VIA CERTIFIED MAIL and E-MAIL

March 25, 2026

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Re: Sixty-Day Notice of Intent to Sue Pursuant to the Endangered Species Act and Administrative Procedure Act for Legal Violations within the Las Cienegas National Conservation Area.

Secretary Burgum, Messrs. Groffy, Suazo, and Brady, Mr. Nesvik and Ms. Whitlaw:

The Center for Biological Diversity ("Center") and Maricopa Bird Alliance (together "Conservation Groups") hereby notify the U.S. Bureau of Land Management ("BLM") and the U.S. Fish and Wildlife Service ("FWS") of the Conservation Groups' intent to sue for ongoing violations of the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531-1544, its implementing regulations, and the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 701-706, related to unlawful livestock grazing in the Las Cienegas National Conservation Area ("Conservation Area").

This Notice documents violations of the ESA and APA with respect to improper livestock management in yet another National Conservation Area in Arizona. As our surveys have repeatedly demonstrated, designated critical habitat for imperiled species within the Conservation Area exists in a highly degraded state regardless of the mechanism by which they

are supposedly protected. Herein, we show that the 2003 Resource Management Plan ("RMP") for the Conservation Area is not being followed, and that the biological opinions currently in effect for the Conservation Area are based on false assumptions regarding the RMP and grazing permit compliance. Importantly, the RMP's assumption that cattle are effectively excluded from significant stretches of riparian critical habitat within the Conservation Area is demonstrably false.

BLM's grazing authorizations, which rely on FWS's flawed biological opinions, allow permittees to continue business as usual in the Conservation Area to the severe detriment of ESA-listed species and in violation of Section 7(a)(2) of the ESA, 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"), southwestern willow flycatcher ("flycatcher"), northern Mexican garter snake ("garter snake"), Chiricahua leopard frog ("leopard frog"), Gila chub ("chub"), as well as Gila topminnow ("topminnow") and desert pupfish ("pupfish") in a manner or to an extent not previously considered and authorized by the existing 2002, 2008 or 2012 Biological Opinions on the Conservation Area's grazing program. In the alternative, BLM's failure to implement the RMP for the Conservation Area as assumed by the biological opinions constitutes a modification to the agency action consulted on in a manner that is harming listed species and critical habitat. BLM's ongoing failure to reinitiate, and both BLM's and FWS's failure to complete, ESA Section 7 consultation on the ongoing impacts of livestock grazing on threatened and endangered species and their critical habitat within the Conservation Area violates the ESA and its implementing regulations.

Additionally, the agencies have acted in a manner that 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). Accordingly, livestock grazing should be immediately enjoined, the agencies' grazing authorizations and the 2002, 2008 and 2012 Biological Opinions should be vacated and remanded, and the agencies should be ordered to immediately 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).

The ESA and its Implementing Regulations

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); 50 C.F.R. § 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 Section 7 of the ESA, 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 ensure that the proposed action "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [designated critical] habitat of such species." *Id*. § 1536(a)(2). 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." 50 C.F.R. § 402.02.

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 action agency finds that the proposed action "may affect" listed species or critical habitat, then formal consultation is required. 50 C.F.R. § 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)(l)(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, 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"). 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); 50 C.F.R. § 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).

Factual Background

1. The Center's Engagement at the Conservation Area

On December 16, 2024, the Center sent an urgent letter to BLM District Manager Scott Feldhausen and FWS State Supervisor Heather Whitlaw, documenting a deliberately dismantled cattle exclosure fence (which occurred on November 15, 2024) and subsequent mass mortality of threatened Chiricahua leopard frogs reported two weeks later at the Maternity Well pond in the Conservation Area (**Attach. 1**). Among the scores of deceased frogs were individuals clearly crushed by cattle hooves. *Id*.

Besides being occupied by leopard frogs and endangered topminnow, the pond at Maternity Well is designated critical habitat for threatened garter snakes.

Following a complete non-response to our letter, the Center conducted detailed surveys of cattle impacts in all other wetland and riparian areas designated as critical habitat on the Empire-Cienega allotment, both inside and outside of grazing exclosures. Center surveys documented numerous instances of damaged, nonfunctional exclusion fencing and miles of moderate to severe environmental damage to designated critical habitat caused by cattle throughout the Conservation Area.

