; streamside impacts resulting in shearing of banks into vertical surfaces; diminished grass and herbaceous growth; myriad instances of wallows and trampled, bare soils; removal of riparian vegetation and adjacent understory; and pervasive trampling and soil disturbances in riparian drainages and uplands.

All areas shown in images herein are designated critical habitat and designated by BLM and FWS as cattle-free. The Center's documentation of cattle impacts in riparian areas demonstrates that the impacts of grazing in 2026 exceed those identified in our 2022 and 2025 surveys for most of the grazing allotments of the upper Verde River.

Table 1. Critical habitat survey miles impacted by cattle on the Upper Verde River allotments, Prescott National Forest, in 2026.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Chino Valley Ranger District	15.44	45.7%	4.73	14.0%	11.34	33.6%	2.25	6.7%	33.75
Antelope Hills	12.46	100.0%		0.0%		0.0%		0.0%	12.46
China Dam		0.0%		0.0%	3.09	100.0%		0.0%	3.09
Horseshoe	0.98	28.5%	1.84	53.6%	0.61	17.9%		0.0%	3.43
Muldoon	1.66	59.2%	0.80	28.3%	0.35	12.5%		0.0%	2.81
Perkinsville		0.0%		0.0%	0.22	16.5%	1.10	83.5%	1.32
Sand Flat		0.0%		0.0%	1.76	100.0%		0.0%	1.76
West Bear/Del Rio	0.33	3.7%	2.09	23.5%	5.31	59.8%	1.15	12.9%	8.87

Table 2. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Upper Verde River allotments, Prescott National Forest, in 2019, 2022, and 2025-2026.

District/ Allotment	2019	2022	2025	2026
Chino Valley Ranger District	28%	7%	22%	40%
Antelope Hills	5%	0%	0%	0%
China Dam	40%	16%	85%	100%
Horseshoe	91%	0%	0%	18%
Muldoon	49%		0%	12%
Perkinsville	0%	56%	100%	100%
Sand Flat	0%	15%	83%	100%
Walnut Creek	100%			
West Bear/Del Rio	8%	0%	24%	73%

Muldoon Allotment

2025

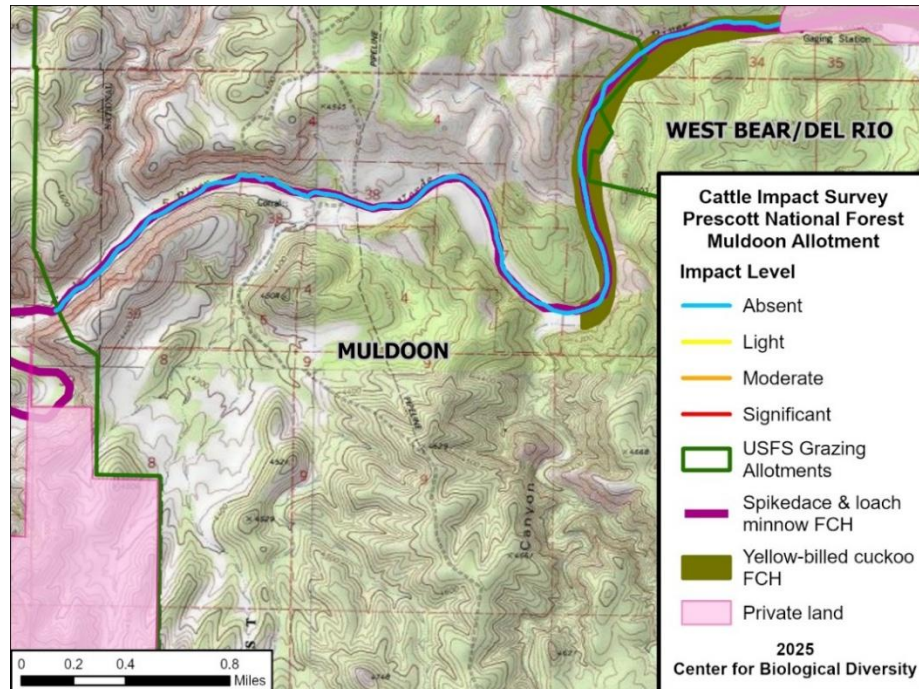


Figure 1. Cattle impacts in off-limits areas of the Muldoon allotment in 2025.



No cattle impacts were documented in off-limits areas on Muldoon allotment in 2025.
34.883365, -112.357288. February 18, 2025.

2026

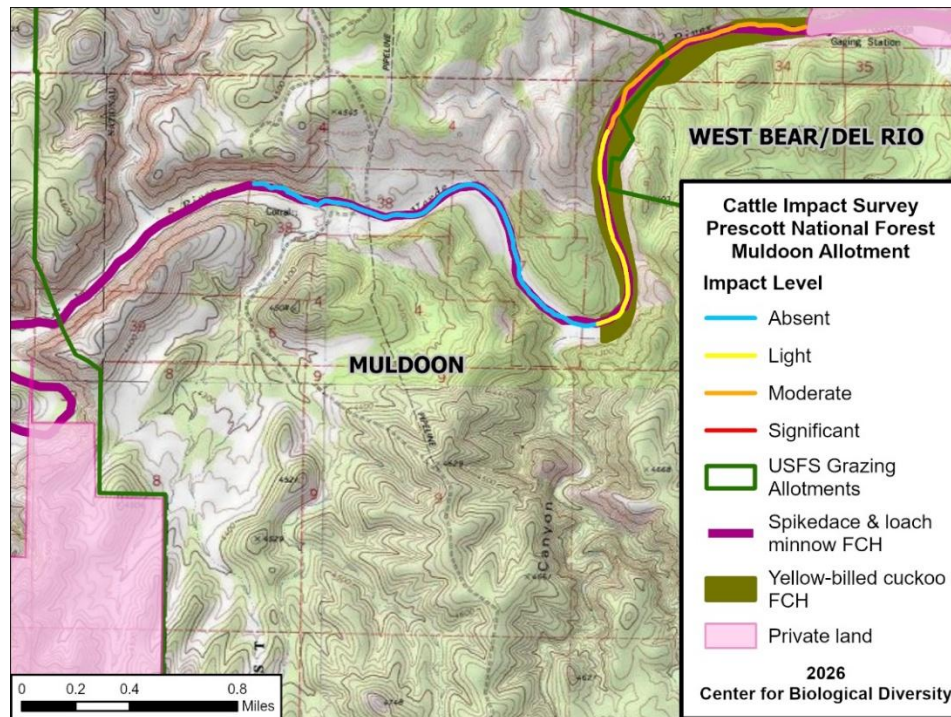


Figure 2. Cattle impacts in off-limits areas of the Muldoon allotment in 2026.



Grazed groundcover and cattle feces within off-limits critical habitat on the Muldoon allotment. 34.887126, -112.357256. March 9, 2026.



Cattle trail with fresh cattle tracks within off-limits critical habitat on the Muldoon allotment. 34.881676, -112.356776. March 9, 2026.

West Bear/Del Rio Allotment

2025

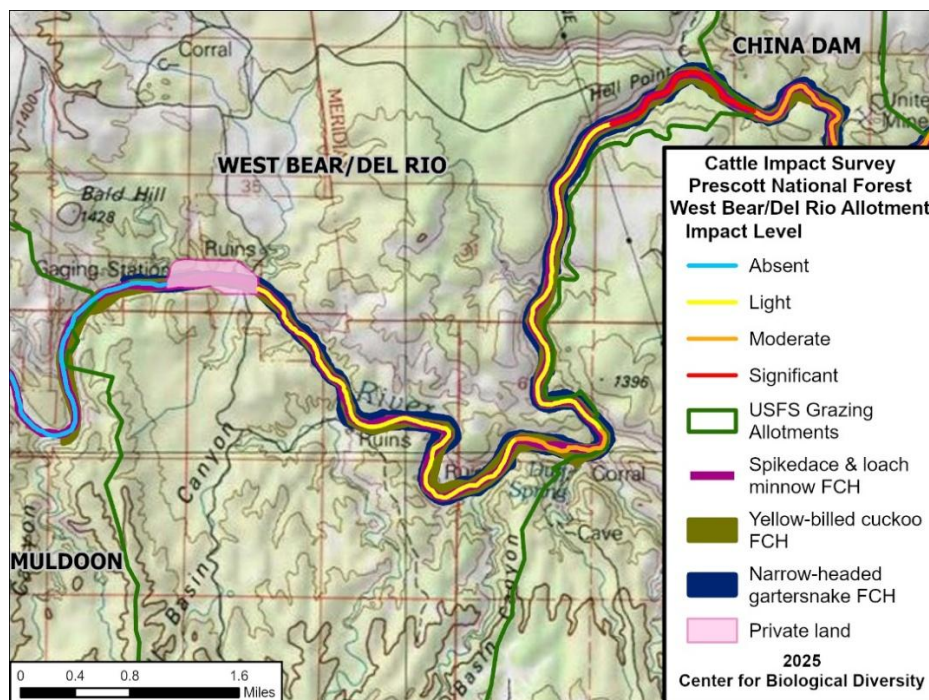


Figure 3. Cattle impacts in off-limits areas of the West Bear/Del Rio allotment in 2025.



Trampled backwaters with grazed riparian vegetation within off-limits critical habitat on the West Bear/Del Rio allotment. 34.877401, -112.292186. February 18, 2025.



Cattle feces of various ages within off-limits critical habitat on the West Bear/Del Rio allotment. 34.878246, -112.297438. February 18, 2025.



Cattle tracks and feces within off-limits critical habitat on the West Bear/Del Rio allotment. 34.877824, -112.293696. February 18, 2025.



Grazed understory vegetation and a concentration of cattle feces within off-limits critical habitat on the West Bear/Del Rio allotment. 34.903816, -112.294040. February 18, 2025.



Removal of understory vegetation and significant soil disturbances within off-limits critical habitat on the West Bear/Del Rio allotment. 34.912854, -112.285663. February 18, 2025.



Significant soil disturbances, groundcover removal, and fresh cattle tracks within off-limits riparian critical habitat on the West Bear/Del Rio allotment. 34.917386, -112.276736. February 18, 2025.



An area adjacent to the riparian zone, trampled and denuded of vegetation with cattle tracks and feces, within off-limits riparian critical habitat on the West Bear/Del Rio allotment. 34.916542, -112.279448 (2). February 18, 2025.



Significant soil disturbances, groundcover removal, and fresh cattle tracks and feces within off-limits riparian critical habitat on the West Bear/Del Rio allotment. 34.916880, -112.275775. February 18, 2025.

2026

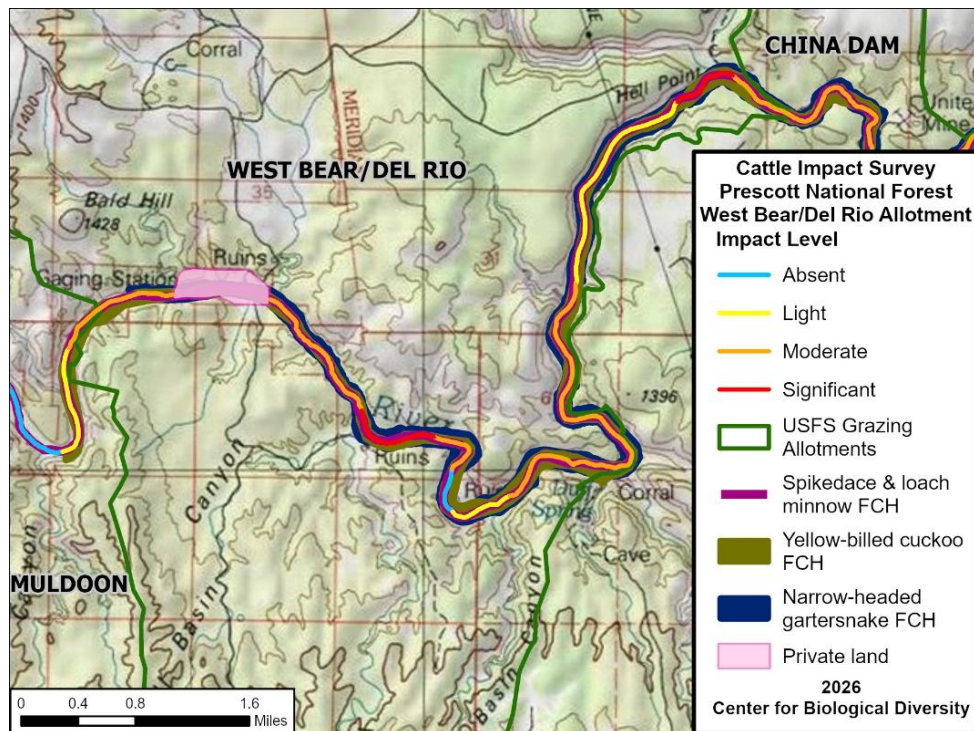


Figure 4. Cattle impacts in off-limits areas of the West Bear/Del Rio allotment in 2026.



Significant soil disturbances, groundcover removal, and cattle tracks and feces within off-limits critical habitat on the West Bear/Del Rio allotment. 34.890593, -112.327336. March 9, 2026.



Significant soil disturbances and riparian vegetation removal within off-limits critical habitat on the West Bear/Del Rio allotment. 34.880567, -112.316539. March 9, 2026.



Cattle trails and significant trampling and grazing of vegetative understory within off-limits critical habitat on the West Bear/Del Rio allotment. 34.888173, -112.325473. March 9, 2026.



Extensive, significant groundcover trampling and removal within off-limits critical habitat on the West Bear/Del Rio allotment. 34.880541, -112.310436. March 9, 2026.



Extensive soil disturbances and significant groundcover trampling and removal within off-limits critical habitat on the West Bear/Del Rio allotment. 34.884623, -112.321826. March 9, 2026.



Another expanse of soil disturbances, groundcover trampling and vegetation removal within off-limits critical habitat on the West Bear/Del Rio allotment. 34.881609, -112.320693. March 9, 2026.



Well-worn cattle trails and riparian vegetation removal within off-limits riparian critical habitat on the West Bear/Del Rio allotment. 34.882961, -112.294772. March 9, 2026.



Cattle linger around a denuded, eroding slope within off-limits riparian critical habitat on the West Bear/Del Rio allotment. 34.915946, -112.272823. March 9, 2026.

China Dam Allotment

2025

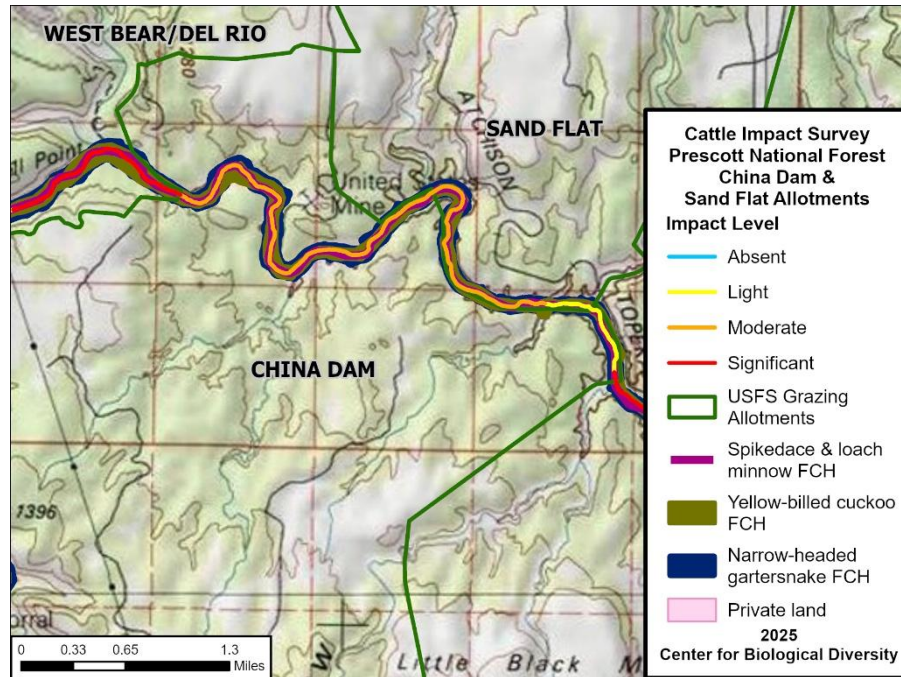


Figure 5. Cattle impacts in off-limits areas of the China Dam allotment in 2025.



Cattle feces in a grazed channel of off-limits riparian critical habitat on the China Dam allotment. 34.913727, -112.265509. February 19, 2025.



**Cattle feces in grazed, off-limits riparian critical habitat on the China Dam allotment.
34.916570, -112.262282. February 19, 2025.**



**Cattle feces in grazed, off-limits riparian critical habitat on the China Dam allotment.
34.911136, -112.258746. February 19, 2025.**



Significant soil disturbances, trampling, vegetation removal and heavy cattle fecal loads within off-limits critical habitat on the China Dam allotment. 34.914064, -112.259192 (2). February 19, 2025.



Cattle trails and feces within off-limits critical habitat on the China Dam allotment. 34.907026, -112.257373. February 19, 2025.



Vegetation trampling and removal with heavy cattle fecal loads deposited within off-limits critical habitat on the China Dam allotment. 34.908856, -112.252704. February 19, 2025.



Continued examples of extensive, significant soil disturbances and trampling of off-limits critical habitat on the China Dam allotment. 34.909616, -112.248240 (2). February 19, 2025.



Continued cattle impacts to off-limits critical habitat on the China Dam allotment.
34.908546, -112.254592. February 19, 2025.

2026

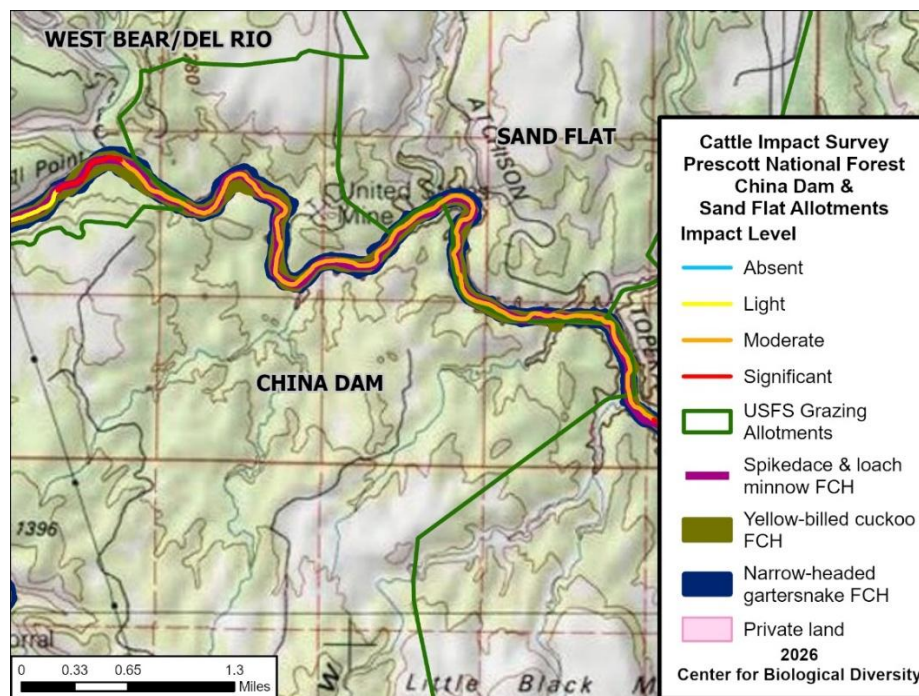


Figure 6. Cattle impacts in off-limits areas of the China Dam allotment in 2026.



Fresh cattle tracks and old feces in heavily grazed, off-limits critical habitat on the China Dam allotment. 34.913701, -112.267785. March 10, 2026.



An expanse of heavily grazed off-limits critical habitat, with fresh cattle tracks, on the China Dam allotment 34.915524, -112.261940. March 10, 2026.



An area devoid of herbaceous groundcover, with copious cattle feces, in off-limits critical habitat on the China Dam allotment. 34.915585, -112.265269. March 10, 2026.



A trail with heavy cattle tracks runs through an area of significant soil disturbances and groundcover removal in off-limits critical habitat on the China Dam allotment. 34.913244, -112.258736. March 10, 2026.



An established cattle trail, with tracks and feces, continues through off-limits critical habitat on the China Dam allotment. 34.912612, -112.244192. March 10, 2026.



Cattle sign continues through off-limits critical habitat designations on the China Dam allotment. 34.915894, -112.263930. March 10, 2026.



Significant soil disturbances surround a well-used trail with recent cattle tracks in the off-limits critical habitat designation on the China Dam allotment. 34.914909, -112.260909. March 10, 2026.

Sand Flat Allotment

2025

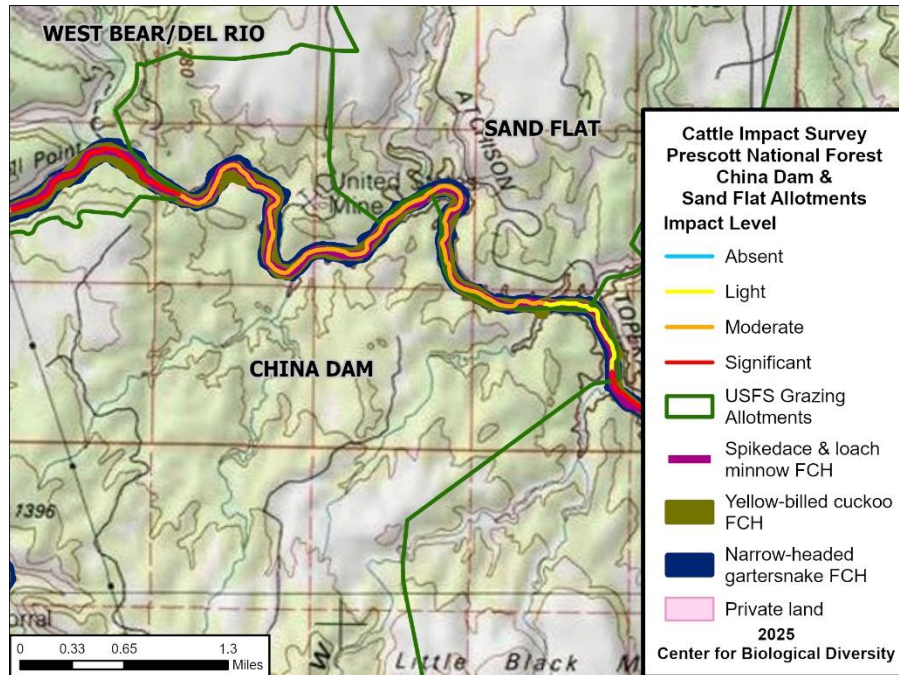


Figure 7. Cattle impacts in off-limits areas of the Sand Flat allotment in 2025.



Significant riparian vegetation removal and streambank trampling within off-limits critical habitat on the Sand Flat allotment. 34.914369, -112.241097. February 19, 2025.



Fresh cattle tracks and old feces along a trail in off-limits critical habitat on the Sand Flat allotment. 34.914312, -112.238908. February 19, 2025.



Cattle feces of various ages in off-limits critical habitat on the Sand Flat allotment. 34.910575, -112.239466. February 19, 2025.



Heavy fecal loads amongst trampled riparian vegetation within off-limits critical habitat on the Sand Flat allotment. 34.904325, -112.230686. February 19, 2025.



Continued heavy fecal loads amongst trampled riparian vegetation within off-limits critical habitat on the Sand Flat allotment. 34.904170, -112.225150. February 19, 2025.

2026

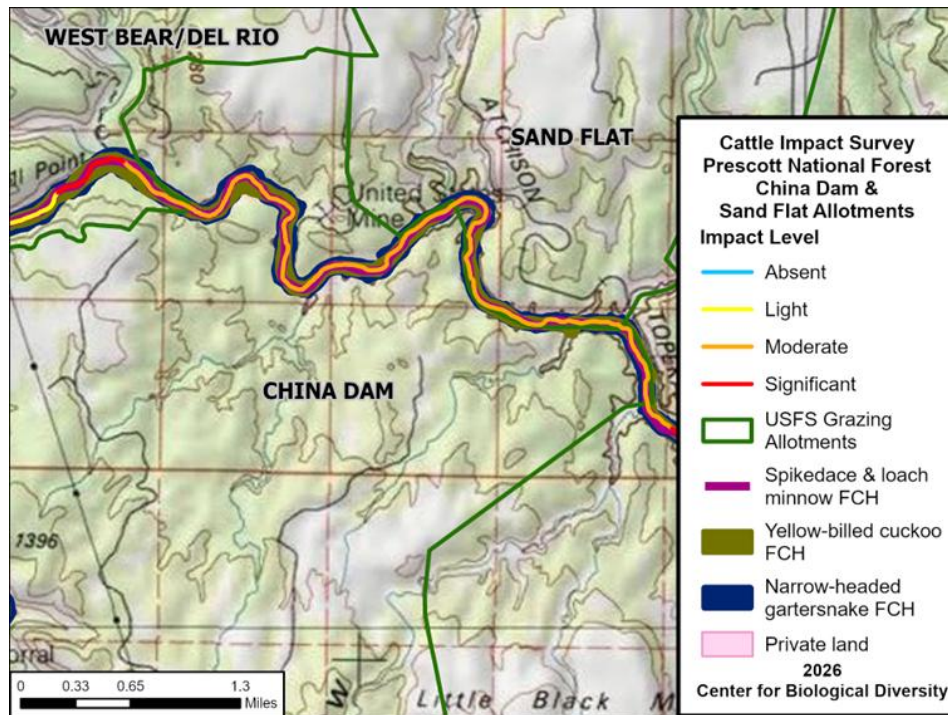


Figure 8. Cattle impacts in off-limits areas of the Sand Flat allotment in 2026.



Significant soil degradation and loss of herbaceous groundcover within off-limits critical habitat on the Sand Flat allotment. 34.910773, -112.239630. March 10, 2026.



A cow actively grazes within off-limits critical habitat on the Sand Flat allotment. 34.906585, -112.238472. March 10, 2026.



Significant soil degradation and loss of herbaceous groundcover along the riparian zone and within off-limits critical habitat on the Sand Flat allotment. 34.905051, -112.235236. March 10, 2026.



Significant soil degradation and loss of herbaceous groundcover within off-limits critical habitat on the Sand Flat allotment. 34.902193, -112.222018. March 10, 2026.



Significant soil degradation and loss of herbaceous groundcover along the riparian zone within off-limits critical habitat on the Sand Flat allotment. 34.912680, -112.239114. March 10, 2026.



Continued example of significant soil degradation and loss of herbaceous groundcover within off-limits critical habitat on the Sand Flat allotment. 34.914777, -112.240642. March 10, 2026.



Continued example of trampling and removal of herbaceous vegetation in off-limits critical habitat on the Sand Flat allotment. 34.904311, -112.232660. March 10, 2026.

Perkinsville Allotment

2025

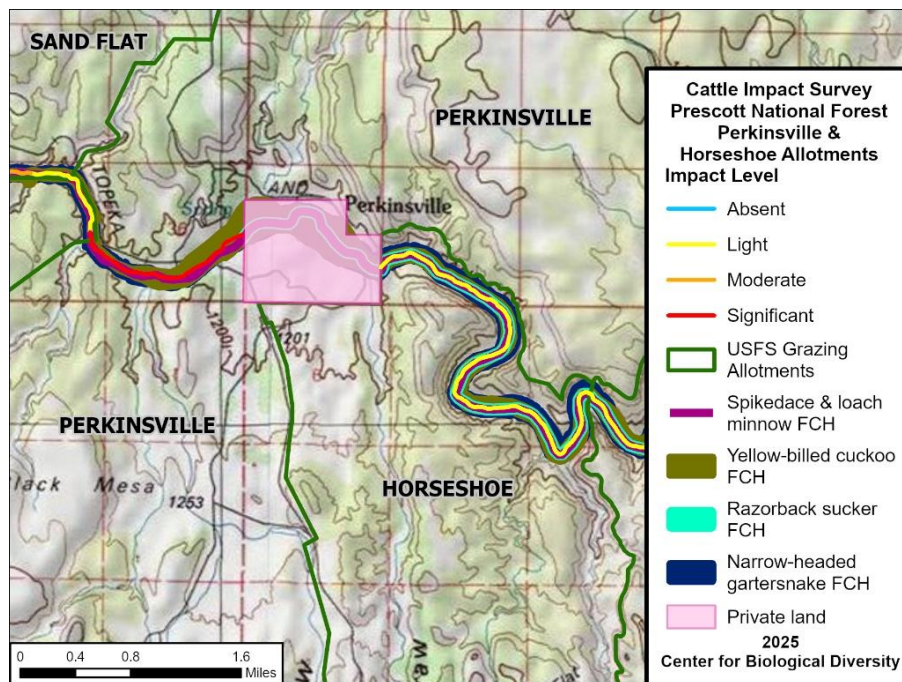


Figure 9. Cattle impacts in off-limits areas of the Perkinsville allotment in 2025.



Fresh cattle feces within off-limits critical habitat on the Perkinsville allotment. 34.895251, -112.218770. February 19, 2025.



Trampling and grazing of herbaceous groundcover within off-limits critical habitat on the Perkinsville allotment. 34.894850, -112.217705. February 19, 2025.



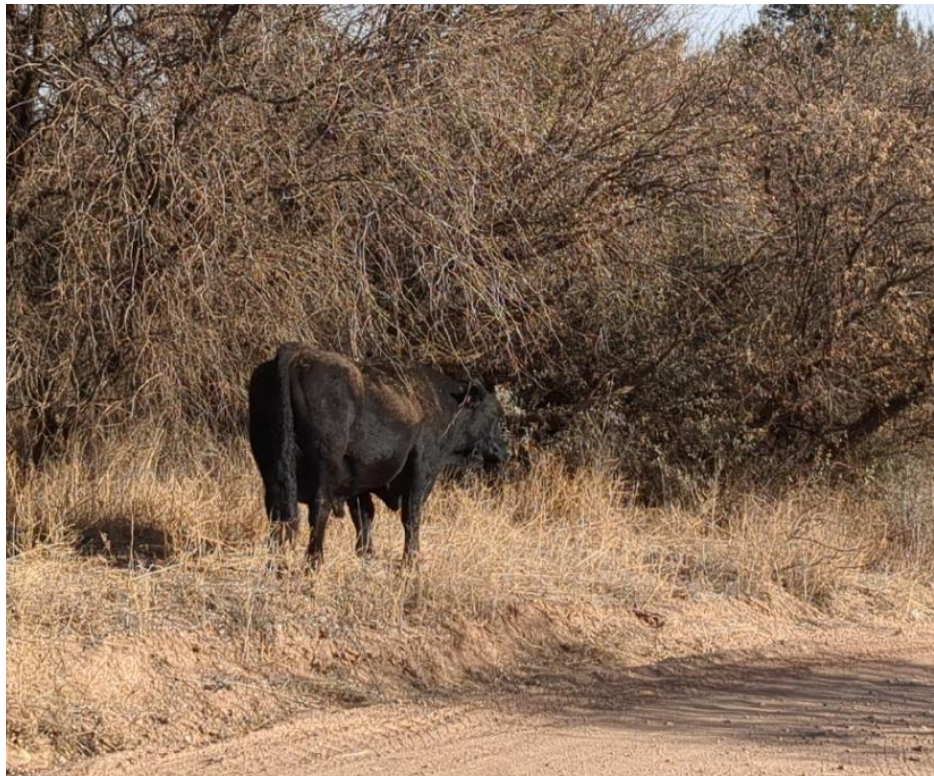
Trampled herbaceous groundcover within off-limits riparian critical habitat on the Perkinsville allotment. 34.894111, -112.215259. February 19, 2025.