On April 14, 2025, the Center sent BLM District Manager Lance Brady and FWS State Supervisor Heather Whitlaw a letter documenting significant, unauthorized and illegal grazing damages to designated critical habitat and primary constituent elements thereof within riparian zones explicitly closed to livestock grazing per the 2003 Las Cienegas RMP. *See* **Attach. 2.** That letter, our second regarding conflicts between grazing management and ESA-listed species at the Conservation Area, included 27 pages of photographs taken specifically within the grazing exclosures of the Conservation Area, many depicting damage to critical habitat and primary constituent elements from livestock.

Again, we received no response from responsible federal officials.

From May 2-3, 2025, and following a second complete non-response to our letters, the Center again conducted detailed surveys of cattle impacts in all wetland and riparian areas designated as critical habitat on the Empire-Cienega allotment. On May 28, 2025, the Center sent BLM District Manager Lance Brady and FWS State Supervisor Heather Whitlaw a third letter documenting continued, significant cattle damage to designated critical habitat and primary constituent elements for 5 ESA-listed species (Gila chub, Chiricahua leopard frog, northern Mexican garter snake, southwestern willow flycatcher, yellow-billed cuckoo), within a grazing exclosure within the Conservation Area (*see* **Attach. 3**).

Following our May 28, 2025 letter, we were assured by BLM Gila District Manager Lance Brady, via email response, that the BLM Tucson Field Office "will be looking into the matter further."

We subsequently revisited the Conservation Area to conduct surveys of designated critical habitat, including those specifically protected by grazing exclosures, from October 7-15, 2025. The primary purpose of these surveys was to again document and quantify the degree of cattle damage to critical habitat within exclosures that are off-limits to grazing (and that, per the RMP's mandate, should have been off-limits for the past 22 years). The secondary purpose of this round of surveys was to document the state and functionality of protective fencing that serves as BLM's mechanism to conserve listed species within the Conservation Area and upon which FWS's ESA determinations hinge.

The results of our May 2-3 & October 7-15, 2025 surveys of cattle damage to designated critical habitat within the grazing exclosures of the Conservation Area are presented with this Notice (*see* **Attach. 4)**.

In a separate attachment, we also provide specific documentation of the current condition of exclosure fencing throughout the Conservation Area and emphasize that these fences are the primary mechanism by which federal agencies currently ensure conservation of ESA-listed species (*see* **Attach. 5**). To assist our field surveys of exclosure fences we obtained, via a Freedom of Information Act request, a digital layer of Las Cienegas grazing exclosures from BLM. This digital layer comported with what was described in the 2003 RMP (*see* Fig. 1 below, from 2003 RMP at 23), only with more detail regarding exclosure boundaries, crossing lanes, and watering areas. Our surveys found dozens of places where fences were down, dilapidated and easily passable by cattle, or non-existent.

Our latest survey results, congruent with all previous surveys to date, indicate that unauthorized cattle damage to riparian critical habitat and relentless intrusion by cattle into off-limits areas continues within the Conservation Area despite BLM's duty to protect such habitat, and despite our best efforts to inform BLM of the damage, and to provide the agency with multiple opportunities to stop it.

We also present in this Notice our survey findings for critical habitat designations that are not protected by existing grazing exclosures at all and instead rely on seasonal restrictions and/or utilization limits (*see* **Attach. 6**). This includes, among others, numerous acres of yellow-billed cuckoo designated critical habitat, for which there exists no ESA consultation at all for the Conservation Area.

2. Management of the Conservation Area

Las Cienegas National Conservation Area was designated by Congress and signed into law by the President on December 6, 2000, "in order to conserve, protect, and enhance the unique and nationally important aquatic, wildlife, vegetative, archaeological, paleontological, scientific, cave, cultural, historical, recreational, educational, scenic, rangeland and riparian resources and values of the public lands" within the Conservation Area, "while allowing livestock grazing and recreation to continue in appropriate areas." 16 U.S.C. § 460000-3(a).

The 49,000-acre public land Conservation Area, located in Pima and Santa Cruz counties in Arizona, contains five rare ecosystems in the American Southwest: cienegas, cottonwood-willow riparian forest, sacaton grasslands, mesquite bosques, and semidesert grasslands. The Conservation Area also supports and/or is designated as critical habitat for several ESA-listed species dependent on aquatic and riparian habitat including cuckoo, flycatcher, garter snake, leopard frog, chub, topminnow, pupfish, and others. The Empire-Cienega grazing allotment, specifically, contains designated critical habitat cuckoo, flycatcher, garter snake, leopard frog, and chub, which occur in perennial streams, ephemeral washes, cienegas and other wetlands as well as associated uplands. These designations include major drainages such as Cienega Creek, Gardner Canyon, Empire Gulch, Mattie Canyon, and others.