Cattle actively grazing within off-limits critical habitat on the Perkinsville allotment. 34.894153, -112.214221. February 19, 2025.



Another example of trampled herbaceous groundcover within off-limits riparian critical habitat on the Perkinsville allotment. 34.894625, -112.207140. February 19, 2025.



Cattle actively grazing within off-limits critical habitat on the Perkinsville allotment. 34.895976, -112.206307. February 19, 2025.



Sensitive backwater habitat grazed and trampled within off-limits riparian critical habitat on the Perkinsville allotment. 34.896680, -112.204050. February 19, 2025.

2026

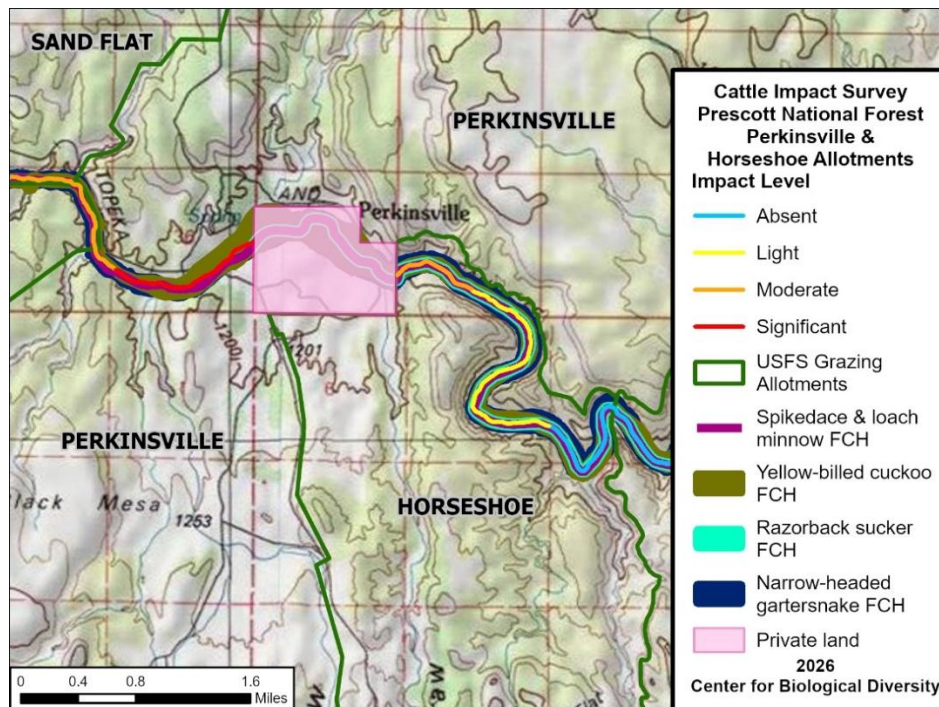


Figure 10. Cattle impacts in off-limits areas of the Perkinsville allotment in 2026.



Significant soil degradation and loss of herbaceous groundcover along the riparian zone within off-limits critical habitat on the Perkinsville allotment. 34.894168, -112.216096. March 10, 2026.



Significant soil degradation and loss of herbaceous groundcover along the riparian zone within off-limits critical habitat on the Perkinsville allotment. 34.895840, -112.219326. March 10, 2026.



Significant soil degradation and loss of herbaceous groundcover at the riparian zone within off-limits critical habitat on the Perkinsville allotment. 34.894111, -112.213984. March 10, 2026.



Significant soil degradation and loss of herbaceous groundcover at the riparian zone within off-limits critical habitat on the Perkinsville allotment. 34.893999, -112.213418. March 10, 2026.



**Fresh cattle feces in another expanse of significant soil degradation and loss of herbaceous groundcover within off-limits riparian critical habitat on the Perkinsville allotment.
34.893154, -112.209332. March 10, 2026.**



**Fresh cattle feces within off-limits riparian critical habitat on the Perkinsville allotment.
34.893534, -112.208113. March 10, 2026.**

Horseshoe Allotment

2025

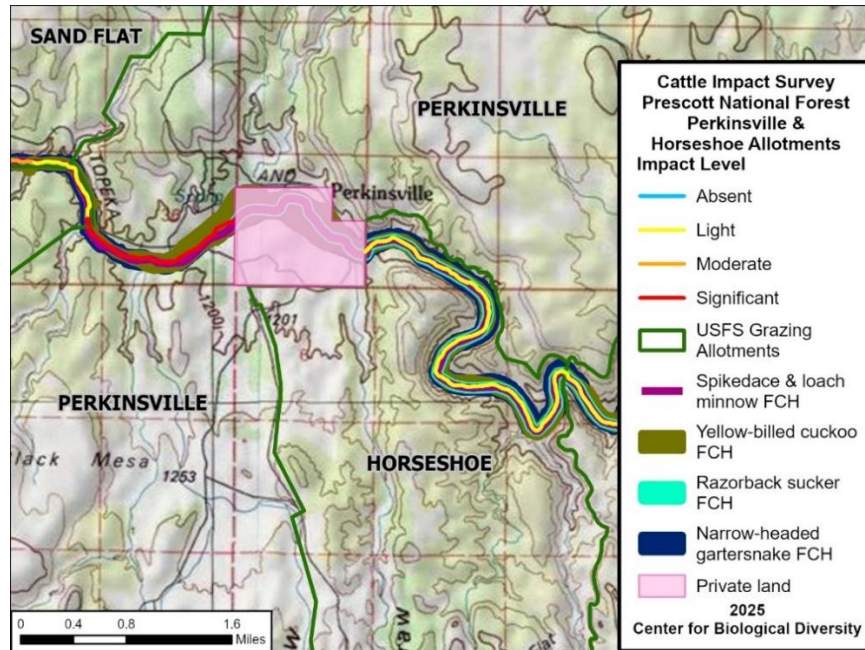


Figure 11. Cattle impacts in off-limits areas of the Horseshoe allotment in 2025.



Trampling of streambank and riparian vegetation within off-limits riparian critical habitat on the Horseshoe allotment. 34.895854, -112.178280. February 22, 2025.



Cattle feces within off-limits riparian critical habitat on the Horseshoe allotment. 34.889659, -112.167705. February 22, 2025.



Cattle feces, trailing, and soil disturbances within off-limits riparian critical habitat on the Horseshoe allotment. 34.876479, -112.162350. February 22, 2025.



Cattle feces and vegetation trampling within off-limits riparian critical habitat on the Horseshoe allotment. 34.893996, -112.175396. February 22, 2025.

2026

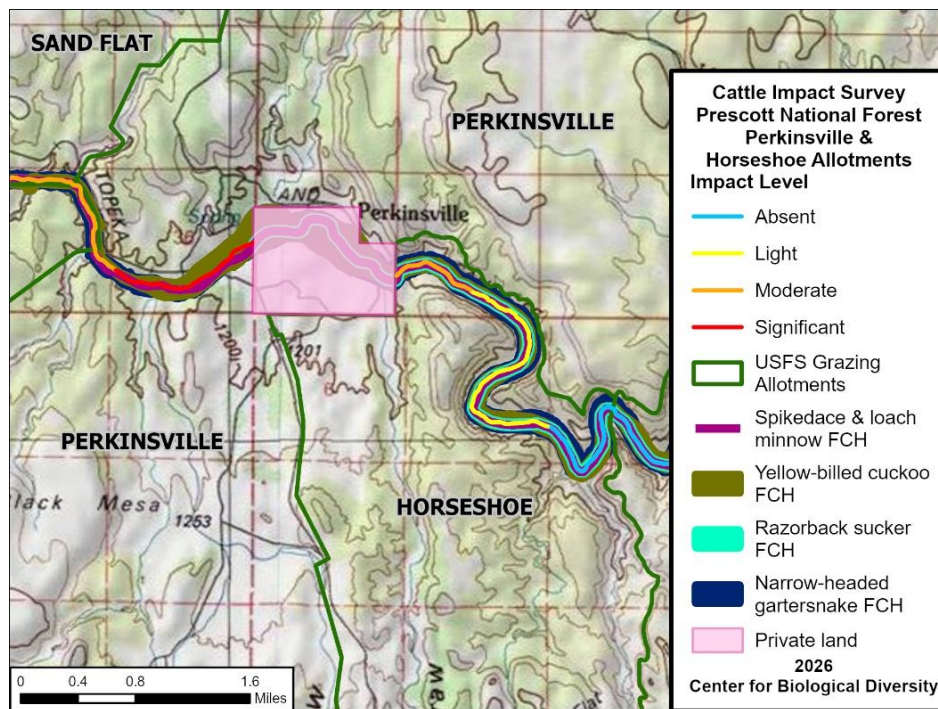


Figure 12. Cattle impacts in off-limits areas of the Horseshoe allotment in 2026.



Trampled streambanks and vegetation removal within off-limits riparian critical habitat on the Horseshoe allotment. 34.896280, -112.180373. March 10, 2026.



Fresh cattle hoofprints amongst trampled and grazed riparian vegetation within off-limits critical habitat on the Horseshoe allotment. 34.896280, -112.180373. March 10, 2026.



Trampled and grazed riparian vegetation with cattle feces within off-limits critical habitat on the Horseshoe allotment. 34.895896, -112.178746. March 10, 2026.



Significant cattle trampling of an off-limits critical habitat designation on the Horseshoe allotment. 34.880576, -112.166867. March 10, 2026.

Appendix A. Survey Methods

Since 2017, Center for Biological Diversity field biologists have conducted field assessments of livestock grazing impacts to aquatic and riparian critical habitat in the Southwest, including impacts to the physical and biological features that are essential to the conservation of endangered and threatened species.

Field assessments characterize livestock grazing impacts to aquatic and riparian critical habitat and document whether livestock are present in critical habitats from which they have been excluded under previous agency decisions. These transect assessments characterize, photograph, and rank damage from livestock grazing to primary constituent elements (PCEs) and physical or biological features (PBFs) of critical habitat. This includes (1) removal of herbaceous vegetation and grasses, and (2) multi-year woody stems and regeneration, (3) severity and extent of soil and ground disturbances, (4) severity and extent of streambank degradation, as well as checking functionality of grazing exclosures.

On an annual basis, survey data are recorded and databased with updated, georeferenced photographs. Using a standardized protocol, surveyors record:

- (1) severity of grazing impacts on herbaceous vegetation and grasses;
- (2) severity of browsing impacts on streamside woody regeneration;
- (3) severity of ground disturbances from trailing, trampling, and wallowing;
- (4) extent of ground disturbances from trailing, trampling, and wallowing;
- (5) severity of streambank degradation; and
- (6) extent of streambank degradation.

Each survey is broken down into ¼-½ mile field-delineated segments of designated critical habitat based on topography, access, and trends in severity of cattle impacts. At each segment endpoint, a condition score is recorded for each of the six impact categories along a range of 0 to 4 based on the severity and extent of the impact (see Table A-1 below). A segment is rated 0 for a particular category if no evidence of impact is observed, 1 if impacts are limited, 2 if impacts are light and scattered, 3 if impacts are moderate and widespread, and 4 if impacts are severe and pervasive. Following field surveys of designated stream reaches, each segment's "overall impact level" (defined as absent, light, moderate or significant) is calculated. To determine overall impact level, condition severity scores for each segment endpoint are collated and weighted (see table A-2 below).

Multiple georeferenced photographs are taken per survey segment to document and corroborate condition scores. Overall livestock impacts are summarized and mapped by allotment and critical habitat stream segment. All data are stored in a GIS database alongside hundreds of corresponding photographs documenting damage to critical habitat stream reaches. These data are the most comprehensive, quantifiable, and up-to-date assessments of riparian conditions and cattle occupancy for each area surveyed. Transect field assessments provide the best available scientific information about the condition of aquatic and riparian critical habitats in the Southwest.

Table A-1. Condition descriptors and severity score guidelines for the six cattle impact categories used in stream assessment surveys.

Category	Condition 1	Condition 2	Condition 3	Condition 4
GRAZING EVIDENCE ON GRASSES AND HERBACEOUS GROWTH	LIMITED Less than 1% of the <u>grasses</u> impacted.	LIGHT Few patches of grazed areas, selective grazing in patches.	MODERATE Multiple grass patches grazed, more than 20% of grass impacted in patches.	SEVERE Multiple patches grazed, heavy grazing pressure (more than 30%) in patches.
BROWSE PRESSURE/WOODY STEMS	LIMITED Less than 1% of woody stems impacted.	LIGHT Browsing <u>limited</u> to multi-year stems.	MODERATE Browse pressure on near channel woody recruitment.	SEVERE Multiple green-line or near-channel recruitment browse.
GROUND COVER DISTURBANCE/INTENSITY	LIMITED Only transient evidence of use; no examples of sustained use.	LOW Trailing apparent and/or cow trails developing.	MODERATE Multiple, well-worn trails with examples of wallows and rutting. Bare soils developing.	SEVERE Trails, plus wallows, rutting and soil compaction leading to more denuded ground. Large areas of bare soils.
GROUND COVER DISTURBANCE/EXTENT	LIMITED Isolated example of ground disturbance. Evidence of only transient use.	SCATTERED Trails or other disturbances in more than one location throughout segment.	MODERATE Trails meander through entire segment, three or more examples of bare soil from cattle across segment (see above).	PERVASIVE Multiple locations of disturbance and multiple types of disturbances including severe, moderate and low (see above).
STREAMBANK DEGRADATION/INTENSITY	LIMITED Cattle <u>sign</u> present but no obvious signs of bank degradation.	LOW Trails <u>lead</u> to streambanks and water, evidence of cows in stream.	MODERATE Trailing creating unstable banks with evidence of chiseling, shearing, or crumbling via hoof action.	SEVERE Trailing leads to chutes, <u>shearing</u> and/or removal of portions of the streambank. Vertical surfaces may be present. Evidence of cows lingering in stream.
STREAMBANK DEGRADATION/EXTENT	LIMITED Isolated example of streambank entry.	SCATTERED Low to moderate bank degradation in more than one location.	MODERATE Three or more examples of low to moderate degradation across segment (see above).	PERVASIVE Multiple examples of low, moderate, <i>and</i> severe degradation (see above).

Table A-2. Weighting table for overall impact levels of stream reach segments based on condition scores (0-4) from the six categories of cattle impacts.

ABSENT	LIGHT IMPACT	MODERATE IMPACT	SIGNIFICANT IMPACT
ALL ZEROS	ANY COMBINATION OF ONE'S & TWOS & ZEROS	AT LEAST (5) TWOS WITH ANY OTHER NUMBER	ANY TIME THERE ARE (3) THREES WITH ANY OTHER COMBINATION OF NUMBERS
		ANY COMBINATION OF TWOS, THREES, AND ONE'S	ANY COMBINATION OF NUMBERS WITH AT LEAST (1) FOUR
	<i>(UNLESS (5) TWOS-` then moderate)</i>	<i>(UNLESS (3) THREES- then significant)</i>	

Surveyor Qualifications-

The Center's Cattle Impact Surveys (CIS) are led by Todd Shulke and Chris Bugbee and our data are collected by a team of professional biologists, ecologists, and botanists.

Mr. Schulke is cofounder of the Center for Biological Diversity and oversees the Center's forest protection and restoration program. Mr. Schulke holds a bachelor's degree in environmental studies from Evergreen State College and has a background in youth wilderness education. He is a board member of the New Mexico Wilderness Alliance and Gila WoodNet. He also sits on the Western Governors' Forest Health Advisory Committee, Arizona Governor's Forest Health Committee, Collaborative Forest Landscape Restoration Program Advisory Committee, and New Mexico Forest and Watershed Health Planning Committee.

Mr. Bugbee obtained his Master of Science degree from the University of Florida in 2007, majoring in interdisciplinary ecology with a specialty focus in the field of wildlife conservation. Ever since, Mr. Bugbee has worked as a professional biologist_ in a variety of freshwater and arid lands ecosystems on public lands_ for multiple State and Federal agencies (including U.S. Geological Survey and U.S. Forest Service), universities, consulting firms and non-profit organizations. He has conducted focused biological surveys and scientific research on fish, amphibians, reptiles, and mammals, including invasive species and on rare, protected species. He has been with the Center since 2020.

To complete hundreds of survey miles each year across the Southwest, the Center hires contract biologists and trains them at length in survey protocol and data collection. Contractors must either possess a master's degree in biology, botany or forestry or hold a bachelor's degree in a similar field and have at least three years of relevant experience such as conducting biological inventories, monitoring vegetation, or conducting stream restoration. One exception was made to

help finish our 2025 survey season. This was a recent graduate from Cornell University who majored in Environment and Sustainability with a focus in Environmental Biology & Applied Ecology, made Dean's List for seven semesters, and is currently applying to graduate school with a research proposal involving cattle impacts to desert ecosystems specifically.

Collectively, our current team of contractor surveyors has: worked as a biologist for U.S. Fish and Wildlife Service (FWS), conducted endangered fish monitoring with FWS, worked as a biologist for the Arizona Game and Fish Department, conducted stream restoration and riparian tree planting in collaboration with FWS and USFS, installed and read long-term vegetation monitoring plots for National Park Service, conducted bird surveys for Audubon Society, and has conducted rare plant surveys, spring/seep surveys, standard forestry measurements, and rangeland inventories (quadrats and belt transects to quantify cover types and plant species richness and abundance, vegetation mapping, soil surveys to assess annual production) under their own registered biological consulting LLC

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6 **IN THE UNITED STATES DISTRICT COURT**
7 **FOR THE DISTRICT OF ARIZONA**
8

9 Center for Biological Diversity, et al.,

No. CV-24-00141-TUC-RM

10 Plaintiffs,

ORDER

11 v.

12 United States Bureau of Land Management,
13 et al.,

14 Defendants.

15 Pending before the Court is Plaintiffs’ Motion for Summary Judgment on Claim 1
16 and Claim 2 of the Second Amended Complaint (Doc. 28), and Defendants’ Cross-Motion
17 for Summary Judgment on Claim 1 and Claim 2 of the Second Amended Complaint (Doc.
18 31). The Motions are fully briefed. (Docs. 32, 36, 43.) For the following reasons, the Court
19 will grant Plaintiffs’ Motion, and deny Defendants’ Motion.

20 In Claim 1, Plaintiffs challenge a 2018 Letter of Concurrence issued by the Fish and
21 Wildlife Service (“FWS”) finding that reauthorization of livestock grazing on the
22 Horseshoe Allotment of the Agua Fria National Monument was not likely to adversely
23 affect any threatened or endangered species, or adversely modify their critical habitat.
24 (Doc. 47 at 43.)¹ In Claim 2, Plaintiffs challenge a 2024 Letter of Concurrence by the FWS
25 making the same finding. (*Id.* at 44.) Plaintiffs assert in both Claim 1 and Claim 2 that the
26 Bureau of Land Management independently violated the law by relying upon each deficient
27 Letter of Concurrence. (Doc. 47 at 43-44.)

28 ¹ All citations to the record herein refer to the page numbers generated by the Court’s
electronic case management system.

1 I. Statutory Framework

2 The Endangered Species Act (“ESA”) “was enacted, in relevant part, to provide for
3 the conservation of endangered and threatened species, as well as the ecosystems upon
4 which such species depend.” *Ctr. for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946,
5 950 (D. Ariz. 2017), *amended in part*, No. CV-14-02506-TUC-RM, 2017 WL 8788052
6 (D. Ariz. Oct. 25, 2017) (citing 16 U.S.C. § 1531(b)). The Secretary must designate
7 “critical habitat” for species designated as endangered or threatened (“listed species”),
8 consisting of the areas containing natural features that are “essential to the conservation of
9 the species” and which “may require special management considerations or protection.” 16
10 U.S.C. § 1532(5)(A).

11 The ESA requires “federal agencies authorizing, funding, or carrying out actions
12 that may affect listed species or their critical habitat—so-called ‘action agencies’—to
13 engage in consultation” with either the FWS, for terrestrial species, or the National Marine
14 Fisheries Service, for marine species. *Pacificans for a Scenic Coast v. California Dep’t of*
15 *Transportation*, 204 F. Supp. 3d 1075, 1083 (N.D. Cal. 2016) (citing 16 U.S.C. §
16 1536(a)(2)). Federal agencies must ensure that their action “is not likely to jeopardize the
17 continued existence” of any listed species “or result in the destruction or adverse
18 modification” of the critical habitat of any listed species. 16 U.S.C. § 1536(a)(2).

19 If critical habitat or listed species are present in an area of agency action, the agency
20 undertaking the action generally prepares a Biological Assessment to determine whether
21 the listed species or critical habitat is “likely to be affected” by the proposed action. *Nat.*
22 *Res. Def. Council v. Haaland*, 102 F.4th 1045, 1055 (9th Cir. 2024). If the action agency
23 determines—and the applicable wildlife management agency concurs—that the proposed
24 action is “not likely to adversely affect listed species or critical habitat, the consultation
25 process is terminated, and no further action is necessary.” *Id.* (citing 50 C.F.R. § 402.13(c)).
26 If the action agency determines that the proposed action is “likely to adversely affect listed
27 species or a critical habitat,” however, formal consultation is required. *Id.* (citing 50 C.F.R.
28 § 402.14(a)-(b)). Formal consultation requires the preparation of a Biological Opinion,

1 which determines whether the proposed action would likely jeopardize a listed species or
 2 critical habitat. *Id.* (citing 16 U.S.C. § 1536(b)(3)(A)). If there is a finding that the proposed
 3 action would jeopardize a listed species or critical habitat, the applicable wildlife
 4 management agency must suggest “reasonable and prudent alternatives” that can be used
 5 to avoid such jeopardization. *Id.* (citing 15 U.S.C. § 1536(b)(3)(A)).

6 After consultation has been completed, the action agency remains subject to an
 7 obligation to reinitiate consultation with the applicable wildlife management agency
 8 “where discretionary Federal involvement or control over the action has been retained or
 9 is authorized by law and . . . new information reveals effects of the action that may affect
 10 listed species or critical habitat in a manner or to an extent not previously considered.” *Id.*
 11 (citing 50 C.F.R. § 402.16(a)). Therefore, even if the underlying agency action is complete,
 12 an agency must still satisfy its obligations . . . including reinitiation of consultation, to the
 13 extent it retains regulatory authority over the action.” *Id.* at 1055-56.

14 **II. Factual Background**

15 Claims 1 and 2 in this action arise from livestock grazing in the Horseshoe
 16 Allotment of the Agua Fria National Monument in central Arizona undertaken by private
 17 parties pursuant to permits issued by the Bureau of Land Management (“BLM”). (Doc. 47
 18 at 43-44.) Plaintiffs are two organizations that focus on species conservation, and each have
 19 members that regularly visit the Agua Fria National Monument to recreate, and to
 20 photograph and study wildlife. (Docs. 28-6, 28-7, 28-8.) Plaintiffs argue that the livestock
 21 grazing permitted by Defendants has caused serious damage to the critical habitat of two
 22 species protected by the ESA—the Gila Chub, a native fish, and the western-yellow-billed
 23 Cuckoo, a migratory bird that winters in South America. (Doc. 28 at 5, 9.) Pursuant to
 24 Section 4 of the ESA,² the Chub has been designated an endangered species, and the
 25 Cuckoo has been designated a threatened species. (FWS03047, FWS04130.) As a result of
 26 these designations, riparian areas along the Agua Fria River have been given the status of
 27 critical habitat for the Cuckoo, and riparian areas along a tributary of the Agua Fria River,

28 ² Section 4 of the ESA directs the Secretary of the Interior to “determine whether any
 species is an endangered or a threatened species[.]” 16 U.S.C. § 1533(a)(1).

1 Silver Creek, contain critical habitat for both the Chub and the Cuckoo. (FWS01280.)

2 The Agua Fria National Monument was designated by Presidential proclamation in
3 2000. (FWS00035.) The Bureau of Land Management (“BLM”) is charged with managing
4 the Monument, including “issuing and administering grazing leases” on its lands.
5 (FWS00036.) Livestock grazing has been allowed, subject to regulation, on Monument
6 lands since its inception. (FWS00042.) In 2006, the U.S. Fish & Wildlife Service
7 completed a Biological Opinion addressing the effects of livestock grazing on the Gila
8 Chub within the Horseshoe Allotment, and that Opinion recognized that livestock overuse
9 may pose a threat to the overall health of the Gila Chub species.³ (FWS00052.) The 2006
10 Biological Opinion explained that the entire Horseshoe Allotment would be “ungrazed for
11 at least the next two years.” (FWS00052.) The pause on livestock grazing in the Horseshoe
12 Allotment ultimately lasted for six years, with grazing resuming only in 2012.
13 (FWS00476.) Within the Silver Creek area specifically, no cattle grazing was authorized
14 between 2005 and 2018. (FWS00818.)

15 In 2018, the BLM sought to issue a new ten-year grazing lease for the entirety of
16 the Horseshoe Allotment. (FWS00718.) In order to comply with its obligation under the
17 ESA to engage in consultation where an agency action “may affect” listed species or critical
18 habitat, the BLM produced a Biological Assessment in October 2018 examining the effects
19 of the proposed livestock grazing. (FWS00720.) The Assessment concluded that the
20 issuance of the lease “may affect but is not likely to adversely affect” either the Chub or
21 the Cuckoo, nor the critical habitat, or proposed critical habitat, of either species.⁴
22 (FWS00756-58.)

23 This finding as to the Chub, Cuckoo, and their associated critical habitat was

24 ³ The Chub and the Cuckoo became listed in different years; the Chub in 2005, and the
25 Cuckoo in 2014. (FWS03045; FWS04130.) Therefore, the 2006 Biological Opinion did
not address the Cuckoo.

26 ⁴ Chub critical habitat was designated at the time it became an endangered species, in 2005.
27 (FWS03046.) Although the Cuckoo became a listed species in 2014, its critical habitat was
not officially designated until 2021. (FWS04946.) Therefore, the 2018 Concurrence and
28 Biological Assessment evaluated the effects to the Cuckoo’s then-proposed critical habitat.
A Biological Assessment must evaluate the effects of the proposed action to both
“designated and proposed critical habitat that may be present in the action area.” 50 C.F.R.
§ 402.02.

1 premised upon the implementation of various conservation measures. (*Id.*) Since the
2 Cuckoo is a migratory bird that spends summers in the riparian areas along the Agua Fria
3 River but departs in the winter, it was planned that livestock would be kept out of Cuckoo
4 critical habitat along the Agua Fria during the summer months, and allowed to graze there
5 only in the winter. (FWS00756-57.) Furthermore, the BLM stated that livestock would be
6 “excluded from approximately 94%” of Chub critical habitat within Silver Creek, and
7 entirely excluded from “the portion of Silver Creek that is currently occupied by Gila
8 Chub.” (FWS00758.) The fence creating protected critical habitat around Silver Creek was
9 supposed to be checked by BLM twice annually in order to ensure that it would be effective
10 at “excluding the livestock from riparian pastures and exclosures.” (FWS00739.) However,
11 at the time of the 2018 Assessment prepared by the BLM, no enclosure fence around the
12 Silver Creek riparian area had yet been built. (*See* FWS00730.)

13 On November 6, 2018, the FWS issued its Concurrence with the Biological
14 Assessment prepared by BLM, thereby ending the consultation process under the ESA for
15 the Horseshoe Allotment grazing lease. (FWS00826.) The FWS agreed with the BLM that
16 livestock grazing “may affect, but is not likely to adversely affect” Cuckoo, Chub, or their
17 associated critical habitat due to the implementation of conservation measures.
18 (FWS00829-30.) In its Concurrence, the FWS wrote that “[t]he new exclosure [fence] will
19 prevent livestock from entering Silver Creek where Gila Chub used to occur,” therefore
20 rendering effects to the Chub or its habitat “discountable.” (FWS00829.) The FWS further
21 stated that livestock use of riparian pastures where Cuckoo critical habitat is located would
22 be restricted to the winter season, when Cuckoo are not present, thereby resulting in
23 “insignificant effects to the [C]uckoo and its habitat.” (FWS00830.)

24 After obtaining FWS’s Concurrence with BLM’s 2018 Biological Assessment,
25 BLM approved the reissuance of a ten-year grazing lease for the Horseshoe Allotment in
26 2020. (FWS00912.) BLM issued that new lease in 2021. (FWS05238.) The 2020 Notice of
27 Final Decision approving the reissuance of the lease listed fences excluding Silver Creek
28 and parts of the Agua Fria River as administrative actions that the BLM “will implement,”

1 but no deadline was set for the completion of those projects. (FWS00928.) The terms and
2 conditions of the new lease issued in 2021 mandated that grazing in the riparian areas of
3 the Agua Fria River take place only between November 1 and March 1, but contained no
4 restrictions on grazing in Silver Creek, where much of the Chub and Cuckoo critical habitat
5 is located. (FWS00528.)

6 On June 14, 2021, one of the Plaintiffs in this action, the Center for Biological
7 Diversity (“the Center”), filed a Notice of Intent to Sue under the ESA. (FWS00953-61.)
8 The Notice explained that the Center’s recent surveys of the Horseshoe Allotment had
9 revealed that cattle grazing on the Allotment had “grossly exceeded utilization of
10 herbaceous riparian areas and [was] chronically occurring outside of the permitted grazing
11 season in riparian areas on the Allotment.” (FWS00957.) The Notice further alleged that
12 “chronic degradation of ecological conditions within designated critical habitat” located in
13 the Allotment was occurring as a result of the cattle grazing. (*Id.*) In light of these
14 observations, the Center believed that both BLM’s 2018 Biological Assessment analyzing
15 the impacts of cattle grazing, and FWS’s 2018 Concurrence agreeing with BLM’s findings,
16 were arbitrary, capricious, and contrary to the ESA. (FWS00961.) The Center suggested
17 that the agencies reinitiate ESA consultation in light of its new findings. (FWS00953.)

18 The Center states that the agencies failed to respond to the June 14, 2021 Notice,
19 and the Center thereafter filed suit “challenging the agencies’ failure to reinitiate
20 consultation in the face of information contradicting the agencies’ 2018 Concurrence.”
21 (Doc. 28 at 10.) After the Center filed suit, BLM sent a “pre-notice” to FWS in July 2022,
22 informing FWS that BLM planned to develop an updated Biological Assessment
23 addressing the effects of cattle grazing on the Horseshoe Allotment and other areas of the
24 Agua Fria National Monument. (FWS01035-36.) Due to the agencies’ decision to reinitiate
25 the consultation process, the Center dismissed its claims without prejudice. (Doc. 28 at 10.)

26 In November 2023, after more than a year had passed since BLM issued its “pre-
27 notice” of its intent to reinitiate ESA consultation and no new Biological Assessment had
28 yet been issued, the Center filed another Notice of Intent to Sue. (FWS01054-1204.) BLM

1 responded with a letter explaining that it was currently in the process of developing an
2 updated Biological Assessment, but failing to establish any date by which BLM planned
3 to finish that Assessment. (FWS01208-09.) As a result, the Center initiated the above-
4 captioned matter on March 12, 2024. (Doc. 1; Doc. 28 at 11.) On March 25, 2024, the BLM
5 issued its updated Biological Assessment. (FWS01210-1297.)

6 The 2024 Biological Assessment updated the 2018 Biological Assessment to
7 account for and address—among other issues not relevant here—the official designation
8 of Cuckoo critical habitat in 2021. (*Id.*) BLM concluded, however, that the 2018 Biological
9 Assessment required no update as to the Chub or its critical habitat, or the Cuckoo species.
10 (FWS01210.) As in the 2018 Biological Assessment, the BLM determined that “due to the
11 implementation of conservation measures” livestock grazing on the Horseshoe Allotment
12 “may affect but is not likely to adversely affect” either the Chub, its critical habitat, or the
13 Cuckoo. (FWS01263-64.) BLM further determined that “due to the implementation of
14 conservation measures” livestock grazing on the Horseshoe Allotment “may affect but is
15 not likely to adversely modify” critical habitat of the Cuckoo. (FWS01264-65.)

16 In the intervening time between when the Center filed its 2021 Notice of Intent to
17 Sue and when BLM completed the 2024 Biological Assessment, the Center continued to
18 document the presence of cattle in the riparian areas of Silver Creek, in direct contradiction
19 of the 2018 Biological Assessment and Concurrence. (FWS01118-FWS01127,
20 FWS01108-30.) The Center’s surveyors concluded that 74% of the Cuckoo and Chub
21 critical habitat along Silver Creek and the Agua Fria River had sustained moderate to
22 significant damage. (FWS01107.) The only analysis of the effects of trespass livestock
23 made in the 2024 Concurrence, however, was a description of a singular site visit in which
24 FWS personnel visited some Cuckoo critical habitat along the Agua Fria River.
25 (FWS01302.) Personnel found “evidence of livestock” but determined that observed
26 riparian vegetation was in “good condition” and did not conduct further inquiry. (*Id.*)

27 On July 10, 2024, the FWS issued its Concurrence with the BLM’s 2024 Biological
28 Assessment. (FWS01298-01308.) The FWS’s 2024 Concurrence was once again premised

1 upon the exclusion of livestock from Chub and Cuckoo critical habitat on a seasonal or
 2 permanent basis, depending on the area, but the fence intended to permanently exclude
 3 livestock had still not been built, and the Concurrence did not account for much of the
 4 evidence showing that fences excluding livestock on a seasonal basis had not been
 5 working. (FWS01298-01308.)⁵

6 **III. Standard of Review**

7 Since the ESA contains no internal standard of review, administrative decisions
 8 involving the ESA are reviewed under the Administrative Procedure Act (“APA”). *Pacific*
 9 *Coast Fed’n of Fishermen’s Ass’ns, Inc. v. Nat’l Marine Fisheries Serv.*, 265 F.3d 1028,
 10 1034 (9th Cir. 2001). Under the APA, an agency action must be set aside “if it is ‘arbitrary,
 11 capricious, an abuse of discretion, or otherwise not in accordance with law.’” *Nw.*
 12 *Ecosystem Alliance v. U.S. Fish & Wildlife Serv.*, 475 F.3d 1136, 1140 (9th Cir. 2007)
 13 (quoting 5 U.S.C. § 706(2)(A)). Under this “highly deferential” standard of review, the
 14 reviewing court’s role is limited to determining whether “a reasonable basis exists” for the
 15 agency’s decision. *Indep. Acceptance Co. v. Cal.*, 204 F.3d 1247, 1251 (9th Cir. 2000)
 16 (internal quotation marks omitted). The Court may not “substitute its judgment for that of
 17 the agency.” *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43
 18 (1983). So long as the agency “considered the relevant factors and articulated a rational
 19 connection between the facts found and the choice made,” the agency’s action must be
 20 affirmed. *Balt. Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 105 (1983).

21 However, agency action must be set aside if the agency “relied on factors which
 22 Congress has not intended it to consider, entirely failed to consider an important aspect of
 23 the problem, offered an explanation for its decision that runs counter to the evidence before
 24 the agency,” or rendered a decision “so implausible that it could not be ascribed to a
 25 difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n*, 463
 26 U.S. at 43. When such deficiencies exist, the Court may not attempt to make up for them
 27 by supplying “a reasoned basis for the agency’s action that the agency itself has not given.”

28 ⁵ On August 2, 2024, the Center amended its Complaint in the above-captioned matter to challenge FWS’s 2024 Concurrence. (See Doc. 14.)

1 *Id.* (internal quotation marks omitted); *see also Encino Motorcars, LLC v. Navarro*, 579
 2 U.S. 211 (2016) (courts may not “speculate on reasons that might have supported an
 3 agency’s decision”); *Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517, 1525 (9th Cir.
 4 1995) (courts may not “attempt to make up for deficiencies in the agency’s decision”).

5 Judicial review of agency action is generally limited to evidence contained in the
 6 administrative record. *Love v. Thomas*, 858 F.2d 1347, 1356 (9th Cir. 1988). The court’s
 7 role is not to act as a fact finder but, rather, to determine, as a matter of law, whether the
 8 agency’s decision is supported by the administrative record. *See Occidental Eng’g Co. v.*
 9 *INS*, 753 F.2d 766, 769 (9th Cir. 1985). Because cases involving review of final agency
 10 action under the APA do not generally involve disputed facts, summary judgment is
 11 typically the proper mechanism for resolving them. *See Nw. Motorcycle Ass’n v. U.S. Dep’t*
 12 *of Agric.*, 18 F.3d 1468, 1472 (9th Cir. 1994); *see also Fed. R. Civ. P. 56(a)* (summary
 13 judgment is appropriate when “there is no genuine dispute as to any material fact and the
 14 movant is entitled to judgment as a matter of law”).

15 In order to be justiciable, challenges to agency action must relate to *final* agency
 16 action. *Bennett v. Spear*, 520 U.S. 154, 177–78 (1997). While Biological Assessments are
 17 not generally considered final agency action under the APA, a Concurrence is final agency
 18 action because it “marks the consummation of the agency’s decisionmaking process.” *Id.*
 19 at 178; *see also Friends of the River v. Nat’l Marine Fisheries Serv.*, 786 F. App’x 666,
 20 669 (9th Cir. 2019). When final agency action, such as a Concurrence, relies on a
 21 Biological Assessment to conclude that no further consultation is necessary, however, a
 22 court may also review the underlying Biological Assessment. *All. for the Wild Rockies v.*
 23 *United States Forest Serv.*, 504 F. Supp. 3d 1162, 1189 (E.D. Wash. 2020).

24 **IV. Discussion**

25 **a. The 2018 Concurrence**

26 Plaintiffs argue that “FWS’s conclusion in its 2018 Concurrence that grazing was
 27 ‘not likely to adversely affect’ the Chub, the Cuckoo, and their habitat was arbitrary and
 28 capricious because key conservation measures relied on to reach that conclusion were

1 either not in place or were known to be ineffective.” (Doc. 28 at 17.) Plaintiffs first point
2 to several fundamental problems that FWS failed to consider as to the conservation
3 measures that were supposed to mitigate damage to Chub and Cuckoo critical habitat
4 located in the riparian areas of Silver Creek. (*Id.*)

5 First, even though the 2018 Concurrence’s finding was premised upon the existence
6 of a fence that would exclude cattle from Chub critical habitat located in the riparian areas
7 of Silver Creek, such a fence had not yet been built, and in fact would not be built for
8 approximately six or seven years.⁶ (*Id.* at 18.) Although no deadline was set on fence
9 construction, FWS wrote that “[t]he new exclosure will prevent livestock from entering
10 Silver Creek where Gila chub used to occur; therefore, effects to Gila chub in Silver Creek
11 are discountable due to the proposed exclosure fence.” (FWS00829.) Plaintiffs also
12 highlight some language from the 2018 Concurrence that suggests a lack of clarity around
13 whether the fence had already been built or not, such as “[t]he only Gila chub critical
14 habitat that *is* accessible to livestock is the 164-foot Silver Creek crossing.” (Doc. 28 at 18
15 (citing FWS00829).) Plaintiffs explain that since the proposed fence took the better part of
16 a decade to be built, BLM itself documented significant damage to Chub critical habitat in
17 the years following the 2018 Concurrence. (Doc. 28 at 19.)

18 Second, Plaintiffs assert that even had the fence been constructed within a more
19 reasonable timeframe, the agencies should have accounted for the fact that preexisting
20 fences intended to keep cattle out of the entirety of the Silver Creek pasture had been
21 ineffective. (*Id.*) Plaintiff explains that even though the Silver Creek pasture was
22 technically closed to livestock through the use of a fence between 2005 and 2018,
23 unauthorized cattle continued to appear in the pasture. (FWS00560; 596; 639.) Cattle use
24 was characterized as “moderate to heavy” by the BLM in 2016, and again, in 2017, the
25 BLM found that “livestock use was apparent.” (FWS00596; 639.) Although utilization of
26 riparian herbaceous growth and woody species were not in excess of the standards
27 prescribed by the 2006 Biological Opinion, bank alterations to Silver Creek were in excess

28 ⁶ Plaintiffs state that it appears that the fence was finally completed sometime in 2025.
(Doc. 28 at 18.)

1 of prescribed standards. (FWS00639.) Plaintiffs therefore argue that BLM incorrectly
2 deemed the impacts of unauthorized grazing to be “discountable.” (Doc. 28 at 15.)

3 Next, Plaintiffs contend that the conservation measures intended to protect the
4 Chub, as well as the Cuckoo and its associated proposed critical habitat located along the
5 Agua Fria River were also wrongfully relied on in the 2018 Concurrence. (*Id.* at 21.) The
6 2018 Concurrence determined that proposed livestock grazing would have insignificant
7 effects on the Cuckoo because livestock would have access to riparian areas along the Agua
8 Fria River only in the winter season, but Plaintiffs documented the presence of cattle in the
9 area outside of the prescribed time period for grazing multiple times in 2021 and 2023.
10 (Doc. 28 at 22-23.) Plaintiffs also point to the inconsistency between the FWS determining
11 in 2006 that a Biological Opinion was necessary to address harms resulting from cattle’s
12 presence in the area, but in 2018 determining that issuing another such Opinion was
13 unnecessary. (*Id.* at 22.)

14 In Response, Defendants assert that a key aspect of why the FWS determined that
15 effects of the proposed action would be discountable to the Chub was because Chub were
16 not present in Silver Creek at the time of the Concurrence, and therefore further
17 consultation would have been “meaningless.” (Doc. 31-1 at 21.) Defendants also argue that
18 Plaintiffs ignore that the FWS’s findings were premised upon a wide variety of
19 conservation measures, not just the exclosure fencing. (*Id.* at 22.) Defendants further state
20 that Plaintiffs wrongfully ask the Court to consider facts that became apparent only after
21 FWS issued the 2018 Concurrence, and that the Court must consider only the facts that
22 were presented to FWS at the time the 2018 Concurrence was issued. (*Id.* at 24.) Finally,
23 Defendants argue that federal agencies are not required to engage in ESA consultation
24 regarding the effects of “illegal or unauthorized activity.” (*Id.* at 27.) Defendants point to
25 50 C.F.R. § 402.02, which requires ESA consultation only when an agency’s action is the
26 cause of an effect on listed species or critical habitat, and reasonably certain to occur;
27 Defendants argue that independent conduct such as unauthorized grazing is not actually
28 caused by agency action. (*Id.*)

1 Mitigation measures relied upon by an agency in order to support a finding that no
 2 adverse effects are likely to occur to a listed species or its habitat as a result of the analyzed
 3 action “must constitute a ‘clear, definite commitment of resources,’ and be ‘under agency
 4 control or otherwise reasonably certain to occur.’” *Ctr. for Biological Diversity v.*
 5 *Bernhardt*, 982 F.3d 723, 744-45 (9th Cir. 2020) (citing *Nat’l Wildlife Fed. v. Nat’l Marine*
 6 *Fisheries Serv.*, 524 F.3d 917 (9th Cir. 2008)).⁷ A “sincere general commitment to future
 7 improvements—without more specificity—is insufficient.” *Id.* “The measures ‘must be
 8 subject to deadlines or otherwise-enforceable obligations.’” *Id.* (citing *Ctr. for Bio.*
 9 *Diversity v. Rumsfeld*, 198 F. Supp. 2d 1139 (D. Ariz. 2002). Since an indefinite mitigation
 10 measure renders it difficult to “know at which point or whether the action agency has failed
 11 to comply,” a Biological Assessment that relies on such indefinite measures is invalid. *See*
 12 *id.*

13 Here, Plaintiffs have succeeded in establishing that FWS’s conclusion in its 2018
 14 Concurrence that the proposed livestock grazing was “not likely to adversely affect” the
 15 Chub, the Cuckoo, and their critical habitat or proposed critical habitat was arbitrary and
 16 capricious. As to the first main issue that Plaintiffs identify—the enclosure fence around
 17 Silver Creek riparian areas—Defendants failed completely to establish any deadline for the
 18 completion of this project. Moreover, FWS wrote in the 2018 Concurrence that BLM
 19 personnel would be responsible for building the fence, and that it would be “wildlife
 20 friendly” and “comply with agency standards,” but the Concurrence is devoid of any
 21 specific completion plans, such as identifying funding for the purchase of materials, or
 22 placing a leader within the relevant BLM office in charge of completing the fence. As such,
 23 the Concurrence arbitrarily and capriciously relied on a general commitment to a future
 24 improvement that lacked requisite specificity. Defendants’ arguments that the Silver Creek
 25 enclosure fence was one among many conservation measures, and that the lack of any
 26 details surrounding its completion was therefore acceptable, do not have merit. The 2018

27
 28 ⁷ The court in *Bernhardt* analyzed the consequences of failing to adequately provide for mitigation measures in the context of a Biological Opinion, but the court’s reasoning is equally persuasive in the context of a Biological Assessment.

1 Concurrence specifically stated that “effects to Gila chub in Silver Creek are discountable
2 *due to the proposed exclosure fence.*” (FWS00829.)⁸

3 Furthermore, in omitting any discussion regarding the fact that preexisting fences
4 on the Horseshoe Allotment had not been fully effective in keeping cattle out of restricted
5 areas, the agencies entirely failed to consider an important aspect of the problem at hand.
6 During the years that Silver Creek was technically completely closed to livestock,
7 “moderate to heavy” livestock use was still observed at least once, and cattle had to be
8 repeatedly removed from the area. (FWS00560; 596; 638-639.) Therefore, the agencies’
9 implicit reliance on the effectiveness of future fences ran counter to the evidence before
10 them, rendering that reliance arbitrary and capricious.

11 Defendants’ contention that there exists no obligation to consult on the effects of
12 illegal or unauthorized activity is without merit; allowing agencies to turn a blind eye to
13 activities directly enabled but not expressly authorized by their actions is an impermissible
14 result under the ESA. As Defendants note, “agency action” that must be consulted on under
15 the ESA is action “authorized, funded, or carried out by such agency.” 16 U.S.C. §
16 1536(a)(2). However, federal regulations further specify that agency action includes
17 “actions directly or indirectly causing modifications to the land, water, or air.” 50 C.F.R. §
18 402.2. Moreover, a Biological Assessment must evaluate “potential effects” of agency
19 action on listed species or their critical habitat, and “[e]ffects of the action are all
20 consequences to listed species or critical habitat that are caused by the proposed action,
21 including the consequences of *other activities* that are *caused* by the proposed action but
22 that *are not part* of the action. A consequence is caused by the proposed action if it would
23 not occur but for the proposed action and it is reasonably certain to occur.” *Id.* (emphasis
24 added).

25 Cattle grazing on Silver Creek would not occur at all but for Defendants’ reissuance

26
27 ⁸ In addition, Plaintiffs are correct that the lack of Chub in Silver Creek does not mitigate
28 Defendants’ duty to protect the Chub critical habitat that is undisputedly present there. *See*
16 U.S.C. § 1536(a)(2) (agency action must not be likely to jeopardize listed species *or*
“result in the in the destruction or adverse modification of habitat of such species.”).

1 of the permit allowing grazing on the Horseshoe Allotment, and, given the history—known
 2 to Defendants at the time of the 2018 Concurrence—of illicit cattle making their way past
 3 fences, is reasonably certain to occur. Defendants attempt to frame unauthorized grazing
 4 as a third-party action completely outside their control, but this ignores the central fact that
 5 *all* grazing on the Horseshoe Allotment is directly subject to their regulation. Therefore,
 6 the cases that Defendants cite in support of their position are inapplicable.

7 In *Department of Transportation v. Public Citizen*, the Court held that “where an
 8 agency has no ability to prevent a certain effect due to its limited statutory authority over
 9 the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the
 10 effect.” 541 U.S. 752, 770 (2004). Here, Defendant agencies have direct statutory authority
 11 over the relevant actions. In *Karuk Tribe of California v. U.S. Forest Serv.*, the court held
 12 that there is no duty to consult where an agency “cannot influence a private activity to
 13 benefit a listed species.” 681 F.3d 1006, 1024 (9th Cir. 2012). Here, livestock grazing is a
 14 private activity subject to Defendants’ decision to issue a permit. Finally, in *Sierra Club v.*
 15 *Babbitt*, the court held that BLM’s inability to influence a right-of-way project due to a
 16 contract executed with a private party meant that BLM lacked the “ability to implement
 17 measures that inure to the benefit of the protected species,” and consultation was therefore
 18 not required. 65 F.3d 1502, 1509 (9th Cir. 1995). Here, BLM may implement measures to
 19 better prevent cattle from accessing restricted areas, and therefore does have discretion to
 20 act for the benefit of protected species.

21 Plaintiffs are also correct on the final issue they identify in the 2018 Concurrence,
 22 namely, its failure to explain why FWS concluded in 2006 that a Biological Opinion was
 23 necessary to address non-growing season grazing in Agua Fria riparian areas, but in 2018
 24 a Biological Assessment was sufficient to address the exact same measure. (Doc. 28 at
 25 22.) As Plaintiffs note, “[u]nexplained inconsistency’ between agency actions is ‘a reason
 26 for holding an interpretation to be an arbitrary and capricious change.’” *Organized Vill. of*
 27 *Kake v. U.S. Dep’t of Agric.*, 795 F.3d 956, 966 (9th Cir. 2015) (citing *Nat’l Cable &*
 28 *Telecomms. Ass’n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005)). When an agency

1 changes its policy or practices, it must acknowledge and “provide a reasoned explanation”
2 for the change. *Alaska Oil & Gas Ass’n v. Pritzker*, 840 F.3d 671, 682 (9th Cir. 2016). The
3 Defendant agencies offered no explanation in either their Concurrence or Biological
4 Assessment as to their change in analysis, nor do they present any argument as to why this
5 should not be considered a problem in their briefing on the present motions for summary
6 judgment. (*See* Doc. 31; 32; 43.) In sum, the 2018 Concurrence arbitrarily and capriciously
7 failed to explain why a Biological Opinion was necessary to address seasonal grazing on
8 the Agua Fria in 2006, but no such Opinion was necessary in 2018.

9 For the foregoing reasons, the Court concludes that FWS’s 2018 Concurrence was
10 arbitrary and capricious, and therefore violated the ESA.

11 **b. The 2024 Concurrence**

12 Plaintiffs contend that the 2024 Concurrence was also arbitrary and capricious
13 because it contained several of the same problems as the 2018 Concurrence, and
14 additionally failed to account for new information that arose in the intervening years. (Doc.
15 28 at 24.) Plaintiffs point to the fact that the 2024 Concurrence expressly declined to
16 consider any new data regarding the Chub, its critical habitat, and the Cuckoo. (*Id.*) Instead,
17 the 2024 Concurrence addressed only the 2021 change in the status of Cuckoo critical
18 habitat from proposed to designated, and specifically stated that “[b]ecause the cuckoo and
19 Gila chub and its critical habitat . . . were addressed in our 2018 concurrence, we do not
20 address them further in this . . . consultation.” (FWS01299.) Plaintiffs explain that their
21 2021 and 2023 notice letters, however, had made clear that at least some of the conservation
22 measures relied upon in the 2018 Concurrence had either not been implemented or were
23 not working as planned. (Doc. 28 at 25.)

24 Plaintiffs assert that even though the agencies consulted on effects to Cuckoo critical
25 habitat in 2024, just as in 2018, the agencies relied upon the existence of an exclosure fence
26 around Silver Creek that had not been constructed—and the efficacy of which should have
27 been questioned—to find that adverse modifications to Cuckoo critical habitat were not
28 likely. (*Id.* at 26.) Similarly, Plaintiffs argue that the agencies wrongfully assumed that a

1 preexisting fence would keep cattle out of Cuckoo critical habitat along the Agua Fria
2 during the growing season, despite being confronted with evidence that unauthorized
3 livestock were regularly appearing in the area during restricted times of year. (*Id.*)

4 In Response, Defendants raise substantially the same arguments as those asserted in
5 opposition to Plaintiffs' contention that the 2018 Concurrence is arbitrary and capricious.
6 (*See* Doc. 31-1.) Defendants contend that Plaintiffs ignore that FWS's findings were
7 premised upon a wide variety of conservation measures, not just the enclosure fencing. (*Id.*
8 at 22.) Defendants also argue that federal agencies are not required to engage in ESA
9 consultation regarding the effects of "illegal or unauthorized activity." (*Id.* at 27.)

10 As discussed above in Section IV(a), Defendants' argument that federal agencies
11 need not consult on unauthorized activities is unavailing where, as here, the "unauthorized"
12 activities are a direct result of authorized activities, and are directly subject to Defendants'
13 regulation. Furthermore, Defendants' failure to adequately account for the well-
14 documented shortcomings of the existing enclosure fencing is even more glaring in the
15 2024 Concurrence than in the 2018 Concurrence, because even more evidence of the
16 trespass livestock problem existed in 2024.

17 The 2024 Concurrence only briefly addressed receiving a report from Plaintiff
18 Center for Biological Diversity regarding trespass livestock, and did not grapple at all with
19 the information contained in the Center's 2021 and 2023 notices of intent to sue.
20 (FWS01302.) The 2024 Concurrence describes one site visit that was conducted in
21 response to the Center's report, but this singular site visit failed to check miles-long swaths
22 of Cuckoo and Chub critical habitat located along Silver Creek and the Agua Fria. (*See id.*)
23 The 2024 Concurrence's finding that no adverse modification of Cuckoo critical habitat
24 was likely was premised upon the ability of fences to manage livestock, but in light of the
25 foregoing, this explanation ran counter to the evidence before the agency.

26 Moreover, the 2024 Concurrence again failed to set a deadline for completion of the
27 Silver Creek enclosure fence, and failed to explain why, despite being committed to six
28 years prior, that fence had not yet been built. (*See* FWS01298-FWS01308.) As discussed

1 in the preceding section, the failure to implement a specific plan or timeline for the
2 completion of this fence was arbitrary and capricious.

3 Finally, the agencies' decision to decline to engage in consultation regarding the
4 Chub, its critical habitat, and the Cuckoo in 2024 for the sole reason that consultation on
5 those issues had been completed in 2018 was also arbitrary and capricious. As Plaintiffs
6 note, the agencies failed to provide any substantive explanation for this decision, and it led
7 to the disregard of new evidence presented to the agencies over the not-insignificant six-
8 year intervening time period. As such, it is clear that the agencies failed to consider an
9 important aspect of the problem presented.

10 For the foregoing reasons, the Court concludes that FWS's 2024 Concurrence was
11 arbitrary and capricious, and therefore violated the ESA.

12 **c. BLM's Reliance Upon the 2018 and 2024 Letters of Concurrence**

13 Plaintiffs urge the Court to hold that BLM independently violated the ESA by
14 relying upon each deficient Letter of Concurrence. (Doc. 47 at 43-44.) Plaintiffs cite *Center*
15 *for Biological Diversity v. Bureau of Land Management*, 698 F.3d 1101 (9th Cir. 2012),
16 for the proposition that "BLM violates Section 7 of the ESA when it relies on a faulty
17 [Biological Opinion]," and assert that the same reasoning should apply whenever BLM
18 relies on a faulty Letter of Concurrence. (Doc. 28 at 24.) Where a Biological Opinion fails
19 to take into account information that challenges its conclusions, an action agency violates
20 its substantive duty to ensure that its proposed action will not jeopardize listed species or
21 their critical habitat by relying upon that Opinion. *Defenders of Wildlife v. EPA*, 420 F.3d
22 946, 976 (9th Cir. 2005), *rev'd on other grounds*, *Nat'l Ass'n of Home Builders v.*
23 *Defenders of Wildlife*, 551 U.S. 644 (2007). The same reasoning is persuasive in the
24 context of a Letter of Concurrence; here, since both the 2018 and 2024 Letters failed to
25 take into account information challenging their conclusions, the BLM violated the ESA by
26 relying upon them.

27 **V. Remedy**

28 Plaintiffs request that, upon finding that the 2018 and 2024 Concurrences violated

the ESA, the Court provide declaratory relief in the form of an Order (1) finding that the BLM and FWS violated the ESA, and describing in what ways the agencies violated the ESA, and (2) requiring Defendants to reinitiate consultation. (Doc. 28 at 29; Doc. 36 at 29.) Defendants contend that this request for declaratory relief is inappropriate and should be denied, because such declaratory relief would improperly interfere with the discretion afforded to agencies in carrying out their duties under the ESA. (Doc. 31-1 at 32.) In their Reply, Plaintiffs clarify that they “do not seek a declaratory judgment” and instead simply “request that the Court find that the Agencies violated the ESA, and make clear how the agencies did so.” (Doc. 36 at 29.) The parties appear to agree that upon a finding by the Court that the 2018 and 2024 Concurrences are legally deficient, it is appropriate for the Court to remand this matter to the agencies in light of the issues identified by the Court. (See Doc. 31-1 at 31; Doc. 36 at 29.) Since the Plaintiffs have clarified that they do not seek a declaratory judgment, the Court will remand the agency actions at issue for further consideration consistent with this Order, and require the agencies to reinitiate consultation.

VI. Joint Proposed Schedule

On February 20, 2026, the parties filed a Joint Proposed Schedule governing Claims 3–6, the remainder of this case. (Doc. 50.) The Court has reviewed the parties’ proposed deadlines governing Claims 3–6 and finds them reasonable.

Accordingly,

IT IS ORDERED that Plaintiffs’ Motion for Summary Judgment on Claim 1 and Claim 2 of the Second Amended Complaint (Doc. 28) is **granted**, and Defendants’ Cross-Motion for Summary Judgment on Claim 1 and Claim 2 of the Second Amended Complaint (Doc. 31) is **denied**. The 2018 and 2024 Concurrences are **remanded** for further consideration consistent with this Order, and the Defendant Agencies must **reinitiate** consultation under the Endangered Species Act to address the issues identified in this Order.

IT IS FURTHER ORDERED that that the following deadlines govern the remainder of this case (Claims 3-6):

- 1 1. Lodging the Administrative Record: Federal Defendants shall file and
2 serve the administrative record related to Claims 3 through 6 on or before
3 **May 14, 2026**. Defendants will provide the record in an electronic,
4 indexed, and searchable format, and share the record with Plaintiffs via a
5 secure file sharing platform, or alternatively, via a USB thumb-drive.
- 6 2. Motions to Complete and/or Supplement the Administrative Record: If
7 the parties cannot resolve a dispute concerning the administrative record,
8 Plaintiffs shall file any motion to complete and/or supplement the
9 administrative record by **June 29, 2026**. The Parties shall jointly propose
10 a schedule for completing briefing by **June 29, 2026**, and shall move the
11 Court to suspend the deadlines below for resolving dispositive motions
12 until any motion on the administrative record is resolved. The Parties
13 shall confer as soon as the Court resolves any such motion and, within
14 **ten (10) days** of such resolution, shall propose a briefing schedule for
15 cross-motions for summary judgment.
- 16 3. Discovery: Unless any party moves to conduct discovery, the above-
17 captioned matter will proceed without discovery.
- 18 4. Dispositive Motions: In the absence of any motions to complete and/or
19 supplement the administrative record, the following deadlines shall
20 govern the parties' cross-motions for summary judgment. These motions,
21 responses, and replies shall address only Claims 3 through 6. Plaintiffs'
22 motion for summary judgment shall be filed on or before **August 14,**
23 **2026**, and shall be limited to 35 pages. Defendants' cross-motion for
24 summary judgment/response shall be filed on or before **September 28,**
25 **2026**, and shall be limited to 50 pages. Plaintiffs' response to Defendants'
26 cross-motion and reply in support of Plaintiffs' motion for summary
27 judgment shall be filed on or before **October 29, 2026**, and shall be
28 limited to 35 pages. Defendants' reply shall be filed on or before

1 **November 30, 2026**, and shall be limited to 20 pages.

2 a. Because this case involves the submission of an administrative
3 record and does not present any contested issues of material fact,
4 the parties have requested an exception to the requirement under
5 LRCiv 56.1 to file separate statements of undisputed facts. (Doc.
6 50 at 3.) Instead, they propose including a summary of relevant
7 facts, as reflected in the administrative record, within their
8 respective summary judgment briefs. (*Id.*) To promote efficiency
9 and conserve resources for both the parties and the Court, the
10 Court will grant this request.

11 b. Notwithstanding the provisions of the “Policy on Courtesy Copies
12 for Chambers” in Section II(D)(3) of the Court’s Electronic Case
13 Filing Administrative Policies and Procedures Manual, the parties
14 shall not submit paper courtesy copies of electronically filed
15 documents to chambers unless specifically ordered by the Court to
16 do so. If the Court orders the submission of paper courtesy copies,
17 the copies should be printed directly from CM/ECF.

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Grazed to Death:

Livestock Production Adversely Modifying Majority of Drought-Stricken Western Yellow-Billed Cuckoo Critical Habitat on Public Lands in Arizona and New Mexico



Center for Biological Diversity



June 2024

Summary - Livestock grazing has adversely modified at least 57% of designated critical habitat of western yellow-billed cuckoo ("cuckoo") within public lands grazing allotments in Arizona and New Mexico. In those states the U.S. Fish and Wildlife Service ("FWS") has designated 55,550 acres of critical habitat for cuckoo within grazing allotments managed by the U.S. Forest Service ("FS") and Bureau of Land Management ("BLM"). From 2021-2023, Center for Biological Diversity field biologists surveyed 39,170 (70%) of those acres for adverse modification from livestock grazing immediately prior to, or during, the cuckoo nesting and breeding season. Surveys found moderate to significant impacts and adverse modification across 31,509 acres, which is 80% of critical habitat surveyed, and 57% of the critical habitat within public lands grazing allotments in Arizona and New Mexico.

Many bird species associated with cottonwood trees (*Populus fremontii*) are rare or endangered in the Southwest.^{1,2} Among them is the western yellow-billed cuckoo (“cuckoo”), a tropical bird that migrates from South America to the western United States ahead of summer monsoons to build nests and raise chicks. Cuckoo have disappeared throughout most of their former breeding range due to habitat loss.^{3,4} Following dramatic population declines in California, southeastern Arizona now supports the largest remaining breeding population of cuckoo in the United States, although steady decline continues throughout their range.⁵

In 2014 the U.S. Fish and Wildlife Service (“FWS”) listed the cuckoo as a threatened species under the Endangered Species Act⁶ due to precipitous population declines that directly paralleled decline of its preferred breeding and nesting habitat, cottonwood-willow riparian forest.^{7,8} Despite the extraordinary ecological and biodiversity values of riparian ecosystems, upon which most desert species directly depend for survival, these places are among the most disturbed and degraded land type in the western United States.⁹

Optimal cuckoo breeding habitat consists of riparian woodlands with an overstory, a subcanopy, and contiguous patches of vegetative understory adjacent to intermittent or perennial watercourses.^{10,11} In arid Arizona, even ephemeral (xeroriparian) drainages can serve as cuckoo nesting habitat if they support higher vegetation volume and diversity, proportionally higher moisture content, and higher potential for prey abundance than surrounding uplands.¹² These specific habitat components help maintain high prey densities and higher relative humidity, which are important criteria for cuckoos as they arrive in May and June to select nest locations. Nesting site selection is based on the foraging potential of the immediate vicinity,¹³ where food

¹ Johnson, R.R., Haight, J.T., Simpson, J.M. 1977. Endangered Species vs. Endangered Habitats: A Concept. *In* Importance, Preservation, and Management of Riparian Habitat: A Symposium, Tucson, Arizona, July 9, 1977 (Vol. 43). Rocky Mountain Forest and Range Experiment Station, Forest Service, US Department of Agriculture.