Grazing activities on the Conservation Area are governed by the following plans and biological opinions:

1) The October 4, 2002, Biological and Conference Opinion for LCNCA Resource Management Plan (first 2-21-02-F-162, now 22410-2002-F-0162), ("2002 BiOp").

2) The July 25, 2003, Las Cienegas Resource Management Plan and Record of Decision for managing 49,000 acres of public land, resources and uses within Las Cienegas National Conservation Area, ("2003 RMP").

3) The December 31, 2008, Biological Opinion on Aquatic Species Conservation at the San Pedro Riparian and Las Cienegas National Conservation Areas (22410-2008-F-0103), ("2008 BiOp"). The 2008 BiOp concerns translocation and establishment of species within two specified wetlands of the Conservation Area and does not address effects on listed species and their critical habitat elsewhere.

4) The February 21, 2012, Reinitiation of Biological and Conference Opinion for LCNCA RMP (following a September 2011 Biological Evaluation), ("2012 BiOp"). The 2012 BiOp concerns translocation and establishment of species at specified cattle stock tanks of the Conservation Area and does not address effects on listed species and their critical habitat elsewhere. The 2012 BiOp revises certain sections of the 2002 BiOp, but unrevised sections remain as written in the 2002 BiOp.

The Conservation Area is covered under its own RMP consultation. According to Public Law 106–538, which established the Conservation Area on December 6, 2000, BLM can allow livestock grazing only in "appropriate areas." 16 U.S.C. § 460000-3(a). Due to the presence of important riparian areas occupied by a suite of native, ESA-protected species, BLM's 2003 RMP prohibits cattle grazing within approximately 3,919 acres of land within the Conservation Area for management and monitoring purposes, including 2,319 acres withing the Empire-Cienega Allotment. *See* Fig. 1 below;[1] *see also* Las Cienegas RMP (2003) at 21, 25 (noting 3,919 acres would not be grazed across five allotments in the planning area, including 2,319 acres in the Empire-Cienega Allotment); 59 (implementing the following measure: "Limit livestock use in riparian areas of Cienega Creek, Mattie Canyon, and Empire Gulch with perennial water to the crossing lanes and watering areas listed in Table 11 and shown on Map 17… "); 2002 RMP BiOp at 41 (making similar commitment and providing that "about 2,319 acres (6%) of the BLM lands [within the Empire-Cienega Allotment] would be excluded from livestock grazing as vegetation study areas" and that BLM will "modify the current interim grazing plan [within the Empire-Cienega Allotment] to establish study exclosures on the 2,319 acres of public lands not allocated to livestock grazing" within the same allotment, and will "monitor these non-grazed lands to determine the effects of grazing and rest on habitats," and will "inspect and maintain riparian exclosure fences at least once annually just before use of lands next to exclosures").

[1] We also obtained a digital layer of grazing exclosures from the BLM, through the Freedom of Information Act, to reference during our on-the-ground cattle impact surveys.