² Engel-Wilson, R.W. and Ohmart, R.D., 1978. Floral and Attendant Faunal Changes on the Lower Rio Grande Between Fort Quitman and Presidio, Texas.

³ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021.

⁴ Biological Opinion on Ongoing Grazing on the Coronado National Forest, Graham, Cochise, Pima, Pinal, and Santa Cruz Counties, Arizona and Hidalgo County, New Mexico. AESO/SE, 2-21-98-F-399, 2-21-98-F-399R1, 02EAAZ00-2019-F-0867, September 30, 2021, p. 174.

⁵ Krzysik 2014. Western Yellow-billed Cuckoo Critical Habitat in Arizona. Technical Report. Prescott, AZ 12 October 2014.

⁶ Rules and Regulations. Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*), Federal Register, Vol. 79, No. 192. October 3, 2014.

⁷ Wallace, C.S., Villarreal, M.L. and van Riper III, C., 2013. Influence of monsoon-related riparian phenology on yellow-billed cuckoo habitat selection in Arizona. *Journal of Biogeography*, 40(11), pp.2094-2107.

⁸ USFWS. 2013. Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Proposed Rule. 50 CFR Part 17. Federal Register, Vol. 78, No. 192, Part V. 3 October 2013. Pages 61621-61666.

⁹ Bock, C.E., Saab, V.A., Rich, T.D. and Dobkin, D.S., 1993. Effects of livestock grazing on neotropical migratory landbirds in western North America. *Status and management of Neotropical migratory birds. USDA Forest Service, General Technical Report RM-229*, pp.296-309.

¹⁰ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021, page 20939.

¹¹ Rosenberg, K.V., R.D. Ohmart, W.C. Hunter, and B.W. Anderson. 1991. Birds of the Lower Colorado River Valley. Univ. Arizona Press, Tucson, AZ. 416pp.; Johnson, M.J., S.L. Durst, C.M. Calvo, L. Stewart, M.K. Sogge, G. Bland, and T. Arundel. 2008. Yellow-billed Cuckoo Distribution, Abundance, and Habitat Use Along the Lower Colorado River and its Tributaries, 2007 Annual Report. USGS, Open File Report 2008-1177. 274pp.

¹² Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021, page 20815.

¹³ Wallace, C.S., Villarreal, M.L. and van Riper III, C., 2013. Influence of monsoon-related riparian phenology on yellow-billed cuckoo habitat selection in Arizona. *Journal of Biogeography*, 40(11), pp.2094-2107.

availability such as macroinvertebrates and amphibians¹⁴ is ensured and provided by monsoonal rains and an intact vegetative community.^{15,16}

Despite the known importance of understory vegetation and ground cover in cuckoo breeding grounds, especially as cuckoo chicks are hatched and raised at the hottest time of year, beef cattle production on national forests, national conservation lands, and other public lands removes and degrades these vital habitat components in riparian ecosystems throughout the arid Southwest.¹⁷

Cattle consumption of herbaceous plants in riparian drainages rapidly reduces vegetative cover important for temperature amelioration, humidity, and insect production.^{18,19} Cattle remove riparian seedlings and saplings, precluding young cohorts of trees from developing into future riparian gallery forest. Chronic plant removal and trampling ultimately leads to increased erosion, channel incision, and ecological type changes. These damages occur at a broad spatial scale, and riparian drainages specifically and legally set aside for protection and recovery of cuckoos (i.e., designated “critical habitat”) are no exception.

Grazing at any intensity can impact riparian habitat, according to FWS,²⁰ which defines overgrazing as “grazing activity [that] degrades riparian habitat attributes and prevents long-term health and persistence of these systems.”²¹ Or, specifically in the context of cuckoos, grazing that “reduces quality and quantity of breeding habitat.”²² Overgrazing in riparian (and xeroriparian) habitat has been identified by the agency as an ongoing threat to 97% of cuckoo critical habitat units.²³

¹⁴ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 79, No. 158, August 15, 2014, page 48552.

¹⁵ *Id.*, page 48551.

¹⁶ Johnson, M.J., S.L. Durst, C.M. Calvo, L. Stewart, M.K. Sogge, G. Bland, and T. Arundel. 2008. Yellow-billed Cuckoo Distribution, Abundance, and Habitat Use Along the Lower Colorado River and its Tributaries, 2007 Annual Report. USGS, Open File Report 2008-1177. 274pp.

¹⁷ Bock, C.E., J.H. Bock, L. Kennedy, and Z.F. Jones. 2007. Spread of non-native grasses into grazed versus ungrazed desert grasslands. *Journal of Arid Environments* 71:229-235; Bock, C.E., V.A. Saab, T.D. Rich, and D.S. Dobkin. 1993. Effects of livestock grazing on Neotropical migratory land birds in Western North America. Pages 296-309 in *Status and Management of Neotropical Migratory Birds*. D.M. Finch and P.W. Stangel, editors. USDA, Forest Service, GTR RM-229. 422pp.; Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology* 8:629-644.; Krueper, D.J. 1993. Effects of land use practices on Western riparian ecosystems. Pages 321-330 in *Status and Management of Neotropical Migratory Birds*. D.M. Finch and P.W. Stangel, editors. USDA, Forest Service, GTR RM-229. 422pp.

¹⁸ Skovlin, J.M. 1984. Impacts of grazing on wetlands and riparian habitat: a review of our knowledge. p. 1001-1103. In: *Developing strategies for range management*. Westview Press, Boulder, CO.

¹⁹ Krueper, D.J., 1996. Effects of livestock management on Southwestern riparian ecosystems. Shaw, DW, and Finch, DM, tech. coords. *Desired future conditions for southwestern riparian ecosystems: bringing interests and concerns together*. Gen. Tech. Rep. RM-GTR-272. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, pp.281-301.

²⁰ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021, page 20813.

²¹ *Id.*

²² *Id.*, page 20853.

²³ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 79, No. 158, August 15, 2014, page 48558.

Surveys for Adverse Modification of Critical Habitat by Livestock Grazing

In Arizona and New Mexico, approximately 55,550 acres of designated critical cuckoo breeding habitat overlaps with public lands cattle grazing allotments, managed by the U.S. Forest Service (“FS”) and Bureau of Land Management (“BLM”). Following designation of cuckoo critical habitat in 2021,²⁴ the Center for Biological Diversity began systematically surveying and quantifying cattle impacts to designated cuckoo critical habitat on public lands in Arizona and New Mexico. The rationale for this effort was 1) the well-known negative effects of livestock grazing on cuckoo habitat, and 2) the fact that neither BLM nor FS systematically surveys and assesses the public lands they manage for the health of riparian ecosystems in the context of the habitat needs of threatened and endangered species.

On an annual basis, professional field biologists document livestock impacts to standing waters, riparian vegetation, soils, and streambanks within designated critical habitat and examine protective fencing where applicable. Using a standardized protocol, surveyors record 1) severity of grazing impacts on herbaceous vegetation and grasses, 2) severity of browsing impacts on streamside woody regeneration, 3) severity and 4) extent of ground disturbances from trailing, trampling, and wallowing, and 5) severity and 6) extent of streambank degradation. Multiple georeferenced photo points are taken along each segment to document evidence of livestock impacts.

Each survey is broken down into ¼- ½ mile field-delineated segments of cuckoo critical habitat based on topography, access, and trends in severity of adverse modification. At each segment endpoint, a condition score is recorded for each of the six impact categories along a range of 0 to 4 based on the severity and extent of the impact. A segment is rated 0 for a particular category if no evidence of impact is observed, 1 if impacts are limited, 2 if impacts are light and scattered, 3 if impacts are moderate and widespread, and 4 if impacts are severe and pervasive. Following field surveys of cuckoo-designated stream reaches, each segment’s “overall impact level” (defined as absent, light, moderate or significant) is calculated. To determine overall impact level, the condition severity scores for each segment endpoint are collated and weighted.

Linear critical habitat survey segments were used to clip yellow-billed cuckoo critical habitat polygons using a buffer (avg=600m). Buffer-clipped critical habitat polygons were then joined with survey impact attributes to generate polygons of impact class. Impact class polygons were used to characterize acres of critical habitat surveyed and acres for each impact class. Surveys were prioritized by most recent year where survey years overlapped.

From 2021-2023, the Center surveyed approximately 70% of cuckoo designated acreage for cattle impacts (39,170 acres). Of the total acres surveyed, 80% (31,509 acres) were found to have moderate to significant adverse modification immediately prior to, or during, cuckoo nesting and breeding season.

The Center’s assessments of cuckoo critical habitat on public lands in Arizona and New Mexico consistently reveal that sufficient riparian vegetation is lacking from most grazing allotments, and at a critical time when cuckoo arrive to select nesting sites. Cattle consistently

²⁴ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021, page 20808.

concentrate in riparian zones, often leaving bare, denuded ground and polluted, fecal-laden water. Survey results reasonably fit FWS's own definition of overgrazing or poorly managed grazing, where cattle have created conditions that compromise or eliminate habitat structure required for successful cuckoo reproduction.

Surveys conducted on Coronado and Tonto national forests, Gila Box Riparian National Conservation Area, San Pedro Riparian National Conservation Areas, Agua Fria National Monument, and several other important public land riparian areas managed by the BLM have all led to subsequent litigation over the state and quality of cuckoo breeding habitat as affected by cattle grazing. Even on lands specifically designated by Congress to protect riparian values, the majority of streamside habitat showed significant damage from livestock.

The following figures, with photographic examples, demonstrate the vast extent of cattle damage to designated cuckoo critical habitat across Arizona. Publicly available interactive maps are also available at the following website:

<https://center.maps.arcgis.com/apps/instant/basic/index.html?appid=52860d7317bb4148ad2a9ac5a90ab118>.

Figure 1. Cattle impacts on cuckoo critical habitat on public land in eastern Arizona and southwestern New Mexico

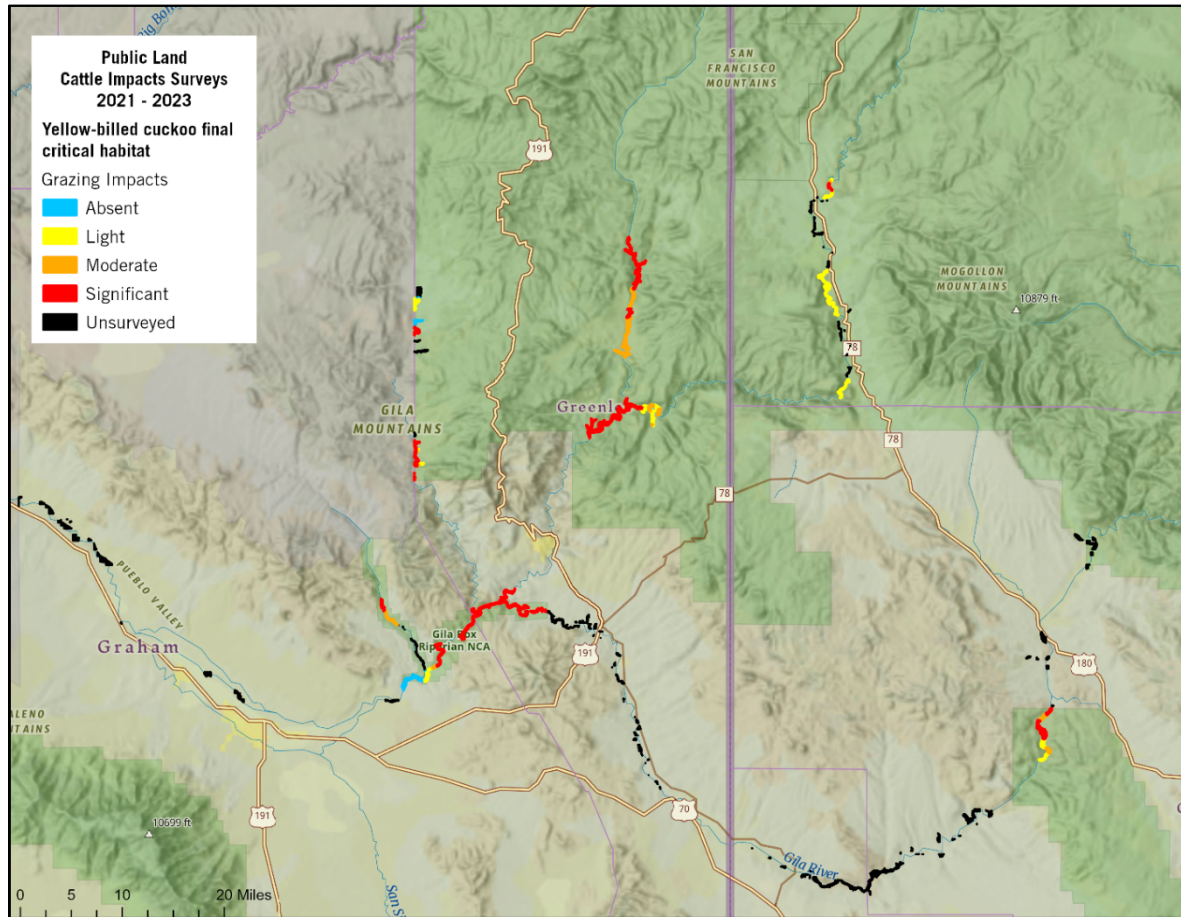


Figure 2. Designated yellow-billed cuckoo critical habitat in the Gila Box Riparian National Conservation Area, where no cattle grazing is allowed. 33.010634, -109.555424, June 1, 2021 (1); 32.972224, -109.350014, March 4, 2024 (2)



Public Land Cattle Impacts Surveys 2021 - 2023

Yellow-billed cuckoo final critical habitat

Grazing Impacts

- Absent
- Light
- Moderate
- Significant
- Unsurveyed

The map displays the Tucson, Arizona area, including the Saguaro National Park and the Santa Cruz Mountains. It shows the distribution of grazing impacts on yellow-billed cuckoo critical habitat. The impacts are categorized as Absent (blue), Light (yellow), Moderate (orange), Significant (red), and Unsurveyed (black). The map also shows major roads (Interstates 10, 19, 86, 90, 94) and landmarks such as Casas Adobes, Green Valley, Las Vegas, Sierra Vista, and Bisbee. A scale bar indicates distances up to 20 miles.

Figure 5. Cattle impacts on cuckoo critical habitat on public land in central Arizona

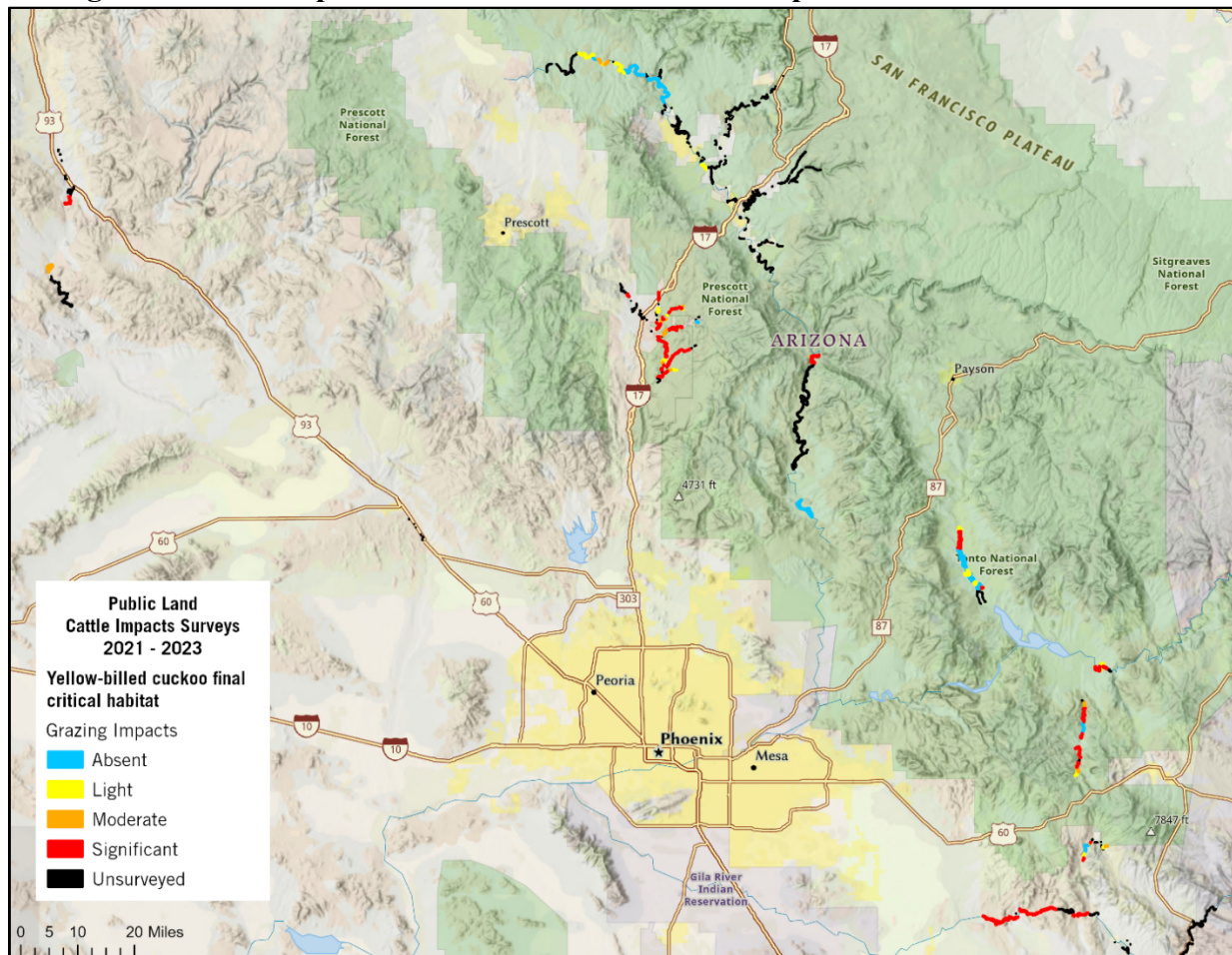


Fig. 6. Grazed yellow-billed cuckoo critical breeding habitat along Little Ash Creek, 34.361028, -112.061924, March 29, 2023 (1); and along the Agua Fria River, 34.240435, -112.06380, April 6, 2023 (2) in Agua Fria National Monument



Discussion

FWS designates critical habitat pursuant to the Endangered Species Act (“ESA”) so that such habitat can be managed with the primary goal of recovering threatened and endangered species. The law requires that each federal agency “shall ... insure that any action authorized, funded, or carried out by such agency ... is not likely to ... result in the destruction or adverse modification” of critical habitat.²⁵ For cuckoo, according to FWS, “managing grazing so that native riparian trees and shrubs will regenerate on a regular basis is especially beneficial.”²⁶ In designating their critical habitat, the agency stated that “[b]ecause the western yellow-billed cuckoo is listed as threatened, all the units [that] are occupied during the breeding season and habitat would need to be protected during the nonbreeding season, the majority of actions necessary to conserve the species would be required based on the listing of the western yellow-billed cuckoo.”²⁷ Finally the agency stated that “habitat in Arizona needs to be conserved to enable western yellow-billed cuckoos to produce young that may eventually disperse to other parts of the DPS’s range.”²⁸

Despite these conclusions Center survey data show adverse modification and destruction of critical habitat from BLM and Forest Service-managed livestock grazing in most designated cuckoo habitat within livestock grazing allotments. In violation of the ESA and other laws, federal agencies continue to authorize cattle grazing in cuckoo critical habitat, often without any enforceable measures of protection and with no numeric limits on the amount of “take” (harm or death) to cuckoos. Despite the quoted statements above, FWS supervisors routinely conclude that cattle grazing does not meaningfully conflict with cuckoos’ resource needs. The agency reasons that since cuckoo have not been completely extirpated from livestock-degraded areas, there is no real harm. In a recent Biological Opinion from 2021, it stated that “the cuckoo is currently widespread throughout its range and in the action area, where ongoing livestock grazing has occurred for many decades and continues.”²⁹ A more accurate statement is that livestock grazing has occurred for many decades and continues,³⁰ resulting in cuckoo now being listed under the ESA, due primarily to habitat loss,³¹ and rare throughout their range.³²

The majority of grazed western riparian areas are already grossly deficient of willow understory and nearly devoid of overstory cottonwood.^{33,34} Foraging cattle continue to reduce the density of willow and other shrubs, eliminate cottonwood and willow reproduction by feeding on

²⁵ 16 U.S.C. § 1536(a)(2).

²⁶ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Proposed Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 79, No. 158, August 15, 2014, page 48555.

²⁷ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021, page 20831.

²⁸ *Id.*, page 20813.

²⁹ Biological Opinion on Ongoing Grazing on the Coronado National Forest, Graham, Cochise, Pima, Pinal, and Santa Cruz Counties, Arizona and Hidalgo County, New Mexico. AESO/SE, 2-21-98-F-399, 2-21-98-F-399R1, 02EAAZ00-2019-F-0867, September 30, 2021, p. 188.

³⁰ *Ibid.*

³¹ Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register Vol. 86, No. 75, Wednesday, April 21, 2021.

³² Diebolt, S., Chief, A.B. and Diebolt, D.M., 2018. Fish and Wildlife Service Arizona Ecological Services Office.

³³ Fleischer, T.L., 1994. Ecological costs of livestock grazing in western North America. *Conservation biology*, 8(3), pp.629-644.

³⁴ Stromberg, J.C., 1993. Fremont cottonwood-Goodding willow riparian forests: a review of their ecology, threats, and recovery potential. *Journal of the Arizona-Nevada Academy of Science*, pp.97-110.

and trampling seedlings, and modify habitat through soil compaction and other means.^{35,36,37,38,39} This ecological impact has resulted in doomed stands of riparian forest where old cottonwood trees in the overstory are dying with no new recruitment to replace themselves.^{40,41,42,43}

Ecological conditions on western public lands have worsened recently⁴⁴ mainly due to reduced productivity caused by livestock production in conjunction with a changing climate and an historically unprecedented “megadrought.”^{45,46} Using public lands for livestock production is known to exacerbate the effects of climate change and has a disproportionately negative effect on rare riparian ecosystems.⁴⁷ Within the past 100 years, an estimated 95% of riparian habitat in the West has been destroyed;⁴⁸ as we demonstrate, this destruction is ongoing. There is no evidence to suggest that climate trends will suddenly change.⁴⁹

FWS recognizes this predictable and escalating climate problem but has failed to take meaningful action to mitigate it. FWS has confirmed that “[w]here tree regeneration and survival are lacking, suitable cuckoo habitat may cease to exist or may support fewer cuckoos when mature trees die.”⁵⁰ In addition FWS has concluded that the cuckoo’s habitat may be reaching a tipping point: “humidity, important for prey production and cuckoo nesting in southeastern Arizona, will decline and temperature and evapotranspiration will increase as habitat declines and fragmentation increases. These factors may reach a threshold in which cuckoos may no longer breed or may breed in reduced densities in some reaches.”⁵¹ The agency has even stated, regarding the Coronado National Forest in Arizona, that “we also anticipate that climate change

³⁵ Glinski, R.L., 1977, July. Regeneration and distribution of sycamore and cottonwood trees along Sonoita Creek, Santa Cruz County, Arizona. In Johnson, RR, and Jones, DA, tech. coords. Importance, preservation and management of riparian habitat: a symposium. Gen. Tech. Rep. RM-43. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (pp. 116-123).

³⁶ Belsky, A.J., Matzke, A. and Uselman, S., 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. *Journal of Soil and water Conservation*, 54(1), pp.419-431.

³⁷ Reichenbacher, F.W., 1984. Ecology and evolution of southwestern riparian plant communities [The relationship between the distributions of plants in the floodplain and a set of physical site factors, Trout Creek, Mohave County Arizona; USA]. *Desert Plants*.

³⁸ Fleischer, T.L., 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology*, 8(3), pp.629-644.

³⁹ Taylor, D. M., and C. D. Littlefield. 1986. Willow flycatcher and yellow warbler response to cattle grazing. *American Birds* 40:1169-1173.

⁴⁰ Klebenow, D.A. and Oakleaf, R.J., 1984. Historical avifaunal changes in the riparian zone of the Truckee River.

⁴¹ Reichenbacher, F.W., 1984. Ecology and evolution of southwestern riparian plant communities [The relationship between the distributions of plants in the floodplain and a set of physical site factors, Trout Creek, Mohave County Arizona; USA]. *Desert Plants*.

⁴² Stromberg, J.C., 1993. Fremont cottonwood-Goodding willow riparian forests: a review of their ecology, threats, and recovery potential. *Journal of the Arizona-Nevada Academy of Science*, pp.97-110.

⁴³ Taylor, D. M., and C. D. Littlefield. 1986. Willow flycatcher and yellow warbler response to cattle grazing. *American Birds* 40:1169-1173.

⁴⁴ Donahue, D.L., 2006. Federal rangeland policy: perverting law and jeopardizing ecosystem services. *J. Land Use & Envtl. L.*, 22, p. 299.

⁴⁵ Beschta, R.L., Donahue, D.L., DellaSala, D.A., Rhodes, J.J., Karr, J.R., O’Brien, M.H., Fleischner, T.L. and Williams, C.D., 2013. Adapting to climate change on western public lands: addressing the ecological effects of domestic, wild, and feral ungulates. *Environmental Management*, 51(2), pp.474-491.

⁴⁶ Williams, A. P., Cook, B. I., & Smerdon, J. E. (2022). Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nature Climate Change*, 12, 232–234. <https://doi.org/10.1038/s41558-022-01290-z>

⁴⁷ Stromberg, J.C., Setaro, D.L., Gallo, E.L., Lohse, K.A. and Meixner, T., 2017. Riparian vegetation of ephemeral streams. *Journal of Arid Environments*, 138, pp.27-37.

⁴⁸ Krueper, D.J., 1996. Effects of livestock management on Southwestern riparian ecosystems. Shaw, DW, and Finch, DM, tech. coords. *Desired future conditions for southwestern riparian ecosystems: bringing interests and concerns together*. Gen. Tech. Rep. RM-GTR-272. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, pp.281-301.

⁴⁹ Large contribution from anthropogenic warming to an emerging North American megadrought, A. Park Williams, et al.; *Science* 368, 314-318; April 17, 2020.

⁵⁰ April 28, 2016, Amended Final Reinitiated Biological and Conference Opinion for the Rosemont Copper Mine, Pima County, Arizona, p. 244.

⁵¹ *Id.*

will degrade habitat to the point of being incapable of supporting the occurrence of yellow-billed cuckoos.”⁵²

If climate change alone could eliminate cuckoo from their current strongholds, as FWS suggests, federal agencies that continually authorize known negative stressors such as cattle grazing in critical breeding habitat will hasten extinction, particularly when grazing is well known to exacerbate and amplify the effects of drought and climate change. A good rain year cannot compensate for decades of drought and livestock impacts.

Recommendations

Despite dire climate projections forecasted for the southwestern United States, the U.S. Forest Service, Bureau of Land Management, and Fish and Wildlife Service continue to authorize status quo livestock grazing on federal public lands with no practical or meaningful revisions to protect riparian habitat or the imperiled cuckoo. Instead, management strategies are implemented that provide short-term benefits for livestock permit-holders at the cost of continual ecosystem degradation and removal of what little cover is available for wildlife, including birds that require vegetative structure for nesting success such as yellow-billed cuckoo.

According to the U.S. Department of Justice, “[i]t’s well settled that cattle and riparian areas do not mix.”⁵³ To ensure recovery of cuckoo populations, as the law mandates and as FWS appears to grudgingly admit, critical habitat requires protection from livestock grazing year-round.

Based on federal land managers’ and livestock permit-holders’ inability to prevent continued degradation of riparian habitat on the vast majority of habitat surveyed, the Center recommends that agencies exclude livestock from cuckoo habitat in Arizona and New Mexico. Livestock exclusion is also the best way to mitigate climate change and aridification. Seedlings of riparian trees tend to recover rapidly after exclusion of livestock grazing,^{54,55,56} removal of

⁵² *Id.*, page 242.

⁵³ Environment and Natural Resources Division Senior Trial Attorney Andrew A. Smith. New Mexico Cattle Growers’ Association, et al. v. United States Forest Service, et al., Case 1:23-cv-00150-JB-GBW, Albuquerque, NM, February 1, 2024, page 126; [Hearing Transcript](#).

⁵⁴ Stromberg, J.C., 1993. Fremont cottonwood-Goodding willow riparian forests: a review of their ecology, threats, and recovery potential. *Journal of the Arizona-Nevada Academy of Science*, pp.97-110.

⁵⁵ Smith, J.J., 1990. Recovery Of Riparian Vegetation on An Intermittent Stream Following Removal of Cattle. In *California Riparian Systems Conference*, p. 217.

⁵⁶ Rucks, M.G., 1984. Composition and trend of riparian vegetation on five perennial streams in southeastern Arizona. In *California Riparian Systems* (pp. 97-108). University of California Press.

cattle grazing has been correlated with dramatic increases in dense willow thickets, necessary for cuckoo and other riparian species to survive an uncertain future.^{57,58,59,60, 61,62}

Only eliminating livestock access to ephemeral, intermittent, and perennial drainages will allow tree and shrub seedlings to grow and survive. While the effects of climate change are difficult to control, we can greatly improve riparian habitat on public lands in the Southwest by excluding livestock from these areas, thus reducing the habitat destruction, trampling, erosion, and soil compaction that accompany grazing and thereby actively promoting recovery of native ecosystems.

⁵⁷ Cannon, R.W. and Knopf, F.L., 1984. Species composition of a willow community relative to seasonal grazing histories in Colorado. *The Southwestern Naturalist*, 29(2), pp.234-237.

⁵⁸ Reichenbacher, F.W., 1984. Ecology and evolution of southwestern riparian plant communities [The relationship between the distributions of plants in the floodplain and a set of physical site factors, Trout Creek, Mohave County Arizona; USA]. *Desert Plants*.

⁵⁹ Klebenow, D.A. and Oakleaf, R.J., 1984. Historical avifaunal changes in the riparian zone of the Truckee River.

⁶⁰ Taylor, D. M., and C. D. Littlefield. 1986. Willow flycatcher and yellow warbler response to cattle grazing. *American Birds* 40:1169-1173.

⁶¹ Szaro, R.C. and Pase, C.P., 1983. Short-term changes in a cottonwood-ash-willow association on a grazed and an ungrazed portion of Little Ash Creek in central Arizona *Populus fremontii*, velvet ash, *Fraxinus velutina*, Goodding willow, *Salix gooddingii*. *Rangeland Ecology & Management/Journal of Range Management Archives*, 36(3), pp.382-384.

⁶² Response of breeding birds to the removal of cattle on the San Pedro River, Arizona, Krueper, D. J., J. L. Bart, and T. D. Rich. 2003. *Conservation Biology* 17(2): 607-615.

Livestock Damage to Aquatic and Riparian Critical Habitat in the U.S. Southwest: Field Assessment Results 2017-2024



Grazed yellow-billed cuckoo riparian critical habitat on Montana allotment, Coronado National Forest. May 5, 2021.

Center for Biological Diversity



March 2025

Executive Summary

This report provides the Bureau of Land Management (BLM), U.S. Forest Service (FS), and U.S. Fish and Wildlife Service (FWS) the results of the Center for Biological Diversity's (Center) field assessments of livestock grazing damage to aquatic and riparian critical habitat on federal public land in Arizona, New Mexico, and Utah from 2017-2024.

Since 2017, we've assessed critical habitat within a total of 213 federally managed grazing allotments (178 FS and 35 BLM), and in critical habitat administered by both agencies outside of allotments. Administrative units include the Apache-Sitgreaves, Coconino, Coronado, Gila, Lincoln, Prescott, Santa Fe, and Tonto National Forests; the Phoenix, Gila, Hassayampa, and Paria River BLM Districts; two BLM-administered National Monuments (Grand Staircase-Escalante and Agua Fria); and two BLM-administered Riparian National Conservation Areas (Gila Box and San Pedro).

Field assessments characterize livestock grazing impacts to aquatic and riparian critical habitat and document whether livestock are present in critical habitats from which they have been excluded under previous agency decisions. Assessments involve critical habitat for spikedace, loach minnow, Gila chub, razorback sucker, Chiricahua leopard frog, Jemez Mountains salamander, narrow-headed garter snake, northern Mexican garter snake, southwestern willow flycatcher, western yellow-billed cuckoo, Mexican spotted owl, New Mexico meadow jumping mouse, jaguar, Arizona eryngo, and Huachuca water umbel. Other ESA-listed species including desert pupfish and Gila topminnow may be found in some survey areas but lack critical habitat.

This report constitutes the best available scientific information regarding the condition of the Southwest's aquatic and riparian critical habitat because the agencies lack systematic monitoring of the condition of physical and biological features that are essential to conservation of endangered and threatened species. We report results in summary tables organized by year, administrative unit, jurisdiction, and allotment. We present stream miles and percentages of cattle impact levels by district, allotment, and year. We also present comparative data of moderate-significant impacts across all survey years. Results synthesize thousands of georeferenced datapoints that are databased at the Center alongside accompanying photographs of damaged critical habitat.

Of the cumulative 2,435.6 critical habitat stream miles surveyed¹, 50 percent of the cumulative total (1,197.8 miles) showed significant damage from livestock grazing; 13 percent (315.0 miles) showed moderate damage; 23 percent (558.1 miles) showed light damage, and 14 percent (364.7 miles) showed no damage (Table 1). In 2024, assessments across 489.3 critical habitat stream miles show 45 percent of miles (217.9 miles) with significant damage, 13 percent (63.2 miles) with moderate damage, 16 percent (79.5 miles) with light damage, and 26 percent (126 miles) with no damage.

Our data show that across all survey years, and continuing in 2024, livestock grazing is causing moderate or significant damage and ongoing degradation of aquatic and riparian critical

¹ The cumulative total includes stream segments that were resurveyed in subsequent years.

habitat across federal land jurisdictions regionally. Results show that livestock grazing remains an impediment to the survival and recovery of threatened and endangered species in the Southwest. Federal agency action is needed to protect riparian critical habitat from livestock grazing damage and to prevent resultant jeopardy of threatened and endangered species in Arizona, New Mexico, and Utah. Otherwise, status quo federal agency livestock management risks driving to extinction those species that rely on riparian habitat here.

Background

More than a century of livestock grazing in Southwestern riparian ecosystems has led to a decline in insects, fish, reptiles, amphibians, birds, mammals, ground cover, biomass, and native vegetation,² making grazing the most destructive and widespread activity wrought on desert rivers and watersheds since the arrival of American settlers.

Decades of scientific research comparing grazed and ungrazed areas have documented that livestock grazing in the arid Southwest negatively effects water quality and quantity, stream channel morphology, hydrologic function, soil stability, streambank vegetation, and aquatic and riparian wildlife—proving that livestock grazing is an ecological catastrophe.³

FS scientists have concluded that grazing is the most studied threat to riparian areas in the American West⁴ and that livestock use is incompatible with maintenance of habitat for wetland and riparian wildlife.⁵ Livestock grazing effects have contributed to the listing of many threatened and endangered species, including the yellow-billed cuckoo,⁶ spikedace and loach minnow,⁷ northern Mexican and narrow-headed garter snakes,⁸ and others.

Grazing impacts on riparian areas fall into four categories: impacts on streamside vegetation, stream channel morphology, water quality/quantity, and streambanks.⁹ Collectively,

² Krueper, D.J. 1996. Effects of livestock management on Southwestern riparian ecosystems. Pp 281-301 in Shaw, D.W., and D.M. Finch. 1996. [Desired future conditions for Southwestern riparian ecosystems: bringing interests and concerns together](#). Gen. Tech. Rep. RMRS-GTR-272. USDA Forest Service, Fort Collins, CO. 359 p.

³ Belsky, A.J., A. Matzke, and S. Uselman. 1999. [Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States](#). *Journal of Soil and Water Conservation* 54: 419-431.

⁴ Poff, B., K.A. Koestner, D.G Neary, and D. Merritt. 2012. [Threats to western United States riparian ecosystems: A bibliography](#). Gen. Tech. Rep. RMRS-GTR-269. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 78 p.

⁵ Zwartjes, P.W., J.E. Cartron, P.L.L. Stoleson, W.C. Haussamen, and T.E. Crane. 2005. [Assessment of Native Species and Ungulate Grazing in the Southwest: Terrestrial Wildlife](#). Gen. Tech. Rep. RMRS-GTR-142. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 74 p.

⁶ [60 Fed. Reg. at 10707](#) (“Overuse by livestock has been a major factor in the degradation and modification of riparian habitats in the United States ... Livestock grazing in riparian habitats typically results in reduction of plant species diversity and density, especially of palatable plants like willow and cottonwood saplings.”)

⁷ [77 Fed. Reg. at 10818](#) (“Impacts associated with roads and bridges, changes in water quality, improper livestock grazing, and recreation have altered or destroyed many of the rivers, streams, and watershed functions in the ranges of the spikedace and loach minnow.”)

⁸ [79 Fed. Reg. at 38718](#) (“We found numerous effects of livestock grazing that have resulted in the historical degradation of riparian and aquatic communities that have likely affected northern Mexican and narrow-headed gartersnakes.”)

⁹ Kauffman, J.B., and W.C. Krueger. 1984. [Livestock impacts on riparian plant communities and streamside management implications-a review](#). *Journal of Range Management* 37(5): 430-438.

these impacts to vegetation, soils, and water lead to losses of wildlife habitat, reduced stream flow, increased pollution, and eradication of plant and animal species.¹⁰ Grazing on riparian plants reduces vegetative cover and exposes soil to erosion, which in combination with streambank trampling leads to increased erosion and turbidity.¹¹ Livestock congregating in riparian areas feed on native tree and shrub regeneration, disrupting their reproductive cycle and leading to destabilized streambanks,¹² increased water temperatures, loss of hiding and breeding cover, and defecation and urination directly in the water. Reduced rainfall infiltration into soil¹³ and increased sediment loads combine to exacerbate riparian ecosystem decline and increase stream down-cutting.¹⁴

Grazing in adjacent arid uplands and river terraces is equally destructive, with impacts to biological soil crusts, vegetation, soils, and wildlife.¹⁵ A comprehensive review of grazing impacts in the Southwest concluded that no current grazing management system used by land managers is appropriate for the Sonoran Desert.¹⁶ Cattle grazing also negatively impacts high-elevation montane riparian meadows and creeks through hydrologic changes, soil compaction, erosion, bank instability, and siltation.¹⁷ Often, these impacts can have greater effects on wildlife than do wildfires.¹⁸

The only widely accepted way to eliminate cattle impacts and restore stream health is the exclusion of domestic grazers. When maintained, grazing exclosure fencing protects riparian areas and leads to rapid recovery of vigorous native vegetation,¹⁹ which is critical to maintain streambank stability and provide habitat to riparian and aquatic wildlife.²⁰ Furthermore, removal of livestock from sensitive ecosystems, such as Southwestern riparian areas, is a critical component of adapting to climate change.²¹ Prominent fish scientists have concluded that livestock grazing has been a major factor in eliminating native fishes from portions of their

¹⁰ Jones, A. 2000. [Effects of cattle grazing on North American arid ecosystems: a quantitative review](#). *Western North American Naturalist* 60(2): 155-164.

¹¹ Trimble, S.W., and A.C. Mendel. 1995. [The cow as a geomorphic agent - a critical review](#). *Geomorphology* 13(1995): 233-253.

¹² Patten, D.T. 1998. [Riparian ecosystems of Semi-Arid North America: Diversity and Human Impacts](#). *Wetlands* 18(4): 498-512.

¹³ Gifford, G.F., and R.H. Hawkins. 1978. [Hydrologic Impact of Grazing on Infiltration: A Critical Review](#). *Water Resources Research* 14(2): 305-313.

¹⁴ Obedzinski, R.A., C.G. Shaw, and D.G. Neary. 2001. [Declining woody vegetation in riparian ecosystems of the Western United States](#). *Journal of Applied Forestry*. 16(4): 169-181.

¹⁵ Jones, A. 2000. [Effects of cattle grazing on North American arid ecosystems: a quantitative review](#). *Western North American Naturalist* 60(2): 155-164.

¹⁶ Hall, J.A., S. Weinstein, and C.L. McIntyre. 2005. [The Impacts of Livestock Grazing in the Sonoran Desert: A Literature Review and Synthesis](#). The Nature Conservancy in Arizona, Tucson.

¹⁷ [Federal Register Vol. 57 No. 225, November 20, 1992](#), Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Plant “*Salix arizonica*” (Arizona willow), with Critical Habitat.

¹⁸ Horncastle, V.J., C.L. Chambers, and B.G. Dickson. 2019. [Grazing and Wildfire Effects on Small Mammals Inhabiting Montane Meadows](#). *Journal of Wildlife Management* 83(3): 534-543.

¹⁹ Schulz, T.T., and W.C. Leininger. 1990. [Differences in riparian vegetation structure between grazed areas and exclosures](#). *Journal of Range Management* 43(4): 295-299.

²⁰ Sarr, D.A. 2002. [Riparian Livestock Exclosure Research in the Western United States: A Critique and Some Recommendations](#). *Environmental Management* 30(4): 516-526.

²¹ Beschta, R.L., D.L. Donahue, D.A. DellaSala, J.J. Rhodes, J.R. Karr, M.H. O’Brien, T.L. Fleischner, and C.D. Williams. 2013. [Adapting to climate change on western public lands: addressing the ecological effects of domestic, wild, and feral ungulates](#). *Environmental Management* 51: 474-491.

historic ranges²² and that habitat degradation is most easily reversed by excluding livestock from the riparian area.²³

As briefed here, the scientific literature documenting the impacts of livestock grazing on ecosystems is extensive and universally shows severe and lasting negative impacts.²⁴ Livestock removal leads to a rapid regrowth of riparian willow shrub communities²⁵ and reestablishment of high-quality habitat²⁶ and avian populations.²⁷ But full recovery of mature deciduous forests and the diversity that comes with them takes decades of cattle exclusion,²⁸ meaning monitoring, enforcement, and maintenance of riparian exclosures is crucial. Complete exclusion of livestock animals is urgently needed to protect critical habitat and ensure the recovery and viability of native wildlife.

Since 2017, Center for Biological Diversity field biologists have conducted field assessments of livestock grazing impacts to aquatic and riparian critical habitat in the Southwest, including impacts to the physical and biological features that are essential to the conservation of endangered and threatened species.

This effort is compelled by: (1) the well-known negative impacts that livestock grazing and congregation in aquatic and riparian areas have on ecosystems and imperiled species; (2) the observed increasing presence of livestock in livestock-excluded riparian critical habitats in the Southwest, and the deteriorating condition of those habitats in recent decades; and (3) the failure of federal agencies to systematically monitor the health of riparian ecosystems in the context of habitat requirements of threatened and endangered species, and their failure to systematically detect and remove livestock congregating in riparian critical habitat.

Field assessments characterize livestock grazing impacts to aquatic and riparian critical habitat and document whether livestock are present in critical habitats from which they have been excluded under previous agency decisions. These transect assessments characterize, photograph, and rank damage from livestock grazing to primary constituent elements (PCEs) and physical or biological features (PBFs) of critical habitat. This includes (1) herbaceous vegetation and grasses, (2) multi-year woody stems and regeneration, (3) soil and ground disturbance

²² Propst, D.L. 1999. [Threatened and endangered fishes of New Mexico](#). Tech. Rpt. No. 1. New Mexico Department of Game and Fish, Santa Fe, NM at page 15.

²³ Pritchard, V.L. and D.E. Crowley. 2006. Rio Grande Cutthroat Trout (*Oncorhynchus clarkii virginalis*): A Technical Conservation Assessment. Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project. Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, NM.

²⁴ Fleischner, T.L. 1994. [Ecological costs of livestock grazing in western North America](#). *Conservation Biology* 8(3): 629-644.

²⁵ Holland, K.A., W.C. Leininger, and M.J. Trlica. 2005. [Grazing History Affects Willow Communities in a Montane Riparian Ecosystem](#). *Rangeland Ecology and Management* 58: 148-154.

²⁶ Krueper, D., J. Bart, and T.D. Rich. 2003. [Response of vegetation and breeding birds to the removal of cattle on the San Pedro River, Arizona \(U.S.A.\)](#). *Conservation Biology* 17(2): 607-615.

²⁷ Poessel, S.A., J.C. Hagar, P.K. Haggerty, and T.E. Katzner. 2020. [Removal of cattle grazing correlates with increases in vegetation productivity and in abundance of imperiled breeding birds](#). *Biological Conservation* 241 (2020): 108378.

²⁸ Szaro, R.C., and C.P. Pase. 1983. [Short-term Changes in a Cottonwood-Ash-Willow Association on a Grazed and an Ungrazed Portion of Little Ash Creek in Central Arizona](#). *Journal of Range Management* 38(3): 382-384.

intensity, (4) soil/ground cover disturbance extent, (5) intensity of streambank degradation, and (6) extent and pervasiveness of streambank erosion, as well as checking exclosures.

Field assessments have included critical habitat for spinedace, loach minnow, Gila chub, razorback sucker, Chiricahua leopard frog, Jemez Mountains salamander, narrow-headed garter snake, northern Mexican garter snake, southwestern willow flycatcher, western yellow-billed cuckoo, Mexican spotted owl, New Mexico meadow jumping mouse, jaguar, Arizona eryngo, and Huachuca water umbel.

Each year, survey data are recorded and databased with updated, georeferenced photographs. Overall livestock impacts are summarized and mapped by allotment and critical habitat stream segment (see Appendix A). All data are stored in a GIS database alongside hundreds of corresponding photographs documenting damage for critical habitat stream reach. These data are the most comprehensive, quantifiable, and up-to-date assessments of riparian conditions and cattle occupancy for each area surveyed. Transect field assessments provide the best available scientific information about the condition of aquatic and riparian critical habitats in the Southwest.

Methods

On an annual basis, professional field biologists document livestock impacts to standing waters, riparian vegetation, soils, and streambanks within designated critical habitat and examine protective fencing where applicable. Hundreds of georeferenced photo points are taken along each segment to document evidence of livestock impacts. Using a standardized protocol, surveyors record:

- (1) severity of grazing impacts on herbaceous vegetation and grasses;
- (2) severity of browsing impacts on streamside woody regeneration;
- (3) severity of ground disturbances from trailing, trampling, and wallowing;
- (4) extent of ground disturbances from trailing, trampling, and wallowing;
- (5) severity of streambank degradation; and
- (6) extent of streambank degradation.

Each survey is broken down into ¼-½ mile field-delineated segments of designated critical habitat based on topography, access, and trends in severity of cattle impacts. At each segment endpoint, a condition score is recorded for each of the six impact categories along a range of 0 to 4 based on the severity and extent of the impact. A segment is rated 0 for a particular category if no evidence of impact is observed, 1 if impacts are limited, 2 if impacts are light and scattered, 3 if impacts are moderate and widespread, and 4 if impacts are severe and pervasive. Following field surveys of designated stream reaches, each segment's "overall impact level" (defined as absent, light, moderate or significant) is calculated. To determine overall impact level, condition severity scores for each segment endpoint are collated and weighted (see Appendix A).

Results

Since 2017, the Center has conducted surveys on 178 grazing allotments administered by the FS on eight national forests in Arizona and New Mexico, 35 grazing allotments administered by the BLM in Arizona and Utah, and in critical habitat administered by both agencies on public

lands outside of active grazing allotments where poorly managed and illegal cattle have shown repeated or sustained presence. Cattle impacts assessed result from a combination of authorized, unauthorized, trespass and feral cattle.

Not all allotments were surveyed every year. Therefore, each year represents a snapshot in time and often includes a varying number and combination of allotments (and therefore total critical habitat miles) surveyed. While Center biologists did not revisit each allotment every year over the eight years beginning in 2017, many allotments were surveyed consistently across multiple years.

Most survey mileage represents comprehensive transects of all critical habitat miles within an allotment (or other management unit). Some surveys were ‘spot checks’ in known problem areas, and thus the percentages of moderate to significant impacts reported do not necessarily represent a comprehensive description of all critical habitat allotment-wide (e.g., the Diamond Bar and Redstone on the Gila National Forest). Conversely, some spot checks represent inspections of grazing exclosures where impacts were found to be absent (Lincoln National Forest, 2024). In instances where survey miles are low with high percentages of ‘significant’ or ‘absent’ impact levels, caution should be used when extending results to all critical habitat within an entire allotment. This report is meant to be a broad summary of our region-wide cattle impact survey findings to date.

Results are presented in miles of overall impact level and percentage of overall impact level of the total miles surveyed per year, administrative unit, district, and allotment. We present the annual total percentage of moderately to significantly impacted miles by administrative unit, district and allotment. We also present the cumulative miles of overall impact level recorded and the percentage of those impact levels of the cumulative total of critical habitat miles surveyed to date.

To summarize the total collective effort to date, eight years of critical habitat surveys across 2,435.6 cumulative stream miles show 50 percent of the cumulative total (1,197.8 miles) with significant damage from unauthorized livestock grazing; 13 percent (315.0 miles) with moderate damage; 23 percent (558.1 miles) with light damage, and 14 percent (364.7 miles) with no damage (Table 1). In 2024, assessments across 489.3 critical habitat stream miles show 45 percent of miles (217.9 miles) with significant damage, 13 percent (63.2 miles) with moderate damage, 16 percent (79.5 miles) with light damage, and 26 percent (128.6 miles) with no damage (Table 1).

Table 1. Cattle impacts on designated critical habitat across all FS and BLM public land jurisdictions from 2017-2024.

	Absent		Light		Moderate		Significant		TOTAL
Year	miles	percent	miles	percent	miles	percent	miles	percent	miles
2017	11.78	9.85%	19.07	15.95%	15.27	12.77%	73.46	61.43%	119.59
2018	27.66	30.08%	16.96	18.44%	14.56	15.84%	32.77	35.64%	91.96
2019	60.54	18.68%	105.15	32.44%	39.17	12.08%	119.25	36.79%	324.13
2020	8.49	13.61%	22.11	35.47%	6.42	10.30%	25.32	40.62%	62.34
2021	47.19	11.78%	35.73	8.92%	51.89	12.95%	265.71	66.34%	400.52
2022	63.06	13.07%	121.43	25.17%	54.66	11.33%	243.27	50.43%	482.42
2023	17.37	3.73%	158.05	33.97%	69.82	15.00%	220.09	47.30%	465.33
2024	128.63	26.28%	79.55	16.26%	63.22	12.92%	217.96	44.54%	489.35
TOTAL	364.72	14.05%	558.06	22.72%	315.00	13.27%	1197.84	49.97%	2435.63

To better illustrate annual results and trends over time, we herein break the cumulative totals down by year, administrative unit, district, and individual grazing allotment.

Forest Service, Region 3

Apache-Sitgreaves National Forest (Arizona)

The Apache-Sitgreaves National Forest (ASNF) contains designated critical habitat for ten different threatened and endangered species surveyed by the Center, including spikedace, loach minnow, Gila chub, Apache trout, Chiricahua leopard frog, narrow-headed garter snake, northern Mexican garter snake, southwestern willow flycatcher, western yellow-billed cuckoo, and New Mexico meadow jumping mouse.

Aggregate data concerning ASNF surveys 2017-2024 is contained in Table 2; Tables 3-10 include data for each year of surveys. From 2017-2024, the Center surveyed 446.44 miles of public lands critical habitat designations on the ASNF for cattle impacts (range 4.3-92.9 miles/year, average 63.8 miles/year, Tables 2-10). Percent of survey miles moderately to significantly impacted by cattle on the Alpine Ranger District ranged from 23% (2018) to 44% (2023), with an average of 31.2 % across all survey years. The worst allotment was Raspberry allotment, which showed 100% of survey miles degraded by cattle in 2018 and 2021-2024.

Percent of survey miles moderately to significantly impacted on the Clifton Ranger District ranged from 0% (2019) to 100% (2020), with an average of 73.5% across all survey years. There are several allotments chronically degraded by cattle on this District, including, but not limited to, the Hickey, Pigeon, and Dark Canyon allotments.

In 2024, Cattle Impact Surveys continued for the seventh consecutive year on ASNF. In 2024, the Center surveyed 92.87 miles on 21 different grazing allotments. Of these allotments, ten had moderate to significant cattle impacts on the majority of designated critical habitat miles surveyed. Critical habitat on the Springerville Ranger District was only surveyed in 2018 and 2024, but in 2024, 20% of critical habitat miles were shown to have moderate to severe cattle impacts with these designations.

Table 2. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Apache-Sitgreaves National Forest, by district and allotment, from 2017-2024.

Allotment	2017	2018	2019	2020	2021	2022	2023	2024
Alpine Ranger District		23%	28%		41%	37%	44%	26%
Alpine GRA			0%					0%
Black River & Black River GRA		0%						0%
Bobcat-Johnson		0%			0%	0%	0%	
Colter Creek & Nutrioso GRA								0%
Cow flat		100%			0%	0%	53%	
Coyote-Whitmer		43%	100%					
Fishhook/Steeple Mesa		0%			26%	6%	31%	
Foote Creek								
Grandfather								18%
Lower Campbell Blue		0%						
Not in allotment								0%
PS								24%
Raspberry		100%			100%	100%	100%	100%
Red Hill		51%			0%	0%	0%	
South Escudilla & Nutrioso Summer								0%
Sprucedale/Reno & Hannagan								2%
Turkey Creek		0%						
Upper Campbell Blue			32%					
West Fork								21%
Williams Valley			0%					24%
Clifton Ranger District	87%	95%	0%	100%	83%	61%	83%	79%
Black Jack			0%					
Dark Canyon		100%			96%	64%	100%	96%
Double Circle		98%			73%	13%	44%	
East Eagle		61%		100%	0%	0%	100%	100%
Hickey	87%	100%			100%	86%	90%	65%
Mud Springs		92%			91%	30%	100%	100%
Pigeon	100%				100%		100%	100%
Pleasant Valley	82%		0%		72%	34%	55%	89%
San Francisco			0%				22%	
Sandrock		99%			76%	58%	100%	64%
Sandrock/Wildbunch							100%	
Strayhorse			0%			0%		
Tule		100%						100%
Wildbunch	100%	100%				100%	85%	100%
Springerville Ranger District		5%						20%
26 Bar								0%
Greer		5%						
Not in allotment								0%
Reservation								0%
Udall								0%
Voigt								45%

Table 3. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2017.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Clifton Ranger District		0.0%	1.91	13.5%	2.86	20.3%	9.34	66.2%	14.11
Hickey		0.0%	1.37	13.3%	1.77	17.1%	7.20	69.6%	10.34
Pigeon		0.0%		0.0%		0.0%	0.57	100.0%	0.57
Pleasant Valley		0.0%	0.53	17.7%	1.09	36.2%	1.39	46.2%	3.01
Wildbunch		0.0%		0.0%		0.0%	0.18	100.0%	0.18

Table 4. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2018.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Alpine Ranger District	25.31	58.2%	7.95	18.3%	1.29	3.0%	8.91	20.5%	43.46
Black River & Black River GRA	7.48	74.5%	2.56	25.5%		0.0%		0.0%	10.04
Bobcat-Johnson	5.83	100.0%		0.0%		0.0%		0.0%	5.83
Cow Flat		0.0%		0.0%		0.0%	0.58	100.0%	0.58
Fishhook/Steeple Mesa	2.44	37.8%	1.26	19.4%	0.75	11.6%	2.01	31.1%	6.46
Foot Creek	4.11	86.6%	0.63	13.4%		0.0%		0.0%	4.74
Lower Campbell Blue	4.01	58.3%	2.86	41.7%		0.0%		0.0%	6.87
Raspberry		0.0%		0.0%	0.54	8.8%	5.63	91.3%	6.17
Red Hill		0.0%	0.65	48.5%		0.0%	0.68	51.3%	1.33
Turkey Creek	1.44	100.0%		0.0%		0.0%		0.0%	1.44
Clifton Ranger District	0.16	0.5%	1.52	4.3%	11.00	31.1%	22.72	64.2%	35.41
Dark Canyon		0.0%		0.0%		0.0%	4.39	100.0%	4.39
Double Circle	0.04	1.6%		0.0%		0.0%	2.68	98.3%	2.73
East Eagle		0.0%	1.33	39.3%	0.85	25.1%	1.21	35.7%	3.39
Hickey		0.0%		0.0%	0.82	100.0%		0.0%	0.82
Mud Springs	0.12	8.2%		0.0%	0.21	14.3%	1.14	77.5%	1.47
Sandrock		0.0%	0.19	1.2%	8.21	50.7%	7.79	48.1%	16.19
Tule		0.0%		0.0%		0.0%	0.91	100.0%	0.91
Wildbunch		0.0%		0.0%	0.91	16.5%	4.60	83.5%	5.51
Springerville Ranger District	2.19	26.8%	5.58	68.3%	0.40	4.9%		0.0%	8.17
Greer	2.19	26.8%	5.58	68.3%	0.40	4.9%		0.0%	8.17

Table 5. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2019.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Alpine Ranger District		0.0%	5.62	72.1%	1.48	19.0%	0.69	8.9%	7.79
Alpine GRA		0.0%	0.40	100.0%		0.0%		0.0%	0.40
Coyote-Whitmer		0.0%		0.0%	0.42	38.2%	0.69	62.1%	1.11
Upper Campbell Blue		0.0%	2.21	67.7%	1.06	32.4%		0.0%	3.27
Williams Valley		0.0%	3.00	100.0%		0.0%		0.0%	3.00
Clifton Ranger District		0.0%	11.39	100.0%		0.0%		0.0%	11.39
Black Jack		0.0%	0.65	100.4%		0.0%		0.0%	0.65
Pleasant Valley		0.0%	0.45	99.8%		0.0%		0.0%	0.45
San Francisco		0.0%	7.99	100.0%		0.0%		0.0%	7.99
Strayhorse		0.0%	2.30	100.0%		0.0%		0.0%	2.30

Table 6. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2020.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Clifton Ranger District		0.0%		0.0%	0.32	7.5%	3.97	92.4%	4.29
East Eagle		0.0%		0.0%	0.32	7.5%	3.97	92.4%	4.29

Table 7. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2021.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Alpine Ranger District	10.19	55.1%	0.65	3.5%	0.76	4.1%	6.90	37.3%	18.50
Bobcat-Johnson	4.39	100.0%		0.0%		0.0%		0.0%	4.39
Cow Flat	0.99	99.6%		0.0%		0.0%		0.0%	0.99
Fishhook/Steeple Mesa	4.00	71.7%	0.12	2.2%	0.76	13.6%	0.70	12.6%	5.58
Raspberry		0.0%		0.0%		0.0%	6.20	100.0%	6.20
Red Hill	0.82	60.6%	0.53	39.2%		0.0%		0.0%	1.35
Clifton Ranger District	3.28	5.8%	6.40	11.3%	10.97	19.4%	36.04	63.6%	56.69
Dark Canyon		0.0%	0.15	3.6%	0.67	16.1%	3.36	80.3%	4.18
Double Circle	0.67	26.7%		0.0%	0.50	20.0%	1.34	53.5%	2.51
East Eagle	2.03	66.0%	1.04	33.9%		0.0%		0.0%	3.08
Hickey		0.0%		0.0%	0.90	5.6%	15.28	94.4%	16.18
Mud Springs	0.14	9.3%		0.0%	0.88	57.0%	0.52	33.6%	1.55
Pigeon		0.0%		0.0%	0.48	100.0%		0.0%	0.48
Pleasant Valley	0.43	6.7%	1.38	21.2%	0.30	4.6%	4.38	67.4%	6.49
Sandrock		0.0%	3.82	24.3%	4.90	31.2%	7.00	44.5%	15.72
Wildbunch		0.0%		0.0%	2.33	35.8%	4.18	64.2%	6.50

Table 8. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2022.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Alpine Ranger District	9.28	53.6%	1.55	8.9%	0.27	1.5%	6.22	35.9%	17.31
Bobcat-Johnson	4.48	100.1%		0.0%		0.0%		0.0%	4.48
Cow Flat	1.12	100.1%		0.0%		0.0%		0.0%	1.12
Fishhook/Steeple Mesa	3.06	72.6%	0.89	21.1%	0.27	6.3%		0.0%	4.21
Raspberry		0.0%		0.0%		0.0%	6.22	100.0%	6.22
Red Hill	0.62	48.3%	0.66	51.4%		0.0%		0.0%	1.28
Clifton Ranger District	5.65	11.0%	14.35	27.9%	10.68	20.8%	20.68	40.3%	51.36
Dark Canyon	0.13	1.9%	2.30	33.7%		0.0%	4.39	64.4%	6.82
Double Circle	1.87	74.4%	0.33	12.9%	0.32	12.6%		0.0%	2.52
East Eagle	1.89	74.2%	0.66	26.0%		0.0%		0.0%	2.55
Hickey		0.0%	1.56	14.1%	3.24	29.3%	6.25	56.5%	11.06
Mud Springs	0.99	69.3%		0.0%	0.22	15.3%	0.22	15.2%	1.43
Pleasant Valley		0.0%	3.35	66.1%	0.77	15.1%	0.95	18.8%	5.07
Sandrock	0.52	3.3%	6.15	38.5%	1.26	7.9%	8.03	50.3%	15.96
Strayhorse	0.25	100.0%		0.0%		0.0%		0.0%	0.25
Wildbunch		0.0%		0.0%	4.88	85.4%	0.84	14.6%	5.72

Table 9. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2023.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Alpine Ranger District		0.0%	10.94	55.8%	1.26	6.5%	7.39	37.7%	19.60
Bobcat-Johnson		0.0%	5.12	100.0%		0.0%		0.0%	5.12
Cow Flat		0.0%	0.53	47.1%		0.0%	0.59	52.7%	1.12
Fishhook/Steeple Mesa		0.0%	3.85	68.9%	1.26	22.6%	0.47	8.5%	5.59
Raspberry		0.0%		0.0%		0.0%	6.33	100.0%	6.33
Red Hill		0.0%	1.44	100.0%		0.0%		0.0%	1.44
Clifton Ranger District	0.86	1.3%	10.60	16.2%	14.73	22.5%	39.31	60.0%	65.49
Dark Canyon		0.0%		0.0%	0.18	9.0%	1.80	91.3%	1.97
Double Circle	0.86	34.2%	0.54	21.7%		0.0%	1.10	44.0%	2.51
East Eagle		0.0%		0.0%	0.49	4.1%	11.45	95.9%	11.94
Hickey		0.0%	1.10	10.3%	0.93	8.7%	8.72	81.1%	10.75
Mud Springs		0.0%		0.0%		0.0%	1.50	100.0%	1.50
Pigeon		0.0%		0.0%		0.0%	0.48	100.0%	0.48
Pleasant Valley		0.0%	1.70	44.8%	1.22	32.0%	0.88	23.2%	3.80
San Francisco		0.0%	6.34	77.5%	1.22	15.0%	0.61	7.5%	8.18
Sandrock		0.0%		0.0%	6.25	35.4%	11.38	64.5%	17.64
Sandrock/Wildbunch		0.0%		0.0%	0.60	100.0%		0.0%	0.60
Wildbunch		0.0%	0.90	14.8%	3.84	62.7%	1.38	22.6%	6.12

Table 10. Critical habitat survey miles impacted by cattle on the Apache-Sitgreaves National Forest in 2024.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Alpine Ranger District	24.63	72.7%	0.49	1.4%	2.09	6.2%	6.66	19.7%	33.87
Alpine GRA	0.76	100.0%		0.0%		0.0%		0.0%	0.76
Black River & Black River GRA	8.59	100.0%		0.0%		0.0%		0.0%	8.59
Colter Creek & Nutrioso GRA	1.52	100.0%		0.0%		0.0%		0.0%	1.52
Grandfather	0.22	81.5%		0.0%		0.0%	0.05	18.0%	0.27
Not in allotment	0.24	100.0%		0.0%		0.0%		0.0%	0.24
PS	4.78	75.9%		0.0%	0.78	12.4%	0.74	11.8%	6.30
Raspberry		0.0%		0.0%		0.0%	5.74	100.0%	5.74
South Escudilla & Nutrioso Summer	1.75	100.0%		0.0%		0.0%		0.0%	1.75
Sprucedale/Reno & Hannagan	2.30	97.6%		0.0%	0.05	2.2%		0.0%	2.36
West Fork	3.22	79.3%		0.0%	0.84	20.8%		0.0%	4.06
Williams Valley	1.24	54.8%	0.49	21.5%	0.41	18.2%	0.12	5.4%	2.27
Clifton Ranger District	0.44	0.9%	9.09	19.6%	9.17	19.8%	27.69	59.7%	46.39
Dark Canyon		0.0%	0.15	4.3%		0.0%	3.35	95.6%	3.50
East Eagle		0.0%		0.0%	6.27	92.0%	0.54	7.9%	6.81
Hickey		0.0%	3.73	34.9%	2.90	27.1%	4.07	38.0%	10.71
Mud Springs		0.0%		0.0%		0.0%	1.21	100.0%	1.21
Pigeon		0.0%		0.0%		0.0%	0.57	100.0%	0.57
Pleasant Valley	0.44	11.4%		0.0%		0.0%	3.40	88.5%	3.84
Sandrock		0.0%	5.21	35.8%		0.0%	9.32	64.2%	14.53
Tule		0.0%		0.0%		0.0%	0.41	100.0%	0.41
Wildbunch		0.0%		0.0%		0.0%	4.82	100.0%	4.82
Springerville Ranger District	6.92	54.9%	3.12	24.8%	1.27	10.1%	1.30	10.3%	12.61
26 Bar	0.39	100.0%		0.0%		0.0%		0.0%	0.39
Not in allotment	5.38	100.0%		0.0%		0.0%		0.0%	5.38
Reservation		0.0%	0.33	100.0%		0.0%		0.0%	0.33
Udall	0.82	100.0%		0.0%		0.0%		0.0%	0.82
Voigt	0.33	5.7%	2.79	49.1%	1.27	22.3%	1.30	22.9%	5.69

Coconino National Forest (Arizona)

Grazing allotments in the Redrock Ranger District of Coconino National Forest were surveyed in 2019 and 2020. Aggregate data concerning Coconino surveys 2019-2020 is contained in Table 11; Tables 12-13 include data for each year of surveys. In 2019, approximately one third of surveyed critical habitat miles were damaged by cattle, with Fossil Creek and Walker Basin allotments having the highest percentages at 81% and 53%, respectively (Table 11). In 2020, the Center resurveyed 1.74 miles of spikedace/loach minnow critical habitat in Fossil Creek allotment and documented only light cattle impacts along this stream reach (Tables 11-13).