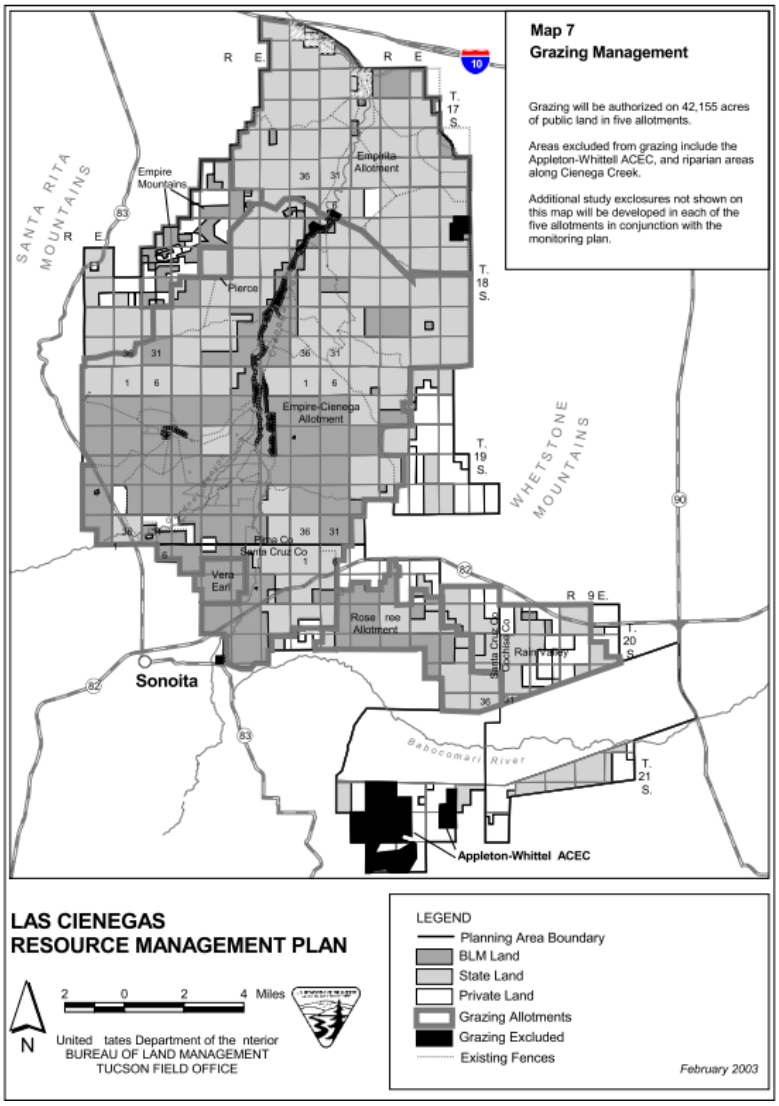

Figure 1. A map from BLM's 2003 Resource Management Plan for Las Cienegas National Conservation Area, showing areas excluded from grazing, in black.

The RMP's decision to prohibit livestock grazing within certain acreage in the Conservation Area was a key conservation strategy aimed at restoring, rehabilitating, and conserving imperiled native species and their habitats. According to the 2003 RMP: "The goals and objectives are also intended to meet or exceed the standards required in the BLM's Standards and Guidelines for Rangeland Health in Arizona." 2003 RMP at 3.

FWS issued the 2002 BiOp addressing the then-proposed 2003 RMP's impacts on listed species at that time. The 2002 BiOp assumes that livestock grazing would be excluded from 3,919 acres (including 2,319 acres on the Cienega-Empire Allotment) and 21.5 miles of important riparian habitat within the Conservation Area. 2002 BiOp at 40-41; 43 (map). In describing the "proposed" action that the 2002 BiOp evaluates, FWS identifies certain RMP mandates, as well as some caveats, that address fencing. *Id.* at 41 (see above). Some of these excluded acres would even become vegetation study areas to determine the effects of grazing and rest on habitats. The 2002 BiOp for the RMP predicted that, based on its grazing restrictions, ecological conditions

should be maintained and improved during the 20-year life of the RMP. 2003 RMP ROD, attaching excerpts of 2002 BiOP at A5 – 4; A5 – 6 – A5 – 8; A5 - 13; A5 – 16; A5 – 20; A5 – 24; A5 – 25; A5 – 28.

It all sounded good on paper. However, as we show in this Notice, BLM has failed to implement and comply with the 2003 RMP's provisions barring livestock from the ecologically important lifeblood of the Conservation Area: Cienega Creek and Empire Gulch. BLM has failed to maintain or in some cases even complete the proposed exclosures after 22 years.

3. The Cuckoo, Flycatcher, Garter Snake, Leopard Frog, and Chub

A. Cuckoo

FWS listed the cuckoo (*Coccyzus americanus occidentalis*) as a threatened species in 2014.[2] This listing compiled by FWS included comprehensive coverage of cuckoo dramatic habitat loss, fragmentation and degradation, severe widespread population declines, climate change and the number and importance of associated cumulative impacts.[3]

Cuckoo face steep and continued population declines in western riparian breeding grounds, owing primarily to loss of native habitat.[4] Once a fairly common summer resident throughout Arizona, FWS concluded that Arizona cuckoo populations declined significantly starting in the 1970's and that this was directly paralleled by the decline of its preferred breeding habitat, cottonwood-willow riparian communities.[5] Despite the extraordinary ecological and biodiversity values of riparian ecosystems, these places have been the most disturbed and degraded land type in the western United States.[6]

FWS listed the western distinct population segment of the cuckoo as threatened in 2014[7] and designated critical habitat for the species in 2021.[8] The Service has yet to develop a recovery plan for the cuckoo. In its rule designating critical habitat for the species, FWS declined to designate foraging habitat outside of breeding habitat due to the wide variety and extent of such

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[2] 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.