Table 11. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Coconino National Forest from 2019-2020.

District/ Allotment	2019	2020
Red Rock Ranger District	32%	0%
13-Mile Rock/ Hackberry/Pivot Rock	32%	
Apache Maid	0%	
Beaver Creek	22%	
Fossil Creek	81%	0%
Walker Basin	53%	
Windmill West (boundary w/ Antelope Hills, Prescott NF)	30%	

Table 12. Critical habitat survey miles impacted by cattle on the Coconino National Forest in 2019.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Red Rock Ranger District	12.30	37.3%	9.99	30.3%	2.60	7.8%	8.04	24.4%	32.94
Windmill West (boundary w/ Antelope Hills, Prescott NF)	3.05	70.0%		0.0%	0.85	19.5%	0.45	10.4%	4.35
13-Mile Rock/ Hackberry/Pivot Rock	5.01	36.8%	4.24	31.1%		0.0%	4.38	32.1%	13.63
Beaver Creek	1.70	25.0%	3.62	53.2%	0.38	5.6%	1.11	16.3%	6.81
Apache Maid	1.01	37.8%	1.66	62.1%		0.0%		0.0%	2.68
Walker Basin	0.69	46.8%		0.0%	0.79	53.4%		0.0%	1.47
Fossil Creek	0.84	21.0%	0.47	11.7%	0.59	14.8%	2.10	52.5%	4.00

Table 13. Critical habitat survey miles impacted by cattle on the Coconino National Forest in 2020.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Red Rock Ranger District		0.0%	1.74	100.0%		0.0%		0.0%	1.74
Fossil Creek		0.0%	1.74	100.0%		0.0%		0.0%	1.74

Coronado National Forest (Arizona)

Most of the designated critical habitat on the Coronado National Forest protects threatened yellow-billed cuckoo, but critical habitat also exists for Chiricahua leopard frog, northern Mexican garter snake, Sonora chub and Huachuca water umbel. These designations were surveyed by the Center for cattle impacts starting in 2020. Aggregate data concerning Coronado surveys 2020-2024 is contained in Table 14; Tables 15-19 include data for each year of surveys.

The Center began cattle impact surveys on Coronado National Forest by assessing over 19 miles of Chiricahua leopard frog designations across four Ranger Districts (Tables 14, 15). The Pena Blanca and Cross S allotments of the Nogales Ranger District showed 73% and 100% of leopard frog critical habitat survey miles damaged by cattle, respectively.

Continuing the effort across subsequent survey years, and expanding to yellow-billed cuckoo critical habitat, an average of 76% of the Sierra Vista Ranger District (range 42%-97%) showed moderate to significant cattle impacts to riparian and xeroriparian zones (Tables 14-19). This is the highest average in all FS Region 3 per Ranger District. Most grazing allotments of the Sierra Vista Ranger District show consistent, high percentages of significant cattle impacts repeatedly over time.

Since 2020, an average of 73% of the critical habitat survey miles within the Nogales Ranger District (range 61%-86%) have shown ecological damage from cattle impacts. Cross S and Montana allotments are the worst chronic offenders, but several other allotments within the Nogales Ranger District are close behind in the percentages of critical habitat moderately to significantly impacted by cattle.

Surveys of critical habitat in grazing allotments of the Coronado National Forest commenced in 2024 for the fifth consecutive year (Table 19). Of the 26 allotments surveyed in 2024, 22 allotments (85%) had >50% of survey miles damaged by cattle, 19 allotments (73%) had >75% of survey miles damaged, and 14 of 26 allotments (54%) had 100% of critical habitat miles damaged by cattle.

Table 14. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Coronado National Forest, by allotment, from 2020-2024.

Allotment	2020	2021	2022	2023	2024
Douglas Ranger District	5%			0%	
Cave Creek	0%				
Walnut Canyon	8%			0%	
Nogales Ranger District	61%	76%	81%	62%	86%
Agua Caliente		40%	100%	0%	29%
Apache Springs					100%
Bear Valley	29%	71%	91%	54%	85%
Bear Valley/Not in allotment			100%		
Box Canyon		79%	100%	49%	100%
Cross S	100%		100%	100%	100%
Gardner					100%
Greaterville		100%	100%	26%	56%
Lake		100%	60%	100%	100%
Mc Beth		51%		0%	
Montana		99%	100%	99%	100%
Nogales			100%		
Not in allotment					45%
Oak Tree II			92%	75%	100%
Pena Blanca	73%	0%	31%	30%	69%
Proctor		100%	100%	100%	77%
Rock Corral			0%		
Rosemont		100%	95%	53%	100%
Safford Ranger District	0%				
Deer Creek	0%				
Willow Creek	0%				
Santa Catalina Ranger District			0%		
American Flag			0%		
Sierra Vista Ranger District	42%	84%	75%	97%	81%
Alisos		100%	100%	100%	67%
Chuney		0%	0%	100%	100%
Collins Canyon		1%	75%		
Duquesne		91%	52%	100%	92%
Farrell		98%	100%	86%	82%
Harshaw		82%	58%	100%	19%
Hayfield		100%	100%	101%	100%
Lewis		100%	100%		
Lone Mountain	42%	100%	70%	100%	86%
Lyle Canyon		100%	79%	100%	100%
Mc Farland		100%	100%	100%	0%
Post Canyon		64%	0%	100%	100%
San Rafael		68%	100%	100%	0%
Santa Cruz		100%	100%	81%	100%
Santa Cruz/Alisos					100%
Sawtelle					100%

Table 15. Critical habitat survey miles impacted by cattle on the Coronado National Forest in 2020.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Douglas Ranger District	3.57	70.4%	1.23	24.2%	0.27	5.4%		0.0%	5.08
Cave Creek	1.60	100.0%		0.0%		0.0%		0.0%	1.60
Walnut Canyon	1.97	56.7%	1.23	35.4%	0.27	7.9%		0.0%	3.48
Nogales Ranger District	0.87	9.1%	2.83	29.6%	1.22	12.7%	4.65	48.5%	9.57
Bear Valley	0.43	10.4%	2.54	60.6%	1.22	29.0%		0.0%	4.19
Cross S		0.0%		0.0%		0.0%	2.67	100.0%	2.67
Pena Blanca	0.44	16.3%	0.30	10.9%		0.0%	1.97	72.7%	2.71
Safford Ranger District	0.55	58.6%	0.39	41.9%		0.0%		0.0%	0.94
Deer Creek	0.46	53.5%	0.39	46.4%		0.0%		0.0%	0.85
Willow Creek	0.10	100.0%		0.0%		0.0%		0.0%	0.10
Sierra Vista Ranger District		0.0%	2.23	57.5%	1.64	42.4%		0.0%	3.87
Lone Mountain		0.0%	2.23	57.5%	1.64	42.4%		0.0%	3.87

Table 16. Critical habitat survey miles impacted by cattle on the Coronado National Forest in 2021.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Nogales Ranger District	1.42	4.5%	6.19	19.6%	2.22	7.0%	21.82	68.9%	31.65
Agua Caliente	0.50	10.6%	2.35	49.6%		0.0%	1.89	39.9%	4.73
Bear Valley		0.0%	0.74	28.6%	1.18	45.9%	0.66	25.6%	2.58
Box Canyon		0.0%	0.35	21.5%		0.0%	1.28	78.6%	1.63
Greaterville		0.0%		0.0%		0.0%	1.28	100.0%	1.28
Lake		0.0%		0.0%		0.0%	0.71	100.0%	0.71
Mc Beth	0.78	49.3%		0.0%		0.0%	0.81	51.0%	1.59
Montana	0.13	1.4%		0.0%	0.23	2.5%	9.10	96.2%	9.46
Pena Blanca		0.0%	2.76	100.0%		0.0%		0.0%	2.76
Proctor		0.0%		0.0%	0.81	12.4%	5.70	87.6%	6.50
Rosemont		0.0%		0.0%		0.0%	0.40	100.0%	0.40
Sierra Vista Ranger District	6.66	10.6%	3.29	5.3%	10.69	17.1%	41.90	67.0%	62.54
Alisos		0.0%		0.0%	0.87	17.0%	4.26	83.0%	5.13
Chuney	1.89	100.0%		0.0%		0.0%		0.0%	1.89
Collins Canyon	4.39	82.8%	0.86	16.3%		0.0%	0.05	1.0%	5.31
Duquesne		0.0%	0.29	9.0%	1.02	31.4%	1.93	59.7%	3.24
Farrell		0.0%	0.14	1.8%	1.89	23.6%	5.96	74.6%	8.00
Harshaw		0.0%	0.81	18.1%	1.27	28.4%	2.40	53.5%	4.48
Hayfield		0.0%		0.0%	0.50	46.3%	0.58	53.6%	1.08
Lewis		0.0%		0.0%		0.0%	0.70	100.0%	0.70
Lone Mountain		0.0%		0.0%	1.25	8.3%	13.83	91.7%	15.09
Lyle Canyon		0.0%		0.0%	1.56	15.3%	8.63	84.7%	10.19
Mc Farland		0.0%		0.0%		0.0%	0.37	100.0%	0.37
Post Canyon	0.37	36.5%		0.0%		0.0%	0.65	63.8%	1.02
San Rafael		0.0%	1.18	31.9%	2.32	62.8%	0.20	5.3%	3.70
Santa Cruz		0.0%		0.0%		0.0%	2.34	100.0%	2.34

Table 17. Critical habitat survey miles impacted by cattle on the Coronado National Forest in 2022.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Nogales Ranger District	1.68	3.1%	8.98	16.4%	6.08	11.1%	37.93	69.4%	54.66
Agua Caliente		0.0%		0.0%	0.34	100.0%		0.0%	0.34
Bear Valley		0.0%	0.78	9.3%	0.63	7.5%	6.97	83.2%	8.37
Bear Valley/Not in allotment		0.0%		0.0%	0.37	100.0%		0.0%	0.37
Box Canyon		0.0%		0.0%	0.38	16.6%	1.91	83.5%	2.29
Cross S		0.0%		0.0%	0.17	8.3%	1.83	91.5%	2.00
Greaterville		0.0%		0.0%		0.0%	1.29	100.0%	1.29
Lake	0.23	19.2%	0.24	20.3%		0.0%	0.72	60.4%	1.19
Montana		0.0%		0.0%	3.28	29.4%	7.88	70.6%	11.16
Nogales		0.0%		0.0%	0.22	100.0%		0.0%	0.22
Oak Tree II		0.0%	0.37	8.3%		0.0%	4.09	91.6%	4.46
Pena Blanca		0.0%	7.11	69.4%	0.70	6.8%	2.45	23.9%	10.25
Proctor		0.0%		0.0%		0.0%	0.96	100.0%	0.96
Rock Corral	1.45	100.0%		0.0%		0.0%		0.0%	1.45
Rosemont		0.0%	0.48	4.6%		0.0%	9.83	95.4%	10.31
Santa Catalina Ranger District	1.39	100.0%		0.0%		0.0%		0.0%	1.39
American Flag	1.39	100.0%		0.0%		0.0%		0.0%	1.39
Sierra Vista Ranger District	9.30	13.7%	7.47	11.0%	6.31	9.3%	44.90	66.0%	67.98
Alisos		0.0%		0.0%		0.0%	4.86	100.0%	4.86
Chuney		0.0%	2.00	100.0%		0.0%		0.0%	2.00
Collins Canyon		0.0%	0.12	25.2%		0.0%	0.35	75.3%	0.46
Duquesne	2.26	40.3%	0.44	7.9%		0.0%	2.92	51.9%	5.62
Farrell		0.0%		0.0%		0.0%	8.31	100.0%	8.31
Harshaw	2.32	25.4%	1.55	17.0%	0.97	10.6%	4.29	47.0%	9.13
Hayfield		0.0%		0.0%		0.0%	1.09	100.0%	1.09
Lewis		0.0%		0.0%		0.0%	0.29	100.0%	0.29
Lone Mountain	2.38	14.0%	2.66	15.6%	3.89	22.9%	8.10	47.6%	17.04
Lyle Canyon	1.55	14.4%	0.71	6.5%		0.0%	8.55	79.1%	10.81
Mc Farland		0.0%		0.0%	0.13	13.3%	0.85	86.6%	0.98
Post Canyon	0.79	100.0%		0.0%		0.0%		0.0%	0.79
San Rafael		0.0%		0.0%		0.0%	1.88	100.0%	1.88
Santa Cruz		0.0%		0.0%	1.32	27.9%	3.41	72.2%	4.72

Table 18. Critical habitat survey miles impacted by cattle on the Coronado National Forest in 2023.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Douglas Ranger District	0.54	26.0%	1.53	74.2%		0.0%		0.0%	2.06
Walnut Canyon	0.54	26.0%	1.53	74.2%		0.0%		0.0%	2.06
Nogales Ranger District	1.26	3.0%	15.01	35.4%	5.44	12.8%	20.71	48.8%	42.42
Agua Caliente		0.0%	2.13	100.0%		0.0%		0.0%	2.13
Bear Valley	0.78	12.6%	2.11	33.9%	1.44	23.2%	1.89	30.3%	6.22
Box Canyon		0.0%	1.16	50.7%		0.0%	1.12	49.2%	2.28
Cross S		0.0%		0.0%	0.18	5.8%	2.91	94.1%	3.09
Greaterville	0.32	10.7%	1.88	63.1%	0.74	24.8%	0.04	1.3%	2.98
Lake		0.0%		0.0%	0.45	33.1%	0.90	66.9%	1.35
Mc Beth		0.0%	0.49	100.0%		0.0%		0.0%	0.49
Montana	0.16	1.4%		0.0%	1.22	11.3%	9.42	87.2%	10.80
Oak Tree II		0.0%	0.64	25.5%	0.40	15.7%	1.49	59.0%	2.53
Pena Blanca		0.0%	6.52	69.8%	0.92	9.9%	1.90	20.4%	9.34
Proctor		0.0%		0.0%		0.0%	1.04	100.0%	1.04
Rosemont		0.0%	0.08	47.6%	0.09	52.7%		0.0%	0.17
Sierra Vista Ranger District		0.0%	1.07	3.5%	4.09	13.1%	25.93	83.4%	31.09
Alisos		0.0%		0.0%	0.81	27.8%	2.10	72.1%	2.92
Chuney		0.0%		0.0%		0.0%	1.82	100.0%	1.82
Duquesne		0.0%		0.0%	0.37	14.9%	2.12	85.1%	2.49
Farrell		0.0%	0.64	14.1%		0.0%	3.90	85.9%	4.54
Harshaw		0.0%		0.0%		0.0%	3.22	100.0%	3.22
Hayfield		0.0%		0.0%	0.73	100.0%		0.0%	0.73
Lone Mountain		0.0%		0.0%		0.0%	3.79	100.0%	3.79
Lyle Canyon		0.0%		0.0%	1.15	19.0%	4.89	81.0%	6.04
Mc Farland		0.0%		0.0%		0.0%	0.70	100.0%	0.70
Post Canyon		0.0%		0.0%		0.0%	1.21	100.0%	1.21
San Rafael		0.0%		0.0%	1.02	76.9%	0.31	23.3%	1.33
Santa Cruz		0.0%	0.43	18.8%		0.0%	1.86	81.0%	2.30

Table 19. Critical habitat survey miles impacted by cattle on the Coronado National Forest in 2024.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Nogales Ranger District	1.04	1.6%	8.35	12.9%	12.63	19.6%	42.56	65.9%	64.57
Agua Caliente		0.0%	2.26	70.8%	0.93	29.0%		0.0%	3.19
Apache Springs		0.0%		0.0%	1.34	13.2%	8.80	86.8%	10.14
Bear Valley	1.04	14.5%		0.0%	3.71	52.0%	2.38	33.4%	7.14
Box Canyon		0.0%		0.0%		0.0%	1.69	100.0%	1.69
Cross S		0.0%		0.0%		0.0%	2.85	100.0%	2.85
Gardner		0.0%		0.0%	1.73	57.8%	1.26	42.0%	3.00
Greaterville		0.0%	1.29	44.3%	0.66	22.7%	0.96	32.9%	2.92
Lake		0.0%		0.0%		0.0%	0.39	100.0%	0.39
Montana		0.0%		0.0%		0.0%	8.73	100.0%	8.73
Not in allotment		0.0%	2.26	55.6%	1.81	44.5%		0.0%	4.07
Oak Tree II		0.0%		0.0%		0.0%	2.44	100.0%	2.44
Pena Blanca		0.0%	1.89	31.3%		0.0%	4.13	68.6%	6.02
Proctor		0.0%	0.64	22.5%	2.22	77.5%		0.0%	2.86
Rosemont		0.0%		0.0%	0.23	2.5%	8.91	97.5%	9.14
Sierra Vista Ranger District	3.64	6.1%	7.69	13.0%	8.14	13.7%	39.88	67.2%	59.35
Alisos	0.24	4.3%	1.60	29.1%	0.59	10.8%	3.06	55.8%	5.49
Chuney		0.0%		0.0%		0.0%	1.98	100.0%	1.98
Duquesne		0.0%	0.24	8.6%	1.79	63.1%	0.81	28.5%	2.83
Farrell	0.84	12.7%	0.32	4.9%	1.81	27.4%	3.65	55.1%	6.63
Harshaw	0.67	15.8%	2.77	65.6%		0.0%	0.78	18.5%	4.22
Hayfield		0.0%		0.0%	1.07	100.0%		0.0%	1.07
Lone Mountain		0.0%	2.35	13.8%	1.97	11.6%	12.64	74.6%	16.96
Lyle Canyon		0.0%		0.0%		0.0%	9.67	100.0%	9.67
Mc Farland		0.0%	0.41	100.0%		0.0%		0.0%	0.41
Post Canyon		0.0%		0.0%		0.0%	1.47	100.0%	1.47
San Rafael	1.89	100.0%		0.0%		0.0%		0.0%	1.89
Santa Cruz		0.0%		0.0%		0.0%	0.37	100.0%	0.37
Santa Cruz/Alisos		0.0%		0.0%		0.0%	3.55	100.0%	3.55
Sawtelle		0.0%		0.0%	0.91	32.6%	1.88	67.3%	2.80

Gila National Forest (New Mexico)

The Gila National Forest allotments surveyed by the Center contain designated critical habitat for eight different threatened and endangered species, including spikedace, loach minnow, Gila chub, Chiricahua leopard frog, narrow-headed garter snake, northern Mexican garter snake, southwestern willow flycatcher, and yellow-billed cuckoo.

From 2017-2024, the Center surveyed 798.94 miles of public lands critical habitat designations in the Gila National Forest for cattle impacts (range 4.9-149.7 miles/year, average 99.8 miles/year) (Tables 20-28). Aggregate data concerning Gila surveys 2017-2024 is contained in Table 20; Tables 21-28 include data for each year of surveys.

Across all survey years, percent of survey miles moderately to significantly impacted by cattle on the Glenwood Ranger District ranged from 23% (2023) to 85% (2021), with an average of 55% across seven survey years.

Percent of survey miles moderately to significantly impacted by cattle on the Quemado Ranger District ranged from 28% (2017) to 100% (2018) with an average of 64% across survey years. Both Laney and Luna allotments had 100% of survey miles moderately to significantly impacted by cattle, documented in multiple years.

Reserve Ranger District has been surveyed for eight consecutive years, from 2017-2024, and has the highest average percentage of critical habitat miles moderately to significantly impacted by cattle across the Gila National Forest (73%, ranging from 100% in 2018 to 37% in 2023). Reserve is among the worst Ranger Districts in Region 3 in terms of riparian habitat damage due to livestock. Numerous allotments, including Deep Canyon and Frisco Plaza, demonstrate chronic, high levels of cattle-damaged critical habitat. High levels of cattle disturbance have also been documented outside of allotment boundaries in the Reserve Ranger District.

The percentage of critical habitat survey miles damaged on the Silver City Ranger District average nearly 60% over the six surveys years, but in 2024 only 4% showed moderate to significant damage.

Likewise, the Wilderness Ranger District ranged from 5% (2020) to 85% (2017) moderately to significantly damaged by cattle (average 34%) but has shown 12% and 11% over the past two years, respectively. Allotments such as Jordan Mesa, XSX, and Redstone have shown recent improvements.

Table 20. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Gila National Forest, by allotment, from 2017-2024.

Allotment	2017	2018	2019	2020	2021	2022	2023	2024
Black Range Ranger District			17%		57%	0%	0%	0%
Corduroy			100%		57%		0%	0%
South Fork			0%			0%		
Glenwood Ranger District	71%	32%	77%		85%	52%	23%	42%
Alma	100%	100%	100%		100%	100%	37%	100%
Cedar Breaks	0%		0%					
Citizen & Roberts Park	86%		100%		100%	0%	0%	0%
Devils Park	100%	0%	100%		100%	87%	100%	100%
Dry Creek	19%		0%			66%	0%	
Harden Cienega			59%		61%	59%	35%	83%
Harve Gulch & Bighorn	86%		88%		100%	0%	0%	0%
Kelly	75%	29%	100%		90%	54%	9%	18%
Not in allotment (btw Pleasanton & Potholes)							19%	
Not in allotment (btw Harden Cienega & Pleasanton)							15%	
Pleasanton	0%							
Pueblo Creek			0%		100%			
Tennessee					100%	65%	66%	0%
Whiterocks			30%					
Quemado Ranger District	28%	100%	77%		67%	91%	41%	47%
Laney			69%		100%	100%	58%	56%
Luna	28%	100%	100%		47%	91%	11%	21%
West Apache Creek			0%					
Reserve Ranger District	81%	100%	78%	79%	91%	71%	37%	43%
Alexander	44%	100%	100%		0%	36%	4%	69%
Cienega (Black Bob)	100%	100%	100%		100%	70%	14%	13%
Corner Mountain	53%		36%		100%	65%	0%	0%
Deep Canyon	62%	100%	100%		100%	79%	62%	86%
Eagle Peak				78%		90%	0%	0%
Frisco Plaza	100%	100%	100%		100%	90%	98%	89%
Govina & West Sand Flat	67%		100%		77%	20%	0%	18%
Lower Plaza	100%		100%			100%	0%	0%
McCarty				100%				0%
Negrito/Yeguas	100%	100%	65%		88%	38%	36%	35%
Not in allotment (btw Negrito/Yeguas boundary)							36%	100%
Not in allotment (outside of Alexander)							100%	100%
T Bar			43%					
Silver City Ranger District	82%		54%		100%	44%	20%	6%
Bear Creek			62%					
Brock Canyon*	100%		51%			48%	4%	0%
Gila River	72%		57%		100%	100%	50%	20%
Mogollon Creek	0%							
Not in allotment (Gila River Wilderness)**	100%						0%	0%
Watson Mountain***	0%					0%		0%
Wilderness Ranger District	83%		51%	5%	77%	43%	34%	6%
Diamond Bar			3%	0%	73%	10%	100%	100%
Jordan Mesa	100%		87%	17%	76%	0%	0%	0%
Redstone****	100%		98%			95%	57%	0%
Sapillo	0%		0%	0%				
Taylor Creek	87%		100%		100%	26%	29%	42%
XSX	0%		38%		76%	27%	0%	0%

*Brock Canyon allotment is in both Silver City and Wilderness Ranger Districts. **May include areas within the Wilderness Ranger District.

Watson Mountain allotment is in both Silver City and Glenwood Ranger Districts. *Redstone allotment may occur in both Silver City and Wilderness Ranger Districts.

Table 21. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2017.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Glenwood Ranger District	2.75	10.7%	4.59	17.8%	3.73	14.5%	14.65	57.0%	25.72
Alma		0.0%		0.0%		0.0%	2.69	100.0%	2.69
Cedar Breaks	0.54	100.0%		0.0%		0.0%		0.0%	0.54
Citizen & Roberts Park		0.0%	0.32	13.6%	0.38	16.0%	1.65	70.3%	2.35
Devils Park		0.0%		0.0%		0.0%	3.09	100.0%	3.09
Dry Creek	1.39	30.7%	2.26	50.0%		0.0%	0.87	19.3%	4.51
Harve Gulch & Bighorn	0.59	13.6%		0.0%	2.23	51.7%	1.49	34.6%	4.32
Kelly		0.0%	2.01	25.2%	1.12	14.1%	4.85	60.8%	7.98
Pleasanton	0.23	100.0%		0.0%		0.0%		0.0%	0.23
Quemado Ranger District	5.76	42.5%	3.92	28.9%	0.82	6.1%	3.03	22.4%	13.54
Luna	5.76	42.5%	3.92	28.9%	0.82	6.1%	3.03	22.4%	13.54
Reserve Ranger District	0.76	2.9%	4.26	16.2%	2.44	9.3%	18.84	71.6%	26.30
Alexander		0.0%	1.33	55.6%		0.0%	1.06	44.3%	2.39
Cienega (Black Bob)		0.0%		0.0%		0.0%	3.54	100.0%	3.54
Corner Mountain		0.0%	2.19	47.3%	2.44	52.6%		0.0%	4.63
Deep Canyon	0.50	15.3%	0.74	22.8%		0.0%	2.01	62.0%	3.24
Frisco Plaza		0.0%		0.0%		0.0%	7.05	100.0%	7.05
Govina & West Sand Flat	0.27	33.7%		0.0%		0.0%	0.53	66.5%	0.79
Lower Plaza		0.0%		0.0%		0.0%	0.33	100.0%	0.33
Negrito/Yeguas		0.0%		0.0%		0.0%	4.32	100.0%	4.32
Silver City Ranger District	1.11	9.8%	0.89	7.8%	0.80	7.0%	8.57	75.4%	11.37
Brock Canyon*		0.0%		0.0%		0.0%	2.62	100.0%	2.62
Gila River		0.0%	0.89	12.6%	0.80	11.2%	4.29	60.5%	5.98
Mogollon Creek	0.28	100.0%		0.0%		0.0%		0.0%	0.28
Not in allotment (Gila River Wilderness)**		0.0%		0.0%		0.0%	1.66	100.0%	1.66
Watson Mountain***	0.83	100.0%		0.0%		0.0%		0.0%	0.83
Wilderness Ranger District	1.41	4.9%	3.51	12.3%	4.62	16.2%	19.03	66.6%	28.56
Jordan Mesa		0.0%		0.0%	3.70	58.9%	2.58	41.1%	6.27
Redstone****		0.0%		0.0%		0.0%	12.98	100.0%	12.98
Sapillo	0.95	43.3%	1.25	56.6%		0.0%		0.0%	2.20
Taylor Creek		0.0%	0.65	13.0%	0.92	18.2%	3.47	68.8%	5.05
XSX	0.45	22.0%	1.61	77.9%		0.0%		0.0%	2.07

*Brock Canyon allotment is in both Silver City and Wilderness Ranger Districts. **May include areas within the Wilderness Ranger District.

Watson Mountain allotment is in both Silver City and Glenwood Ranger Districts. *Redstone allotment may occur in both Silver City and Wilderness Ranger Districts.