[3] *Id*.

[4] 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.

[5] FWS. 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 C.F.R. Part 17. Federal Register, Vol. 78, No. 192, Part V. 3 October 2013. Pages 61621-61666.

[6] 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.

[7] 79 Fed. Reg. 59992 (Oct. 3, 2014).

[8] 86 Fed. Reg. 20798 (Apr. 21, 2021).

foraging habitat. Instead, FWS focused its designation on breeding and dispersal habitat. FWS determined the primary constituent elements for the cuckoo: (1) rangewide breeding habitat consisting of contiguous patches of riparian woodlands within floodplains or in upland areas or terraces with sufficient cover and other characteristics to support adults and nestlings during the breeding season and enable reproduction; (2) an adequate prey base consisting of large insects, lizards, and frogs to support adults and their young in breeding areas during the nesting season and in post-breeding dispersal areas; and (3) hydrologic processes that maintain and regenerate breeding habitat.

FWS discusses the full suite of threats to cuckoo caused by grazing in its decision proposing critical habitat for the cuckoo:

> (4) Actions that would result in alteration of western yellow-billed cuckoo habitat from overgrazing of livestock or ungulate (for example, horses, burros) management. Such activities could include, but are not limited to, unrestricted ungulate access and use of riparian vegetation; excessive ungulate use of riparian vegetation during the non-growing season (for example, leaf drop to bud break); overuse of riparian habitat and upland vegetation due to insufficient herbaceous vegetation available to ungulates; and improper herding, water development, or other livestock management actions. These activities could reduce the volume and composition of riparian vegetation, prevent regeneration of riparian plant species, physically disturb nests, alter floodplain dynamics, alter watershed and soil characteristics, alter stream morphology, and facilitate the growth of flammable nonnative plant species.[9]

Furthermore, FWS defines overgrazing as "grazing activity (that) degrades riparian habitat attributes and prevents long-term health and persistence of these systems.[10] In another example, FWS defines overgrazing as grazing activities that reduce quality and quantity of breeding habitat.[11] FWS has defined "'poor' livestock management" as:

> We consider poor livestock management to mean grazing conducted in a manner not in accordance with approved allotment management plans **or otherwise considered adverse to maintaining natural habitat characteristics**.[12]

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[9] 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 48571.

[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 20808.

[11] *Id.,* page 20853.

[12] Listing and Designation of Critical Habitat for the Chiricahua Leopard Frog, Final Rule, Department of the Interior Fish and Wildlife Service, Federal Register, Vol. 77, No. 54, March 20, 2012, page 16328 (***emphasis added***).

The 2002 BiOp, which covers the 2003 RMP, does not discuss livestock impacts to cuckoo and far pre-dates the cuckoo listing (2014) and critical habitat designation (2021). In addition, this Notice documents widespread cattle damage in cuckoo critical habitat and numerous instances of damaged, nonfunctional or missing cattle exclusion fencing (*see* **Attach. 5**) meant to protect the lifeblood of the Conservation Area, Cienega Creek. We have documented significant cattle damage to cuckoo critical habitat immediately prior to the nesting and breeding season, which occurs from late May-September (*see* **Attachs. 4 & 6**).

The 2002 RMP BiOp states:

> As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a way that causes an effect to a listed species or critical habitat that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation, if it is determined that the impact of such taking will cause an irreversible and adverse impact to the species. 2002 BiOp at 171.

ESA implementing regulations do not permit BLM and FWS to avoid reinitiation of consultation on the Las Cienegas RMP's impacts on species listed and critical habitat designated after the RMP and accompanying BiOp were issued. The ESA's reinitiation regulations state:

> An agency shall not be required to reinitiate consultation after the approval of a land management plan prepared pursuant to 43 U.S.C. 1712 or 16 U.S.C. 1604 upon listing of a new species or designation of new critical habitat if the land management plan has been adopted by the agency as of the date of listing or designation, *provided that any authorized actions that may affect the newly listed species or designated critical habitat will be addressed through a separate action-specific consultation*. 50 C.F.R. § 402.16(b) (emphasis added).

Because BLM did not conduct action-specific consultation on its recent renewal of the Empire-Cienega allotment grazing permit[13]—an action which affects newly listed species such as the cuckoo, garter snake, and leopard frog—this regulation does not exempt the Las Cienegas RMP from reinitiation. BLM must reinitiate consultation on the 2003 RMP *or* initiate consultation on the term grazing permit for Empire Cienega allotment. Doing neither is a violation of law.

[13] *See* BLM Reporting Application - Rangeland Administration System Reports; accessed December 15, 2025 (renewing the grazing permit for the Empire-Cienega allotment for a term of 10 years, effective March 1, 2025).

In any event, upon reinitiating consultation to address the impacts of livestock grazing on listed species addressed in prior BiOps, BLM and FWS must address the impacts of livestock grazing on all listed species likely impacted by grazing in riparian habitats, including the cuckoo.

B. Flycatcher

The flycatcher (*Empidonax traillii extimus*) was listed as federally endangered in 1995 and received a Recovery Plan in 2002.[14] This small bird breeds in riparian habitats in the southwestern United States, requiring relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands, including lakes and reservoirs. Flycatchers are insectivores, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands. In the Southwest, flycatchers arrive on territories in late April or early May, and nest building begins in mid-May.

In 2013, FWS designated critical habitat for the flycatcher that included riparian forest within the Conservation Area. In its rule designating critical habitat, FWS determined the primary constituent elements for the flycatcher: (1) riparian habitat comprised of trees and shrubs interspersed with areas of dense thickets, shrubs, foliage, or forests; and (2) a diverse insect prey base within or adjacent to riparian floodplains or moist environments. The primary constituent elements of flycatcher critical habitat are based on riparian plant species, structure and quality of habitat, and insects for prey. Flycatchers continue to rapidly lose habitat regionwide, and livestock continue to be a significant causal factor. Flycatcher habitat in the arid southwest is "especially vulnerable to fragmentation and destruction by livestock," because livestock seek out the rare shade and vegetation in the riparian corridors where flycatchers breed and forage.[15] The concentration of livestock—and thus, the impacts of grazing—in these riparian areas "directly affect the habitat characteristics critical to [the flycatcher]."[16] The first and foremost recovery action listed in the 2002 Flycatcher Recovery Plan is to increase and improve occupied, suitable, and potential breeding habitat.[17] Allocation of vital habitat components to accommodate illegal livestock has led to removal of riparian vegetation and has adversely affected flycatchers via habitat loss. BLM has certainly aided in the destruction of occupied, suitable, and potential breeding habitat by managing public land to allow illegal livestock and wild burros to degrade flycatcher critical habitat. Such poor livestock management practices help to preclude any possible recovery scenario.

BLM and FWS have never consulted on grazing impacts to flycatcher critical habitat within the Conservation Area, as it was designated in 2013. The 2002 BiOp did not consult on such designation, nor are we aware that BLM engaged in consultation when renewing the Empire-Cienega grazing permit in 2025. As explained above, doing neither is a violation of law.

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[14]U.S. Fish and Wildlife Service. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico.

[15] 60 Fed. Reg. at 10,708.

[16] *Id.* at 10707.

[17] U.S. Fish and Wildlife Service. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico, page v.

The 2002 BiOp is predicated on fences being built and functional. *See* BiOp at 41. At Las Cienegas, those fences are now either non-functional or were never built (*see* **Attach. 5**). The Center's documentation of significant cattle impacts in riparian areas BLM assumes are "closed" to livestock (*see* **Attachs. 2, 3 & 4**) underscores that the actual impacts of grazing far exceed those analyzed in the 2002 BiOp. Reinitiation of formal consultation is required if: new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; or if the identified 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.[18],[19]

Even still, the 2002 BiOp contains certain mandated measures that "shall be implemented" to reduce livestock grazing impacts to imperiled wildlife. These include checking exclosure fences when the adjacent pasture is being used, promptly repairing fences if there are issues, and taking action to prevent livestock from lingering in crossing and watering lanes. To prevent cattle from lingering in exclosures goes without saying.