Table 22. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2018.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Glenwood Ranger District		0.0%	1.91	67.9%		0.0%	0.90	32.1%	2.81
Alma		0.0%		0.0%		0.0%	0.29	100.0%	0.29
Devils Park		0.0%	0.38	100.0%		0.0%		0.0%	0.38
Kelly		0.0%	1.53	71.3%		0.0%	0.61	28.7%	2.14
Quemado Ranger District		0.0%		0.0%	0.32	100.0%		0.0%	0.32
Luna		0.0%		0.0%	0.32	100.0%		0.0%	0.32
Reserve Ranger District		0.0%		0.0%	1.55	86.4%	0.24	13.7%	1.79
Alexander		0.0%		0.0%	0.44	100.0%		0.0%	0.44
Cienega (Black Bob)		0.0%		0.0%	0.41	100.0%		0.0%	0.41
Deep Canyon		0.0%		0.0%		0.0%	0.24	100.0%	0.24
Frisco Plaza		0.0%		0.0%	0.37	100.0%		0.0%	0.37
Negrito/Yeguas		0.0%		0.0%	0.33	100.0%		0.0%	0.33

Table 23. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2019.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Black Range Ranger District		0.0%	3.40	83.2%		0.0%	0.69	16.9%	4.09
Corduoy		0.0%		0.0%		0.0%	0.69	100.0%	0.69
South Fork		0.0%	3.40	100.0%		0.0%		0.0%	3.40
Glenwood Ranger District	3.99	13.1%	2.94	9.7%	5.47	18.0%	18.00	59.2%	30.41
Alma		0.0%		0.0%		0.0%	1.80	100.0%	1.80
Cedar Breaks	0.37	48.7%	0.39	51.2%		0.0%		0.0%	0.76
Citizen & Roberts Park		0.0%		0.0%		0.0%	2.03	100.0%	2.03
Devils Park		0.0%		0.0%		0.0%	2.98	99.9%	2.98
Dry Creek	0.60	35.3%	1.10	64.8%		0.0%		0.0%	1.69
Harden Cienega	1.13	27.4%	0.57	13.8%	1.36	32.9%	1.08	26.0%	4.14
Harve Gulch & Bighorn	0.56	11.6%		0.0%		0.0%	4.27	88.5%	4.82
Kelly		0.0%		0.0%	4.11	41.7%	5.75	58.3%	9.86
Pueblo Creek	1.10	55.2%	0.89	44.6%		0.0%		0.0%	1.99
Whiterocks	0.23	69.1%		0.0%		0.0%	0.10	30.4%	0.34
Quemado Ranger District	2.67	20.6%	0.37	2.8%	5.07	39.0%	4.51	35.7%	12.63
Laney	1.97	26.5%	0.37	5.0%	3.44	46.3%	1.65	22.2%	7.43
Luna		0.0%		0.0%	1.63	36.1%	2.87	63.8%	4.50
West Apache Creek	0.70	100.0%		0.0%		0.0%		0.0%	0.70
Reserve Ranger District	0.77	3.2%	4.47	18.7%	3.28	13.7%	15.38	64.4%	23.89
Alexander		0.0%		0.0%	0.74	100.0%		0.0%	0.74
Cienega (Black Bob)		0.0%		0.0%	0.39	10.9%	3.19	89.0%	3.58
Corner Mountain	0.77	22.3%	1.45	42.0%	0.54	15.7%	0.70	20.1%	3.46
Deep Canyon		0.0%		0.0%		0.0%	1.68	100.0%	1.68
Frisco Plaza		0.0%		0.0%		0.0%	7.50	100.0%	7.50
Govina & West Sand Flat		0.0%		0.0%	0.32	46.4%	0.37	53.6%	0.69
Lower Plaza		0.0%		0.0%	0.26	79.0%	0.07	21.0%	0.33
Negrito/Yeguas		0.0%	0.92	35.0%		0.0%	1.72	65.1%	2.64
T Bar		0.0%	2.09	57.6%	1.02	27.9%	0.53	14.6%	3.64
Silver City Ranger District		0.0%	8.91	46.6%	1.68	8.8%	8.55	44.7%	19.14
Bear Creek		0.0%	0.33	37.9%		0.0%	0.54	61.7%	0.88
Brock Canyon*		0.0%	5.71	49.4%	0.77	6.7%	5.07	43.8%	11.56
Gila River		0.0%	2.86	42.6%	0.91	13.6%	2.94	43.8%	6.71
Wilderness Ranger District	3.36	6.7%	21.18	42.0%	8.35	16.5%	17.59	34.8%	50.48
Diamond Bar	2.40	12.4%	16.36	84.5%		0.0%	0.61	3.2%	19.37
Jordan Mesa		0.0%	0.81	12.5%	5.68	87.5%		0.0%	6.49
Redstone**	0.23	1.5%		0.0%		0.0%	14.60	98.5%	14.83
Sapillo		0.0%	0.44	100.0%		0.0%		0.0%	0.44
Taylor Creek		0.0%		0.0%		0.0%	2.38	100.0%	2.38
XSX	0.73	10.5%	3.56	51.1%	2.67	38.4%		0.0%	6.97

*Brock Canyon allotment is in both Silver City and Wilderness Ranger Districts. **Redstone allotment may occur in both Silver City and Wilderness Ranger Districts.

Table 24. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2020.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Reserve Ranger District		0.0%	1.33	20.6%		0.0%	5.11	79.4%	6.44
Eagle Peak		0.0%	1.33	21.6%		0.0%	4.82	78.4%	6.14
McCarty		0.0%		0.0%		0.0%	0.30	100.0%	0.30
Wilderness Ranger District	0.91	10.3%	7.48	84.8%	0.43	4.9%		0.0%	8.82
Diamond Bar		0.0%	4.96	100.0%		0.0%		0.0%	4.96
Jordan Mesa		0.0%	2.12	82.9%	0.43	17.0%		0.0%	2.56
Sapillo	0.91	69.2%	0.40	30.8%		0.0%		0.0%	1.31

Table 25. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2021.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Black Range Ranger District		0.0%	0.34	43.1%		0.0%	0.45	57.1%	0.79
Corduoy		0.0%	0.34	43.1%		0.0%	0.45	57.1%	0.79
Glenwood Ranger District	5.69	14.6%		0.0%	1.93	4.9%	31.35	80.4%	38.97
Alma		0.0%		0.0%		0.0%	1.86	100.0%	1.86
Citizen & Roberts Park		0.0%		0.0%		0.0%	2.36	100.0%	2.36
Devils Park		0.0%		0.0%		0.0%	3.53	100.0%	3.53
Harden Cienega	4.62	38.7%		0.0%	1.44	12.0%	5.90	49.3%	11.96
Harve Gulch & Bighorn		0.0%		0.0%		0.0%	4.11	100.0%	4.11
Kelly	1.07	10.3%		0.0%		0.0%	9.32	89.7%	10.39
Pueblo Creek		0.0%		0.0%	0.49	15.2%	2.73	84.7%	3.22
Tennessee		0.0%		0.0%		0.0%	1.55	100.0%	1.55
Quemado Ranger District	3.85	19.9%	2.60	13.5%	2.20	11.4%	10.70	55.3%	19.35
Laney		0.0%		0.0%		0.0%	7.29	100.0%	7.29
Luna	3.85	31.9%	2.60	21.6%	2.20	18.3%	3.41	28.3%	12.06
Reserve Ranger District	0.18	0.5%	2.84	8.6%	3.63	11.0%	26.25	79.8%	32.89
Alexander	0.18	16.7%	0.90	83.0%		0.0%		0.0%	1.08
Cienega (Black Bob)		0.0%		0.0%		0.0%	3.54	100.0%	3.54
Corner Mountain		0.0%		0.0%		0.0%	2.51	100.0%	2.51
Deep Canyon		0.0%		0.0%	1.27	48.3%	1.36	51.8%	2.62
Frisco Plaza		0.0%		0.0%		0.0%	7.46	100.0%	7.46
Govina & West Sand Flat		0.0%	0.21	23.3%	0.44	47.4%	0.27	29.2%	0.92
Negrito/Yeguas		0.0%	1.73	11.7%	1.93	13.0%	11.10	75.2%	14.76
Silver City Ranger District		0.0%		0.0%	0.75	9.5%	7.21	90.5%	7.96
Gila River		0.0%		0.0%	0.75	9.5%	7.21	90.5%	7.96
Wilderness Ranger District		0.0%	3.63	23.1%	5.84	37.1%	6.24	39.7%	15.72
Diamond Bar		0.0%	1.39	26.9%	1.47	28.4%	2.31	44.7%	5.18
Jordan Mesa		0.0%	1.65	24.5%	2.52	37.4%	2.57	38.2%	6.74
Taylor Creek		0.0%		0.0%		0.0%	1.36	100.0%	1.36
XSX		0.0%	0.59	24.2%	1.85	75.8%		0.0%	2.44

Table 26. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2022.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Black Range Ranger District		0.0%	2.25	100.0%		0.0%		0.0%	2.25
South Fork		0.0%	2.25	100.0%		0.0%		0.0%	2.25
Glenwood Ranger District	0.55	1.6%	16.39	46.9%	5.51	15.8%	12.52	35.8%	34.98
Alma		0.0%		0.0%		0.0%	1.77	100.0%	1.77
Citizen & Roberts Park		0.0%	2.35	100.0%		0.0%		0.0%	2.35
Devils Park		0.0%	0.39	12.7%	0.77	24.9%	1.92	62.2%	3.08
Dry Creek		0.0%	1.01	33.4%	1.60	53.1%	0.40	13.3%	3.01
Harden Cienega		0.0%	4.09	41.4%	0.26	2.7%	5.51	55.9%	9.87
Harve Gulch & Bighorn	0.55	12.5%	3.84	87.4%		0.0%		0.0%	4.39
Kelly		0.0%	4.30	46.1%	2.88	30.8%	2.15	23.0%	9.34
Tennessee		0.0%	0.42	35.0%		0.0%	0.77	64.6%	1.19
Quemado Ranger District		0.0%	1.16	9.0%	2.35	18.3%	9.34	72.7%	12.85
Laney		0.0%		0.0%	0.46	6.1%	7.00	93.8%	7.46
Luna		0.0%	0.42	9.4%	1.89	42.2%	2.16	48.3%	4.48
Reserve Ranger District		0.0%	9.19	29.0%	3.22	10.1%	19.33	60.9%	31.74
Alexander		0.0%	1.37	64.5%		0.0%	0.75	35.6%	2.12
Cienega (Black Bob)		0.0%	1.05	30.5%	1.17	34.0%	1.22	35.6%	3.44
Corner Mountain		0.0%	1.02	35.0%	1.07	36.7%	0.83	28.4%	2.92
Deep Canyon		0.0%	0.69	21.3%	0.27	8.3%	2.29	70.3%	3.26
Eagle Peak		0.0%	0.62	10.1%	0.71	11.5%	4.81	78.4%	6.14
Frisco Plaza		0.0%	0.73	9.7%		0.0%	6.82	90.3%	7.56
Govina & West Sand Flat		0.0%	0.73	80.7%		0.0%	0.18	19.9%	0.91
Lower Plaza		0.0%		0.0%		0.0%	0.34	100.0%	0.34
Negrito/Yeguas		0.0%	3.71	62.1%		0.0%	2.26	37.9%	5.97
Silver City Ranger District	1.71	12.0%	6.23	43.9%	2.50	17.6%	3.76	26.5%	14.19
Brock Canyon*	0.33	2.6%	6.23	49.5%	2.27	18.0%	3.76	29.9%	12.58
Gila River		0.0%		0.0%	0.23	100.0%		0.0%	0.23
Watson Mountain**	1.38	100.0%		0.0%		0.0%		0.0%	1.38
Wilderness Ranger District		0.0%	22.96	57.2%	1.95	4.8%	15.27	38.0%	40.17
Diamond Bar		0.0%	4.41	90.5%		0.0%	0.47	9.6%	4.87
Jordan Mesa		0.0%	7.41	100.0%		0.0%		0.0%	7.41
Redstone***		0.0%	0.72	5.3%	0.59	4.3%	12.30	90.4%	13.61
Taylor Creek		0.0%	3.22	74.0%	0.58	13.4%	0.55	12.7%	4.35
XSX		0.0%	7.20	72.6%	0.78	7.8%	1.95	19.6%	9.92

*Brock Canyon allotment is in both Silver City and Wilderness Ranger Districts. **Watson Mountain allotment is in both Silver City and Glenwood Ranger Districts. ***Redstone allotment may occur in both Silver City and Wilderness Ranger Districts.

Table 27. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2023.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Black Range Ranger District		0.0%	1.49	100.0%		0.0%		0.0%	1.49
Corduroy		0.0%	1.49	100.0%		0.0%		0.0%	1.49
Glenwood Ranger District		0.0%	37.08	77.4%	4.92	10.3%	5.89	12.3%	47.89
Alma		0.0%	1.29	62.7%		0.0%	0.76	37.2%	2.05
Citizen & Roberts Park		0.0%	2.33	100.0%		0.0%		0.0%	2.33
Devils Park		0.0%		0.0%	2.38	86.7%	0.37	13.5%	2.75
Dry Creek		0.0%	2.18	100.0%		0.0%		0.0%	2.18
Harden Cienega		0.0%	5.75	64.9%	0.59	6.6%	2.53	28.5%	8.87
Harve Gulch & Bighorn		0.0%	4.35	100.0%		0.0%		0.0%	4.35
Kelly		0.0%	8.46	90.6%	0.17	1.8%	0.71	7.6%	9.34
Not in allotment (btw Pleasanton/ Potholes)		0.0%	6.59	81.2%		0.0%	1.52	18.8%	8.11
Not in allotment (btw Harden Cienega/ Pleasanton)		0.0%	5.72	84.9%	1.02	15.1%		0.0%	6.74
Tennessee		0.0%	0.40	34.5%	0.77	65.7%		0.0%	1.17
Quemado Ranger District		0.0%	6.75	58.0%	1.12	9.6%	3.77	32.4%	11.64
Laney		0.0%	3.25	42.2%	0.67	8.8%	3.77	49.0%	7.69
Luna		0.0%	3.50	88.7%	0.45	11.3%		0.0%	3.95
Reserve Ranger District	0.38	1.2%	19.48	61.8%	1.30	4.1%	10.35	32.8%	31.51
Alexander		0.0%	1.93	95.8%	0.08	4.1%		0.0%	2.02
Cienega (Black Bob)	0.38	11.2%	2.56	74.5%		0.0%	0.49	14.3%	3.43
Corner Mountain		0.0%	2.91	100.0%		0.0%		0.0%	2.91
Deep Canyon		0.0%	0.71	38.5%		0.0%	1.13	61.5%	1.84
Eagle Peak		0.0%	6.32	100.0%		0.0%		0.0%	6.32
Frisco Plaza		0.0%	0.15	2.0%	0.81	10.8%	6.54	87.3%	7.50
Govina & West Sand Flat		0.0%	0.91	100.0%		0.0%		0.0%	0.91
Lower Plaza		0.0%	0.32	100.0%		0.0%		0.0%	0.32
Negrto/Yeguas		0.0%	3.93	64.3%		0.0%	2.18	35.7%	6.11
Not in allotment (outside of Alexander)		0.0%		0.0%	0.41	100.0%		0.0%	0.41
Silver City Ranger District	0.33	1.4%	18.04	79.0%	1.81	7.9%	2.66	11.7%	22.83
Brock Canyon*		0.0%	11.48	96.3%	0.45	3.7%		0.0%	11.92
Gila River		0.0%	4.00	49.9%	1.36	16.9%	2.66	33.1%	8.02
Not in allotment (Gila River Wilderness)**	0.33	11.5%	2.57	88.4%		0.0%		0.0%	2.90
Wilderness Ranger District	2.28	6.7%	20.07	58.9%	10.33	30.3%	1.36	4.0%	34.05
Diamond Bar		0.0%		0.0%		0.0%	0.90	100.0%	0.90
Jordan Mesa		0.0%	4.00	100.0%		0.0%		0.0%	4.00
Redstone***	2.19	12.7%	5.30	30.7%	9.75	56.5%		0.0%	17.25
Taylor Creek		0.0%	2.55	71.0%	0.58	16.2%	0.46	12.9%	3.59
XSX	0.09	1.1%	8.22	98.9%		0.0%		0.0%	8.31

*Brock Canyon allotment is in both Silver City and Wilderness Ranger Districts. **May include areas within the Wilderness Ranger District.
 ***Redstone allotment may occur in both Silver City and Wilderness Ranger Districts.

Table 28. Critical habitat survey miles impacted by cattle on the Gila National Forest in 2024.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	
Black Range Ranger District	1.03	100.0%		0.0%		0.0%		0.0%	1.03
Corduoy	1.03	100.0%		0.0%		0.0%		0.0%	1.03
Glenwood Ranger District	7.74	27.8%	8.45	30.4%	4.06	14.6%	7.59	27.3%	27.84
Alma		0.0%		0.0%		0.0%	1.62	100.0%	1.62
Citizen & Roberts Park	2.18	100.0%		0.0%		0.0%		0.0%	2.18
Devils Park		0.0%		0.0%	2.48	80.1%	0.61	19.7%	3.09
Harden Cienega	1.07	17.0%		0.0%	0.82	12.9%	4.43	70.1%	6.31
Harve Gulch & Bighorn	4.48	100.0%		0.0%		0.0%		0.0%	4.48
Kelly		0.0%	7.69	81.8%	0.77	8.2%	0.93	9.9%	9.40
Tennessee		0.0%	0.76	100.0%		0.0%		0.0%	0.76
Quemado Ranger District	2.23	20.8%	3.50	32.6%	0.62	5.8%	4.37	40.8%	10.72
Laney		0.0%	3.50	44.3%	0.62	7.8%	3.78	47.9%	7.89
Luna	2.23	79.0%		0.0%		0.0%	0.59	21.0%	2.83
Reserve Ranger District	10.22	30.9%	8.69	26.3%	7.45	22.5%	6.69	20.3%	33.05
Alexander		0.0%	0.62	31.1%	0.07	3.4%	1.30	65.5%	1.98
Cienega (Black Bob)	0.40	11.6%	2.58	75.0%	0.16	4.7%	0.30	8.7%	3.44
Corner Mountain	2.16	75.5%	0.70	24.3%		0.0%		0.0%	2.86
Deep Canyon		0.0%	0.47	14.4%	0.26	8.1%	2.51	77.5%	3.24
Eagle Peak	2.76	46.0%	3.30	54.4%		0.0%		0.0%	6.06
Frisco Plaza	0.23	3.0%	0.58	7.6%	6.82	89.3%		0.0%	7.64
Govina & West Sand Flat	0.40	52.6%	0.22	28.9%	0.14	18.4%		0.0%	0.76
Lower Plaza	0.38	100.0%		0.0%		0.0%		0.0%	0.38
McCarty		0.0%	0.23	100.0%		0.0%		0.0%	0.23
Negrito/Yeguas	3.89	64.6%		0.0%		0.0%	2.13	35.4%	6.02
Not in allotment (outside of Alexander)		0.0%		0.0%		0.0%	0.45	100.0%	0.45
Silver City Ranger District	21.27	78.6%	4.22	15.6%		0.0%	1.56	5.8%	27.05
Brock Canyon*	11.79	100.0%		0.0%		0.0%		0.0%	11.79
Gila River	2.21	27.7%	4.22	52.8%		0.0%	1.56	19.5%	7.98
Not in allotment (Gila River Wilderness)**	5.89	100.0%		0.0%		0.0%		0.0%	5.89
Watson Mountain***	1.38	100.0%		0.0%		0.0%		0.0%	1.38
Wilderness Ranger District	28.12	90.5%	1.05	3.4%		0.0%	1.90	6.1%	31.06
Diamond Bar		0.0%		0.0%		0.0%	0.26	100.0%	0.26
Jordan Mesa	4.84	82.2%	1.05	17.8%		0.0%		0.0%	5.89
Redstone****	13.19	100.0%		0.0%		0.0%		0.0%	13.19
Taylor Creek	2.30	58.3%		0.0%		0.0%	1.64	41.6%	3.94
XSX	7.78	100.0%		0.0%		0.0%		0.0%	7.78

*Brock Canyon allotment is in both Silver City and Wilderness Ranger Districts. **May include areas within the Wilderness Ranger District.

Watson Mountain allotment is in both Silver City and Glenwood Ranger Districts. *Redstone allotment may occur in both Silver City and Wilderness Ranger Districts.

Lincoln National Forest (New Mexico)

Designated critical habitat on four grazing allotments in the Lincoln National Forest were surveyed in 2024. This first year of formal surveys showed no critical habitat miles moderately to significantly impacted by cattle, and most miles had no cattle impact at all (Tables 29-30). Though data are limited, the Lincoln National Forest is an outlier in Region 3 in that cattle impacts are a limited occurrence in the miles of critical habitat designations surveyed so far.

Table 29. Percent Of Critical Habitat Survey Miles Moderately To Significantly Impacted By Cattle On The Lincoln National Forest, By Allotment, in 2024.

District/ Allotment	2024
Sacramento Ranger District	0%
Agua Chiquita - Trail	0%
Bounds	0%
James Canyon	0%
Not in allotment	0%
Sacramento	0%

Table 30. Critical Habitat Survey Miles Impacted By Cattle On The Lincoln National Forest in 2024.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	
Sacramento Ranger District	6.77	71.6%	2.68	28.4%		0.0%		0.0%	9.45
Agua Chiquita - Trail	2.31	48.2%	2.49	51.8%		0.0%		0.0%	4.80
Bounds	0.28	100.0%		0.0%		0.0%		0.0%	0.28
James Canyon	0.37	100.0%		0.0%		0.0%		0.0%	0.37
Not in allotment	0.47	100.0%		0.0%		0.0%		0.0%	0.47
Sacramento	3.34	94.6%	0.19	5.4%		0.0%		0.0%	3.53

Prescott National Forest

Grazing allotments on Prescott National Forest were surveyed in 2019 and 2022. Surveys in 2019 focused on a group of allotments situated along the Verde River and expanded to another group of allotments north of Agua Fria National Monument in 2022. Although there are no cattle authorized in the riparian corridor of the Verde River, allotments showed varying degrees of cattle damage in 2019, the worst being Walnut Creek and Horseshoe allotments at 100% and 91%, respectively (Table 31-32). Following a 2021 court settlement to remove unauthorized cattle from along the Verde River, overall conditions improved but problem areas persisted. For example, Perkinsville allotment still showed 56% of critical habitat miles moderately to significantly damaged by cattle post-settlement (Tables 31, 33). Moderate to significant damage defined 35% of critical habitat survey miles in the Verde Ranger District in 2022, which include designations for Gila chub and yellow-billed cuckoo along the Agua Fria River and its tributaries and which flow south into Agua Fria National Monument described further below.

Table 31. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Prescott National Forest, by allotment, in 2019 and 2022.

District/ Allotment	2019	2022
Chino Valley Ranger District	28%	7%
Antelope Hills	5%	0%
China Dam	40%	16%
Horseshoe	91%	0%
Muldoon	49%	
Perkinsville	0%	56%
Sand Flat	0%	15%
Walnut Creek	100%	
West Bear/Del Rio	8%	0%
Verde Ranger District		35%
Dugas		39%
Sycamore		30%
Todd		39%
V Bar		46%

Table 32. Critical habitat survey miles impacted by cattle on the Prescott National Forest in 2019.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	
Chino Valley Ranger District	0.00	0.0%	24.02	71.9%	4.91	14.7%	4.48	13.4%	33.41
Antelope Hills		0.0%	8.71	94.5%		0.0%	0.50	5.5%	9.21
China Dam		0.0%	1.85	60.2%	1.23	39.9%		0.0%	3.08
Horseshoe		0.0%	0.32	9.2%	1.16	33.6%	1.98	57.2%	3.46
Muldoon		0.0%	1.90	51.2%	1.82	48.8%		0.0%	3.72
Perkinsville		0.0%	1.33	100.0%		0.0%		0.0%	1.33
Sand Flat		0.0%	1.77	100.0%		0.0%		0.0%	1.77
Walnut Creek		0.0%		0.0%		0.0%	2.00	100.0%	2.00
West Bear/Del Rio		0.0%	8.14	92.0%	0.71	8.0%		0.0%	8.84

Table 33. Critical habitat survey miles impacted by cattle on the Prescott National Forest in 2022.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	
Chino Valley Ranger District	13.97	61.6%	7.12	31.4%	1.59	7.0%		0.0%	22.67
Antelope Hills	12.23	100.0%		0.0%		0.0%		0.0%	12.23
China Dam		0.0%	2.74	84.0%	0.52	16.0%		0.0%	3.26
Horseshoe	0.61	17.3%	2.91	82.7%		0.0%		0.0%	3.51
Perkinsville		0.0%	0.62	43.5%	0.81	56.4%		0.0%	1.43
Sand Flat	1.13	64.8%	0.35	20.2%	0.26	15.0%		0.0%	1.74
West Bear/Del Rio		0.0%	0.50	100.0%		0.0%		0.0%	0.50
Verde Ranger District	1.73	12.2%	7.49	52.7%	0.96	6.7%	4.02	28.3%	14.20
Dugas	0.28	12.0%	1.16	49.1%	0.50	21.3%	0.41	17.5%	2.37
Sycamore	0.63	7.3%	5.37	62.4%	0.37	4.3%	2.24	26.0%	8.61
Todd	0.39	54.8%	0.04	5.2%		0.0%	0.28	39.4%	0.72
V Bar	0.42	17.0%	0.92	36.7%	0.08	3.3%	1.08	43.2%	2.50

Santa Fe National Forest (New Mexico)

Surveys on the Santa Fe National Forest began in 2023 to assess the condition of New Mexico meadow jumping mouse critical habitat designations and to confirm that jumping mouse exclosures and off-limits riparian pastures are indeed free of cattle. Not only did we confirm cattle presence in off-limits riparian locations on multiple occasions, but surveys on the Santa Fe National Forest revealed percentages of critical habitat damage ranging from 15% on Red Top allotment to 92% on the San Miguel allotment, both in the Cuba Ranger District (Tables 34-35). The Santa Fe National Forest also contains designated critical habitat for Jemez Mountain salamander, upon which the jumping mouse designations largely overlap.

Table 34. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Santa Fe National Forest, by allotment, in 2023.

District/ Allotment	2023
Cuba Ranger District	55%
Ojito Frio	38%
Red Top	15%
San Miguel	92%
Jemez Ranger District	30%
Cebolla San Antonio	22%
San Diego	44%

Table 35. Critical habitat survey miles impacted by cattle on the Santa Fe National Forest in 2023.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Cuba Ranger District	2.96	30.0%	1.45	14.7%	1.49	15.2%	3.96	40.2%	9.86
Ojito Frio	1.23	59.8%	0.05	2.3%	0.18	8.9%	0.60	29.0%	2.06
Red Top	1.72	53.4%	1.02	31.5%		0.0%	0.49	15.2%	3.23
San Miguel		0.0%	0.38	8.4%	1.31	28.7%	2.87	62.9%	4.56
Jemez Ranger District	7.93	46.7%	3.87	22.8%	2.91	17.2%	2.25	13.3%	16.96
Cebolla San Antonio	5.92	55.3%	2.39	22.4%	1.10	10.2%	1.30	12.2%	10.70
San Diego	2.01	32.1%	1.47	23.6%	1.82	29.1%	0.95	15.2%	6.25

Tonto National Forest (Arizona)

The Tonto National Forest contains designated riparian critical habitat for nine different threatened and endangered species including spikedace, loach minnow, Gila chub, razorback sucker, Chiricahua leopard frog, narrow-headed garter snake, northern Mexican garter snake, southwestern willow flycatcher, and western yellow-billed cuckoo. Aggregate data concerning Tonto surveys 2019-2024 are contained in Table 36; Tables 37-42 include data for each year of surveys.

From 2019-2024, the Center surveyed 223.4 miles of critical habitat on the Tonto for cattle impacts (range 5.1-78.9 miles/year, average 37.2 miles/year). A majority of stream miles surveyed on the Tonto showed moderate to significant damage from cattle (Tables 36-42).

Cave Creek District: Percent of survey miles moderately to significantly impacted by cattle when surveys began in 2019 was 56%, subsequently ranged from 0% (2022) to 75% (2023) and averaged 46.8% across all survey years. Rates of critical habitat damage were consistently high on Skeleton Ridge allotment, and the riparian border zone of Skeleton Ridge and Cedar Bench allotments showed 100% of survey miles moderately to significantly impacted in both 2019 and 2023.

Globe Ranger District: Percent of survey miles moderately to significantly impacted ranged from 67% (2021) to 100% (2024) and averaged 81% across all survey years. The most impaired allotment, Chrysotile, showed 77% and 100% of survey miles moderately to significantly impacted in the two years it was surveyed, 2022 and 2024.

Payson Ranger District: Percent of survey miles moderately to significantly impacted ranged from 0% (2022) to 100% (2021, 2023) and averaged 67% across all survey years. The most impaired allotments, Catholic Peak, Crouch Mesa, and Gentry Mountain showed 100% of survey miles moderately to significantly impacted in 2024; more than half of survey miles for each showed moderate to significant impacts in 2020, the other year in which they were surveyed.

Tonto Basin Ranger District: Percent of survey miles moderately to significantly impacted ranged from 36% (2024) to 69% (2021) and averaged 53% across all survey years. The most impaired allotment, Seventy-Six, showed 100% and 91% of survey miles with moderate to significant impacts in 2021 and 2024 respectively.

In 2024, the Center surveyed 43.2 stream miles of critical habitat on 12 grazing allotments. Of these, eight allotments showed moderate to significant cattle impacts on the majority of stream miles surveyed.

Table 36. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the Tonto National Forest, by allotment, from 2019-2024.