Furthermore, the Incidental Take Statement in the 2002 RMP BiOp only allows harassment "of not more than 2 southwestern willow flycatchers during the life of the RMP from livestock management actions associated with exclosures and creek crossing and watering areas."[20] Noting the degree of cattle damage we have documented, and that some exclosure fences appear to have never been built at all (for example along the west side of Empire Gulch near the confluence of Cienega Creek), BLM has clearly failed to comply with the RMP again and the result is widespread degradation of designated critical habitat within the Conservation Area and a probable 'take' of numerous Flycatchers.

C. Garter Snake

FWS listed the northern Mexican garter snake (*Thamnophis eques megalops*) as a threatened species in 2014.[21] Garter snakes have declined dramatically throughout their range, reflected by widespread reductions of extant populations as well as local extirpations.[22] Garter snakes are highly imperiled due to habitat destruction, modification and fragmentation; introduction and proliferation of non-native species; small and poorly-connected populations vulnerable to inbreeding depression; and climate change and associated drought.[23]

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[19] 50 C.F.R. § 402.16(a)(2)-(3).

[20] FWS. 2002 Biological Opinion at 165.

[21] Threatened Status for the Northern Mexican Garter Snake and Narrow-Headed Garter Snake, Final Rule. Department of the Interior Fish and Wildlife Service. Federal Register, Vol. 79, No. 130. July 8, 2014, page 38678.

[22] Brennan, Thomas C., and Andrew T. Holycross. Field guide to amphibians and reptiles in Arizona. Arizona Game and Fish Dept., 2006.

[23] 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*)

Recovery of garter snake will ultimately depend on riparian restoration, not degradation as is illustrated in this Notice. Livestock damage results in a reduction of the amount or distribution of these key habitat features that are important for garter snake thermoregulation, shelter, protection from predators, and foraging opportunities. Based on our recent habitat surveys, grazing activities are continually diminishing riparian ecosystems on which these imperiled native reptiles depend and should no longer be allowed to continue in areas designated as critical habitat.

The 2002 BiOp, which covers the 2003 RMP, does not discuss livestock impacts to garter snake and far pre-dates garter snake listing (2014) and critical habitat designation (2021). Subsequent BiOps (2008, 2012) only concern translocation and establishment of garter snakes at specified stock tanks and so do not include effects to garter snakes and their critical habitat in the lifeblood of the Conservation Area, Cienega Creek and Empire Gulch. Thus, BLM and FWS have never consulted on grazing impacts to garter snakes and their critical habitat within the Conservation Area. The 2002 BiOp did not consult on the garter snake's listing or its critical habitat designation, nor are we aware that BLM engaged in consultation when renewing the Empire-Cienega grazing permit in 2025. Doing neither is a violation of law. In any event, upon reinitiating consultation to address the impacts of livestock grazing on listed species addressed in prior BiOps, BLM and FWS must address the impacts of livestock grazing on all listed species likely impacted by grazing in riparian habitats, including the garter snake.

This Notice documents widespread cattle damage in garter snake critical habitat and numerous instances of damaged, nonfunctional or missing cattle exclusion fencing (*see* **Attach. 5**). The Center's documentation of significant cattle impacts in riparian areas BLM assumes are "closed" to livestock (*see* **Attachs. 2, 3 & 4**) underscores that the actual impacts of grazing far exceed those analyzed in the 2002 BiOp. Reinitiation of formal consultation is required if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered.[24]

D. Leopard Frog

Almost half of all amphibian species worldwide are declining in abundance or distribution, and a third are immediately threatened with extinction,[25] including the leopard frog, which gained protection under the Endangered Species Act in 2002,[26] a Recovery Plan in 2007,[27]

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and Northern Mexican gartersnake (*Thamnophis eques megalops*) (No. 2018-1141). US Geological Survey.

[24] 50 C.F.R. § 402.16.

[25] Lötters, S., Kielgast, J., Bielby, J., Schmidtlein, S., Bosch, J., Veith, M., Walker, S.F., Fisher, M.C. and Rödder, D., 2009. The link between rapid enigmatic amphibian decline and the globally emerging chytrid fungus. *EcoHealth*, *6*(3), pp. 358-372.

[26] Listing of the Chiricahua Leopard Frog (*Rana chiricahuensis*), Final rule with a special rule, Department Of The Interior Fish and Wildlife Service, Federal Register, Vol. 67, No. 114, June 13, 2002, page 40790.