Allotment	2019	2020	2021	2022	2023	2024
Cave Creek Ranger District	56%			0%	75%	56%
Bartlett	63%					
Bull Springs	97%					
Cedar Bench	100%					
Copper Creek						56%
Deadman Mesa/ Skeleton Ridge	47%					
Red Creek	32%					
Sears Club/Chalk Mountain	0%			0%		
Skeleton Ridge	92%				67%	
Skeleton Ridge/Cedar Bench	100%				100%	
Skeleton Ridge/Red Creek	0%					
Globe Ranger District			67%	77%		100%
Bohme			0%			
Chrysotile				77%		100%
Pinto Creek			72%			
Payson Ranger District			100%	0%	100%	68%
Cedar Bench					100%	
Gisela			100%	0%		100%
Green Valley				0%		54%
Pleasant Valley Ranger District		63%	97%	39%		83%
Bar X			100%			
Buzzard Roost			100%	32%		
Catholic Peak		57%				100%
Crouch Mesa		71%				100%
Ellinwood/Diamond Butte				7%		
Gentry Mountain		59%				100%
Haigler Creek			100%			
Marsh Creek				42%		
OW			93%			0%
Red Lake		64%				83%
Soldier Camp			100%	100%		
Spring Creek			100%			
Tonto Basin Ranger District			69%			36%
Havens			100%			
Poison Spring			0%			
Seventy-Six			100%			91%
Tonto Basin			51%			18%
Walnut			0%			
Dagger & Hicks/Pike Peak			70%			48%

Table 37. Critical habitat survey miles impacted by cattle on the Tonto National Forest in 2019.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Cave Creek Ranger District	30.58	38.7%	3.79	4.8%	3.66	4.6%	40.95	51.8%	78.98
Bartlett	1.67	24.8%	0.81	12.0%	1.59	23.6%	2.67	39.7%	6.73
Bull Springs	0.26	3.2%		0.0%		0.0%	7.90	96.8%	8.16
Cedar Bench		0.0%		0.0%		0.0%	9.70	100.0%	9.70
Cedar Bench/ Skeleton Ridge border		0.0%		0.0%		0.0%	1.70	100.0%	1.70
Deadman Mesa/ Skeleton Ridge border	2.42	46.0%	0.35	6.7%	0.34	6.5%	2.14	40.8%	5.25
Red Creek	12.60	56.8%	2.49	11.2%	0.81	3.6%	6.27	28.3%	22.17
Sears Club/Chalk Mountain	11.39	100.0%		0.0%		0.0%		0.0%	11.39
Skeleton Ridge	0.86	6.9%	0.14	1.1%	0.92	7.4%	10.56	84.6%	12.49
Skeleton Ridge/ Red Creek border	1.38	100.0%		0.0%		0.0%		0.0%	1.38

Table 38. Critical habitat survey miles impacted by cattle on the Tonto National Forest in 2020.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Pleasant Valley Ranger District	0.20	1.9%	3.63	34.7%	2.33	22.3%	4.30	41.1%	10.45
Catholic Peak		0.0%	0.33	42.9%	0.14	18.2%	0.30	38.5%	0.78
Crouch Mesa		0.0%	0.47	29.1%	0.70	43.5%	0.44	27.4%	1.60
Gentry Mountain	0.20	8.3%	0.80	33.2%	0.67	27.8%	0.74	30.7%	2.40
Red Lake		0.0%	2.03	35.8%	0.82	14.5%	2.82	49.7%	5.67

Table 39. Critical habitat survey miles impacted by cattle on the Tonto National Forest in 2021.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Globe Ranger District	2.68	25.5%	0.83	7.9%	0.79	7.5%	6.20	59.0%	10.51
Bohme		0.0%	0.83	100.0%		0.0%		0.0%	0.83
Pinto Creek	2.68	27.8%		0.0%	0.79	8.1%	6.20	64.2%	9.67
Payson Ranger District		0.0%		0.0%		0.0%	4.03	100.0%	4.03
Gisela		0.0%		0.0%		0.0%	4.03	100.0%	4.03
Pleasant Valley Ranger District		0.0%	0.31	2.9%	2.79	26.6%	7.40	70.5%	10.49
Bar X		0.0%		0.0%		0.0%	1.69	100.0%	1.69
Buzzard Roost		0.0%		0.0%	0.91	100.0%		0.0%	0.91
Haigler Creek		0.0%		0.0%		0.0%	0.30	100.0%	0.30
OW		0.0%	0.31	7.4%	0.97	23.2%	2.90	69.5%	4.17
Soldier Camp		0.0%		0.0%	0.91	31.9%	1.95	68.1%	2.86
Spring Creek		0.0%		0.0%		0.0%	0.56	100.0%	0.56
Tonto Basin Ranger District	7.74	21.0%	3.65	9.9%	3.40	9.2%	22.03	59.8%	36.83
Havens		0.0%		0.0%	1.64	33.8%	3.22	66.2%	4.86
Poison Spring	0.41	100.0%		0.0%		0.0%		0.0%	0.41
Seventy-Six		0.0%		0.0%	1.75	23.7%	5.64	76.3%	7.39
Tonto Basin	5.69	29.7%	3.65	19.1%		0.0%	9.81	51.2%	19.15
Walnut	0.21	100.0%		0.0%		0.0%		0.0%	0.21
Dagger & Hicks/Pike Peak	1.43	29.7%		0.0%		0.0%	3.37	70.2%	4.80

Table 40. Critical habitat survey miles impacted by cattle on the Tonto National Forest in 2022.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Cave Creek Ranger District	4.39	100.0%		0.0%		0.0%		0.0%	4.39
Sears Club/Chalk Mountain	4.39	100.0%		0.0%		0.0%		0.0%	4.39
Globe Ranger District	0.65	10.6%	0.79	12.9%	1.33	21.6%	3.38	55.0%	6.14
Chrysotile	0.65	10.6%	0.79	12.9%	1.33	21.6%	3.38	55.0%	6.14
Payson Ranger District	0.46	20.1%	1.84	80.0%		0.0%		0.0%	2.30
Gisela	0.46	53.8%	0.40	46.2%		0.0%		0.0%	0.86
Green Valley		0.0%	1.44	100.0%		0.0%		0.0%	1.44
Pleasant Valley Ranger District	4.96	45.2%	1.71	15.6%	3.41	31.1%	0.90	8.2%	10.97
Buzzard Roost	0.49	18.4%	1.31	49.7%	0.41	15.7%	0.42	16.0%	2.64
Ellinwood/Diamond Butte	3.32	82.8%	0.40	9.9%	0.29	7.2%		0.0%	4.01
Marsh Creek	1.15	58.1%		0.0%	0.83	42.1%		0.0%	1.98
Soldier Camp		0.0%		0.0%	1.87	79.6%	0.48	20.2%	2.35

Table 41. Critical habitat survey miles impacted by cattle on the Tonto National Forest in 2023.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Cave Creek Ranger District		0.0%	0.54	25.0%		0.0%	1.62	75.0%	2.16
Skeleton Ridge		0.0%	0.54	33.3%		0.0%	1.08	66.7%	1.62
Skeleton Ridge/Cedar Bench		0.0%		0.0%		0.0%	0.54	100.0%	0.54
Payson Ranger District		0.0%		0.0%		0.0%	2.96	100.0%	2.96
Cedar Bench		0.0%		0.0%		0.0%	2.96	100.0%	2.96

Table 42. Critical habitat survey miles impacted by cattle on the Tonto National Forest in 2024.

District/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Cave Creek Ranger District		0.0%	1.28	43.9%	1.63	56.2%		0.0%	2.91
Copper Creek		0.0%	1.28	43.9%	1.63	56.2%		0.0%	2.91
Globe Ranger District		0.0%		0.0%		0.0%	1.83	100.0%	1.83
Chrysotile		0.0%		0.0%		0.0%	1.83	100.0%	1.83
Payson Ranger District		0.0%	0.78	31.9%	0.76	30.8%	0.91	37.3%	2.45
Gisela		0.0%		0.0%	0.76	100.0%		0.0%	0.76
Green Valley		0.0%	0.78	46.0%		0.0%	0.91	53.7%	1.70
Pleasant Valley Ranger District	0.94	7.3%	1.22	9.6%	2.15	16.9%	8.44	66.2%	12.75
Catholic Peak		0.0%		0.0%		0.0%	0.79	100.0%	0.79
Crouch Mesa		0.0%		0.0%		0.0%	1.59	100.0%	1.59
Gentry Mountain		0.0%		0.0%	0.38	10.5%	3.23	89.3%	3.62
OW		0.0%	1.22	100.0%		0.0%		0.0%	1.22
Red Lake	0.94	16.9%		0.0%	1.77	32.0%	2.83	51.0%	5.54
Tonto Basin Ranger District	9.30	40.0%	5.65	24.3%	1.88	8.1%	6.42	27.6%	23.24
Seventy-Six		0.0%	0.25	8.6%		0.0%	2.62	91.5%	2.86
Tonto Basin	7.49	54.9%	3.71	27.2%		0.0%	2.45	17.9%	13.65
Dagger & Hicks/Pike Peak	1.81	26.8%	1.69	25.1%	1.88	28.0%	1.35	20.1%	6.73

Bureau of Land Management, Arizona State Office

Phoenix District

The Center began surveying critical habitat designations within the Agua Fria National Monument, of BLM's Phoenix District, in 2021. This National Monument includes five grazing allotments that were surveyed to assess critical habitat designations for Gila chub and yellow-billed cuckoo. Aggregate data concerning Agua Fria surveys in 2021-2024 are contained in Table 43; Tables 44-47 include data for each year of surveys.

Between 2021-2024, the average percent of Agua Fria National Monument critical habitat miles damaged by cattle impacts is 87% (range 71%-100%) (Tables 43-47). Despite seasonal restrictions on grazing within riparian zones of the Monument, which routinely go unenforced, there has been only one instance in four years of an allotment with less than 50% of critical habitat moderately to significantly impacted by cattle. Regardless of precipitation trends, critical habitat across the five surveyed allotments of Agua Fria National Monument is routinely degraded by damage from livestock. Critical habitat on the Box Bar allotment has yet to be less than 95% damaged by cattle in any survey year.

Table 43. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the BLM's Phoenix District, by allotment, from 2021-2024.

Unit/ Allotment	2021	2022	2023	2024
Agua Fria NM	100%	93%	71%	83%
2Y		100%	67%	66%
Box Bar		100%	96%	95%
E-Z Ranch		84%	52%	76%
Horseshoe	100%	90%	57%	79%
Sycamore		100%	45%	100%

Table 44. Critical habitat survey miles impacted by cattle in BLM's Phoenix District in 2021.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	
Agua Fria NM		0.0%		0.0%	0.34	7.0%	4.53	93.0%	4.87
Horseshoe		0.0%		0.0%	0.34	7.0%	4.53	93.0%	4.87

Table 45. Critical habitat survey miles impacted by cattle in BLM’s Phoenix District in 2022.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Agua Fria NM	1.36	6.3%	0.11	0.5%	1.90	8.8%	18.32	84.5%	21.69
2Y		0.0%		0.0%	0.13	14.6%	0.77	85.3%	0.90
Box Bar		0.0%		0.0%	0.66	7.7%	7.93	92.2%	8.60
E-Z Ranch	0.92	14.0%	0.11	1.7%	0.71	11.0%	4.76	73.3%	6.50
Horseshoe	0.44	9.6%		0.0%		0.0%	4.13	90.3%	4.57
Sycamore		0.0%		0.0%	0.39	34.8%	0.73	65.0%	1.13

Table 46. Critical habitat survey miles impacted by cattle in BLM’s Phoenix District in 2023.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Agua Fria NM	0.32	1.2%	2.83	10.6%	4.69	17.5%	18.95	70.7%	26.80
2Y		0.0%		0.0%	0.29	33.3%	0.59	66.8%	0.88
Box Bar		0.0%		0.0%	0.45	4.3%	9.84	95.7%	10.29
E-Z Ranch	0.32	6.0%	0.42	7.8%	1.85	34.5%	2.78	51.7%	5.37
Horseshoe		0.0%	2.41	25.7%	1.62	17.3%	5.34	57.0%	9.37
Sycamore		0.0%		0.0%	0.48	54.4%	0.40	45.4%	0.88

Table 47. Critical habitat survey miles impacted by cattle in BLM’s Phoenix District in 2024.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Agua Fria NM	0.41	1.5%	4.08	15.0%	5.05	18.6%	17.64	64.9%	27.19
2Y	0.14	15.6%	0.16	18.3%		0.0%	0.59	66.0%	0.89
Box Bar		0.0%	0.41	5.2%	1.30	16.6%	6.16	78.3%	7.87
E-Z Ranch	0.27	5.1%	1.01	18.9%	2.54	47.5%	1.52	28.5%	5.35
Horseshoe		0.0%	2.50	20.9%	1.20	10.1%	8.23	69.0%	11.93
Sycamore		0.0%		0.0%		0.0%	1.15	100.0%	1.15

Gila District

BLM’s Gila District (Tables 48-54), subdivided into the Tucson and Safford Field Offices, contains critical habitat for a multitude of species including yellow-billed cuckoo, southwestern willow flycatcher, spokedace, loach minnow, razorback sucker, Chiricahua leopard frog, northern Mexican and narrow-headed garter snakes, and plants such as Arizona eryngo and Huachuca water umbel.

The Gila District manages two Riparian National Conservation Areas (RNCAs), including the San Pedro RNCA and the Gila Box RNCA, which Congress specifically designated

to protect the riparian values found there. Despite these congressional designations, these two RNCAs routinely show a high degree of significant cattle impacts in designated critical habitat. The entirety of the San Pedro RNCA was surveyed in 2023 and nearly every mile—both within grazing allotments and outside of them—showed moderate to significant impacts from cattle. The Gila Box RNCA, despite its National Conservation Area designation and year-round grazing restrictions in riparian zones, has averaged nearly 87% of riparian critical habitat miles moderately to significantly damaged by unauthorized cattle.

Another group of allotments, managed by the Tucson Field Office, occurs along the Gila River downstream of the Gila River/ San Pedro River confluence. These seven grazing allotments were surveyed for cattle impacts beginning in 2022, and each one had 100% of survey miles moderately to significantly degraded by cattle. Percentage of moderately to significantly impacted critical habitat was slightly improved in 2024 but still ranged from 45.7% to 100%.

Government Springs and Sleeping Beauty Mountain allotments occur adjacent to the Tonto Nation Forest. These two allotments had lower rates of cattle damage, likely owing to a lack of surface water in riparian zones and thus less concentration of cattle in these places.

Table 48. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the BLM's Gila District, by allotment, from 2021-2024.

Unit/ Allotment	2019	2020	2021	2022	2023	2024
San Pedro RNCA	14.3%	67.5%	64.9%	64.1%	97.5%	
Not in allotment	14.3%	67.5%	58.7%	69.5%	97.5%	
Babocomari			100.0%	0.0%		
Brunchow Hill			0.0%	0.0%		
Lucky Hills			100.0%	0.0%		
Three Brothers			100.0%	100.0%		
Gila Box RNCA			87.2%			86.2%
Bonita Creek			58.1%			48.7%
Bull Gap Community			100.0%			71.7%
Gila			100.0%			100.0%
Johnny Creek			100.0%			
Johnny Creek/Bonita Creek						100.0%
Morenci			100.0%			100.0%
Not in allotment						100.0%
Zorilla			100.0%			100.0%
Tucson Field Office				89.1%	67.2%	68.6%
A-Diamond				100.0%		66.4%
Government Springs				26.1%		
Horsetrack				100.0%		51.0%
Len & Cochran				100.0%		100.0%
Len & Teacup Ranch				100.0%		78.9%
Myers				100.0%		
Myers/Whitlow				100.0%		45.7%
Not in allotment					67.2%	
Sleeping Beauty Mtn				39.5%		

Table 49. Critical habitat survey miles impacted by cattle in BLM's Gila District in 2019.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
San Pedro RNCA	6.87	36.9%	9.09	48.8%	2.67	14.3%		0.0%	18.63
Not in allotment	6.87	36.9%	9.09	48.8%	2.67	14.3%		0.0%	18.63

Table 50. Critical habitat survey miles impacted by cattle in BLM's Gila District in 2020.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
San Pedro RNCA	2.38	21.4%	1.24	11.2%	0.21	1.9%	7.30	65.6%	11.13
Not in allotment	2.38	21.4%	1.24	11.2%	0.21	1.9%	7.30	65.6%	11.13

Table 51. Critical habitat survey miles impacted by cattle in BLM's Gila District in 2021.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
San Pedro RNCA	2.61	13.7%	4.06	21.4%	1.36	7.2%	10.96	57.7%	18.99
Not in allotment	1.26	9.8%	4.06	31.6%	0.48	3.7%	7.07	55.0%	12.87
Babocomari		0.0%		0.0%		0.0%	1.08	100.0%	1.08
Brunchow Hill	1.35	100.0%		0.0%		0.0%		0.0%	1.35
Lucky Hills		0.0%		0.0%	0.89	25.8%	2.54	74.2%	3.43
Three Brothers		0.0%		0.0%		0.0%	0.26	100.0%	0.26
Gila Box RNCA	2.89	9.7%	0.93	3.1%	4.21	14.2%	21.70	73.0%	29.73
Bonita Creek	2.89	31.8%	0.93	10.2%	3.03	33.3%	2.25	24.8%	9.10
Bull Gap Community		0.0%		0.0%		0.0%	3.51	100.0%	3.51
Gila		0.0%		0.0%		0.0%	4.86	100.0%	4.86
Johnny Creek		0.0%		0.0%	1.18	34.7%	2.22	65.3%	3.40
Morenci		0.0%		0.0%		0.0%	7.62	100.0%	7.62
Zorilla		0.0%		0.0%		0.0%	1.23	100.0%	1.23

Table 52. Critical habitat survey miles impacted by cattle in BLM's Gila District in 2022.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
San Pedro RNCA	3.77	9.3%	10.81	26.6%	4.23	10.4%	21.84	53.7%	40.65
Not in allotment	3.77	10.7%	6.98	19.8%	4.23	12.0%	20.27	57.5%	35.25
Babocomari		0.0%	1.67	100.0%		0.0%		0.0%	1.67
Brunchow Hill		0.0%	0.13	100.0%		0.0%		0.0%	0.13
Lucky Hills		0.0%	2.03	100.0%		0.0%		0.0%	2.03
Three Brothers		0.0%		0.0%		0.0%	1.57	100.0%	1.57
Tucson Field Office	2.19	7.3%	1.07	3.6%	2.39	8.0%	24.26	81.1%	29.91
A-Diamond		0.0%		0.0%	0.47	9.3%	4.63	90.7%	5.10
Government Springs	1.98	61.9%	0.39	12.1%	0.74	23.0%	0.10	3.1%	3.20
Horsetrack		0.0%		0.0%	1.18	25.4%	3.44	74.6%	4.62
Len & Cochran		0.0%		0.0%		0.0%	4.07	100.0%	4.07
Len & Teacup Ranch		0.0%		0.0%		0.0%	5.22	100.0%	5.22
Myers		0.0%		0.0%		0.0%	2.01	100.0%	2.01
Myers/Whitlow		0.0%		0.0%		0.0%	4.20	100.0%	4.20
Sleeping Beauty Mtn	0.21	14.4%	0.68	46.1%		0.0%	0.58	39.5%	1.47

Table 53. Critical habitat survey miles impacted by cattle in BLM's Gila District in 2023.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
San Pedro RNCA		0.0%	1.06	2.5%	1.82	4.3%	39.06	93.1%	41.94
Not in allotment		0.0%	1.06	2.5%	1.82	4.3%	39.06	93.1%	41.94
Tucson Field Office		0.0%	0.83	32.8%	0.10	3.9%	1.60	63.3%	2.52
Not in allotment		0.0%	0.83	32.8%	0.10	3.9%	1.60	63.3%	2.52

Table 54. Critical habitat survey miles impacted by cattle in BLM's Gila District in 2024.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Gila Box RNCA	3.93	13.8%		0.0%	0.97	3.4%	23.62	82.8%	28.52
Bonita Creek	2.49	51.3%		0.0%	0.63	12.9%	1.74	35.8%	4.86
Bull Gap Community	1.44	28.2%		0.0%		0.0%	3.66	71.7%	5.10
Gila		0.0%		0.0%		0.0%	4.22	100.0%	4.22
Johnny Creek/Bonita Creek		0.0%		0.0%		0.0%	3.00	100.0%	3.00
Morenci		0.0%		0.0%	0.34	4.7%	6.97	95.2%	7.32
Not in allotment		0.0%		0.0%		0.0%	2.84	100.0%	2.84
Zorilla		0.0%		0.0%		0.0%	1.20	100.0%	1.20
Tucson Field Office		0.0%	5.59	31.4%	0.84	4.7%	11.38	63.9%	17.80
A-Diamond		0.0%	2.16	33.6%		0.0%	4.26	66.4%	6.42
Horsetrack		0.0%	0.52	48.8%		0.0%	0.55	51.0%	1.07
Len & Cochran		0.0%		0.0%	0.32	12.4%	2.25	87.6%	2.57
Len & Teacup Ranch		0.0%	0.82	21.1%		0.0%	3.09	78.9%	3.91
Myers/Whitlow		0.0%	2.08	54.3%	0.52	13.6%	1.23	32.1%	3.84

Hassayampa District

Beginning in 2023, the Center began our assessments of designated critical habitat within the Big Sandy River watershed (Tables 55-57). Here, grazing allotments are managed by the BLM Kingman Field Office and contain critical habitat designations for southwestern willow flycatcher, yellow-billed cuckoo, and northern Mexican garter snake. In most cases, BLM management documents require important riparian ecosystems to be protected from cattle through exclosures, seasonal limitations, and closed allotments. However, Center surveys revealed that none of these measures were being enforced on the ground and that cattle impacts were ubiquitous and significant throughout the watershed.

In 2023, percent of survey miles with moderate to significant cattle impacts averaged 91% (range 61%-100%) in allotments under Kingman Field Office management (Table 56). Five of the seven allotments surveyed exhibited 100% of riparian survey miles moderately to significantly damaged by cattle. Although only five allotments were subsequently resurveyed in 2024, high rates of cattle impacts remained (Table 57), indicating a sustained problem of cattle-damaged critical habitat in this region of Arizona, including several locations off-limits to cattle either permanently or seasonally. The only allotment that showed improvement was Planet allotment, going from 61% to 13% moderately to significantly impacted by livestock.

Table 55. Percent of critical habitat survey miles moderately to significantly impacted by cattle on the BLM's Hassayampa District, by allotment, from 2023-2024.

Unit/ Allotment	2023	2024
Kingman Field Office	91%	75%
Artillery Range	100%	100%
Chino Springs	100%	
Greenwood Community	100%	100%
Greenwood Peak Community	100%	100%
Palmerita	100%	
Planet	61%	13%
Primrose	79%	81%

Table 56. Critical habitat survey miles impacted by cattle in BLM's Hassayampa District in 2023.

Unit/ Allotment	Absent		Light		Moderate		Significant		TOTAL
	miles	percent	miles	percent	miles	percent	miles	percent	miles
Kingman Field Office		0.0%	1.98	8.6%	4.62	20.1%	16.44	71.4%	23.03
Artillery Range		0.0%		0.0%	1.12	68.6%	0.52	31.5%	1.64
Chino Springs		0.0%		0.0%		0.0%	3.60	100.0%	3.60
Greenwood Community		0.0%		0.0%		0.0%	1.47	100.0%	1.47
Greenwood Peak Community		0.0%		0.0%		0.0%	3.83	100.0%	3.83
Palmerita		0.0%		0.0%		0.0%	5.68	100.0%	5.68
Planet		0.0%	1.20	38.4%	1.91	61.5%		0.0%	3.11
Primrose		0.0%	0.78	21.1%	1.58	42.8%	1.33	36.0%	3.70

Table 57. Critical habitat survey miles impacted by cattle in BLM’s Hassayampa District in 2024.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Kingman Field Office		0.0%	3.63	25.2%	4.50	31.2%	6.30	43.6%	14.44
Artillery Range		0.0%		0.0%	2.32	78.6%	0.63	21.5%	2.95
Greenwood Community		0.0%		0.0%		0.0%	2.27	100.0%	2.27
Greenwood Peak Community		0.0%		0.0%	1.70	58.5%	1.21	41.5%	2.91
Planet		0.0%	3.12	86.7%	0.48	13.3%		0.0%	3.60
Primrose		0.0%	0.51	18.9%		0.0%	2.19	81.1%	2.70

Bureau of Land Management, Utah State Office

Paria River District

In 2023, the Center expanded critical habitat surveys into the BLM’s Utah State Office to assess southwestern willow flycatcher riparian designations on Grand Staircase-Escalante National Monument. While flycatcher designations occur specifically on the Cottonwood allotment, nearby allotments also host designated critical habitat and Primary Activity Centers (PAC’s) for Mexican spotted owls. Of the nearly 19 miles of riparian habitat surveyed on the Cottonwood allotment, 83% was found to have moderate to significant cattle impacts (Table 58). Overall, 87% of the surveyed riparian miles across the area showed moderate to significant impacts, underscoring the need for a reevaluation and expansion of survey efforts in Grand Staircase-Escalante National Monument.

Table 58. Percent of survey miles moderately to significantly impacted by cattle on the BLM’s Paria River District, by allotment, in 2023.

Unit/ Allotment	2023
Grand Staircase-Escalante NM	87%
Cottonwood	83%
Lower Hackberry	100%
Mollies Nipple	95%

Table 59. Critical habitat survey miles impacted by cattle in BLM’s Paria River District in 2023.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
Grand Staircase-Escalante NM	0.51	1.8%	3.20	11.1%	9.17	31.9%	15.88	55.2%	28.76
Cottonwood	0.51	2.7%	2.79	14.8%	5.71	30.2%	9.90	52.3%	18.92
Lower Hackberry		0.0%		0.0%	1.60	89.6%	0.19	10.7%	1.79
Mollies Nipple		0.0%	0.40	5.0%	1.86	23.0%	5.79	71.9%	8.05

Discussion

A multitude of Southwestern native species associated with riparian ecosystems, cienegas and other wetlands are threatened, endangered, or otherwise imperiled due to habitat loss, degradation, and ecosystem alteration.²⁹

Results from the Center's field surveys from 2017-2024 show widespread, region-wide damage from livestock grazing to aquatic and riparian critical habitat for threatened and endangered species on federally managed public lands in Arizona, New Mexico and Utah. In total, we have documented moderate to significant cattle impacts on 62% of the total 2,435 miles surveyed across the region.

Based on our critical habitat survey results and the unwillingness of federal land managers and livestock permit-holders to prevent continued degradation of riparian habitat on the majority of critical habitat designations surveyed, and based on the absence of management plans or conservation agreements that meaningfully conserve and prevent adverse modification to the physical and biological features that endangered species depend upon, the Center recommends and insists that agencies effectively exclude livestock from designated critical habitat in Arizona, New Mexico and Utah.

Because of the vital importance of intact riparian areas to sustaining and recovering ESA-listed species, and the undeniable link between livestock grazing and damaged riparian areas, agencies must determine whether grazing is an appropriate and suitable use of riparian public lands. To undertake this assessment, federal agencies must consider the relative value that ungrazed, recovering riparian areas provide to wildlife (especially special status species), water quality and hydrological processes against the value of riparian systems degraded and lost due to public lands livestock production. Livestock grazing is an inappropriate and unsuitable use in areas where wildlife habitat of elevated worth and importance has been or has the potential to be damaged by livestock use. Livestock grazing is also inappropriate and unsuitable when it would prevent timely recovery of important and valuable keystone ecosystems or when it disrupts the functionality of essential riparian areas, compromising their ability to support imperiled native species.

Ecological conditions on Western public lands have worsened recently,³⁰ mainly due to reduced productivity caused by livestock production in conjunction with a changing climate and

²⁹ Johnson, A.S., 1989. The thin green line: riparian corridors and endangered species in Arizona and New Mexico. *In defense of wildlife: preserving communities and corridors. Defenders of Wildlife, Washington, DC*, pp.35-46.

³⁰ Donahue, D.L., 2006. Federal rangeland policy: perverting law and jeopardizing ecosystem services. *J. Land Use & Envtl. L.*, 22, p. 299.

an historically unprecedented ‘megadrought’.^{31,32} Using public lands for livestock production is known to exacerbate the effects of climate change.³³

FWS recognizes the escalating climate problem but has failed to take meaningful action to mitigate it. Despite dire climate projections forecasted for the southwestern states, the FS, BLM, and FWS continue to authorize status quo livestock grazing on federal public lands with no practical or meaningful revisions to protect riparian ecosystems or the imperiled native species whose future survival depends on them.

Livestock exclusion is the best way to mitigate climate change impacts and aridification, as removal of cattle grazing has been correlated with dramatic increases in native riparian vegetation.^{34,35,36,37} Only by eliminating livestock impacts will native riparian ecosystems survive and recover in this historic Anthropocene era defined by record heat and drought. While the effects of climate change are difficult to control, riparian habitat on public lands in the Southwest can be dramatically improved simply by excluding livestock from these areas.

³¹ Beschta, R.L., Donahue, D.L., DellaSala, D.A., Rhodes, J.J., Karr, J.R., O’Brien, M.H., Fleischner, T.L. and Williams, C.D., 2013. Adapting to climate change on western public lands: addressing the ecological effects of domestic, wild, and feral ungulates. *Environmental Management*, 51(2), pp.474-491.

³² Williams, A. P., Cook, B. I., & Smerdon, J. E. (2022). Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nature Climate Change*, 12, 232–234. <https://doi.org/10.1038/s41558-022-01290-z>

³³ Kauffman, J.B., Beschta, R.L., Lacy, P.M. *et al.* Livestock Use on Public Lands in the Western USA Exacerbates Climate Change: Implications for Climate Change Mitigation and Adaptation. *Environmental Management* **69**, 1137–1152 (2022). <https://doi.org/10.1007/s00267-022-01633-8>

³⁴ Rucks, M.G., 1984. Composition and trend of riparian vegetation on five perennial streams in southeastern Arizona. In *California Riparian Systems* (pp. 97-108). University of California Press.

³⁵ Smith, J.J., 1990. Recovery Of Riparian Vegetation on An Intermittent Stream Following Removal of Cattle. In *California Riparian Systems Conference*, p. 217.

³⁶ Reichenbacher, F.W., 1984. Ecology and evolution of southwestern riparian plant communities [The relationship between the distributions of plants in the floodplain and a set of physical site factors, Trout Creek, Mohave County Arizona; USA]. *Desert Plants*.

³⁷ Szaro, R.C. and Pase, C.P., 1983. Short-term changes in a cottonwood-ash-willow association on a grazed and an ungrazed portion of Little Ash Creek in central Arizona *Populus fremontii*, velvet ash, *Fraxinus velutina*, Goodding willow, *Salix gooddingii*. *Rangeland Ecology & Management/Journal of Range Management Archives*, 36(3), pp.382-384.

Appendix A. Survey Methods Tables

Table A-1. Condition descriptors and severity score guidelines for the six cattle impact categories used in the rapid assessment surveys.

Category	Condition: 1	Condition: 2	Condition: 3	Condition: 4
GRAZING EVIDENCE ON GRASSES AND HERBACEOUS GROWTH	LIMITED Less than 1% of the grasses impacted.	LIGHT Few to some patches of grazed area or selective grazing in patches.	MODERATE Multiple grass patches grazed, more than 20% of grass impacted in patches.	SEVERE/HEAVY Multiple patches grazed, low grass heights less than 1 inch. More than 30% grazed in patches
BROWSE PRESSURE/WOODY Stems	LIMITED Less than 1% of woody stems impacted	LIGHT Browsing limited to multiyear stems	MODERATE Browse pressure on near channel woody recruitment	HEAVY/SEVERE Multiple green-line or near channel recruitment browsed
GROUND COVER DISTURBANCE/INTENSITY	LIMITED Limited to transient evidence of use.	LOW Isolated trailing and cow trails developing.	MODERATE Multiple trails and the presence of wallows and rutting areas. Some bare soils.	SEVERE Trails, plus wallows, rutting and compaction leading to denuded ground and larger areas of bare soils.
GROUND COVER DISTURBANCE/EXTENT	LIMITED Few examples of disturbance.	SCATTERED Trails or disturbances in more than one location in segment.	MODERATE Trails meander through entire segment and there are multiple moderate level disturbances (see above).	PERVASIVE Multiple locations of disturbance and multiple types of disturbances, including severe moderate and low (see above).
STREAMBANK DEGRADATION/INTENSITY	LIMITED No visible signs, but other cattle impact on both sides of river that evidence crossing.	LOW Trails leading to streambank and water's edge.	MODERATE Trailing and trails creating unstable banks, some chiseling, or in low relief banks-muddy compaction	SEVERE Trailing leading to shearing and removal of a portion of the streambank leaving vertical surfaces.
STREAMBANK DEGRADATION/EXTENT	LIMITED Isolated example of streambank entry.	SCATTERED Bank degradation of any intensity in more than one location.	MODERATE Multiple examples of low and moderate bank degradation (see above).	PERVASIVE Multiple examples of low, moderate, and severe degradation (see above).

Table A-2. Weighting table for overall impact levels of stream reach segments based on condition scores (0-4) from the six categories of cattle impacts.

ABSENT	LIGHT IMPACT	MODERATE IMPACT	SIGNIFICANT IMPACT
ALL ZEROS	ANY COMBINATION OF ONE'S & TWOS & ZEROS	AT LEAST (5) TWOS WITH ANY OTHER NUMBER	ANY TIME THERE ARE (3) THREES WITH ANY OTHER COMBINATION OF NUMBERS
		ANY COMBINATION OF TWOS, THREES, AND ONE'S	ANY COMBINATION OF NUMBERS WITH AT LEAST (1) FOUR
	<i>(UNLESS (5) TWOS- then moderate)</i>	<i>(UNLESS (3) THREES- then significant)</i>	