[27] Chiricahua Leopard Frog (*Rana chiricahuensis*) Final Recovery Plan, U.S. Fish and Wildlife Service, April 2007.

and critical habitat designation in 2012.[28] In its 2012 rule designating critical habitat for the species, FWS identified the primary constituent elements for the frog: (1) suitable aquatic breeding habitat and immediately adjacent uplands exhibiting (a) standing bodies of freshwater that are largely free from pollutants, (b) suitable habitat exhibiting emergent and or submerged vegetation, root masses, undercut banks, fractured rock substrates, or some combination thereof, (c) the absence of nonnative predators, (d) the absence of chytridiomycosis, and (e) suitable adjacent upland areas for foraging and basking; and (2) dispersal corridors consisting of suitable overland and non-wetted habitat to support the dispersal of frogs to other breeding sites.

Like other amphibians, leopard frogs face ongoing threats that include disease, predation by non-native species, habitat degradation and fragmentation, environmental contamination, and climate change.[29] Leopard frog have disappeared from more than 80% of their historical habitat in the United States as a result of extensive loss of wetland habitat.[30]

Livestock grazing causes long-term changes to the watershed and its functions.[31] Livestock grazing causes soil compaction, decreased moisture infiltration rates, increased runoff, changed vegetative species composition, decreased riparian vegetation, increased erosion, increased stream sedimentation, increased stream water temperature, and changes in channel form.[32]

Cattle remove bank-line vegetation that provides escape cover for frogs and a source of insect prey. The leopard frog uses riparian herbaceous vegetation for cover, thermoregulation, and foraging. Litter is reduced by trampling and churning into the soil, thus reducing cover for soil, plants, and wildlife.[33] Overuse of vegetation by livestock causes

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[28] Listing and Designation of Critical Habitat for the Chiricahua Leopard Frog, Final Rule, Department Of The Interior Fish and Wildlife Service, Federal Register, Vol. 77, No. 54, March 20, 2012, page 16324.

[29] Chiricahua Leopard Frog (*Rana chiricahuensis*) Final Recovery Plan, U.S. Fish and Wildlife Service, April 2007, page C-8.

[30] *Id.,* page 7.

[31] Armour, C., Duff, D. and Elmore, W., 1994. The effects of livestock grazing on western riparian and stream ecosystem. *Fisheries*, *19*(9), pp. 9-12.; 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.; Fleischner, T.L., 1994. Ecological costs of livestock grazing in western North America. *Conservation biology*, *8*(3), pp. 629-644.; Poff, B., Koestner, K.A., Neary, D.G. and Henderson, V., 2011. Threats to riparian ecosystems in Western North America: an analysis of existing literature 1. *JAWRA Journal of the American Water Resources Association*, *47*(6), pp. 1241-1254.

[32] Schulz, T. T., & Leininger, W. C. (1990). Differences in riparian vegetation structure between grazed areas and exclosures. Journal of Range Management, 43(4), 295-299.; Fleischner, T.L., 1994. Ecological costs of livestock grazing in western North America. *Conservation biology*, *8*(3), pp. 629-644.; Ohmart, R.D., 1996. Ecological condition of the East Fork of the Gila River and selected tributaries: Gila National Forest, New Mexico. *General Technical Report RM.*, *272*, p. 312.

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

changes to plant root structures, altering plant species composition and overall biomass.[34] Reduced herbaceous vegetation leads to accelerated soil loss due to increased exposure of soils to downpour events and reduced sediment filtering capabilities of the vegetation.[35] Hoof action causes loss of cryptobiotic soil crusts, soil compaction, erosion, and gullying.[36]

Other adverse effects to leopard frog and its habitat as a result of livestock grazing include: trampling of egg masses, tadpoles, and frogs; possible incidental ingestion of small larvae or eggs while drinking; deterioration of watersheds; degraded water quality with subsequent toxic effects on frogs; elimination of undercut banks that provide cover for frogs; loss of cover provided by wetland and riparian vegetation; loss of deep backwater pools; spread of disease; and facilitation of the dispersal of non-native predators.[37]

BLM and FWS have never consulted on grazing impacts to leopard frog critical habitat within the Conservation Area, as it was designated in 2012. Subsequent BiOps (2008, 2012) only concern translocation and establishment of leopard frogs at specified stock tanks and so do not include effects to frogs and their critical habitat in the lifeblood of the Conservation Area, Cienega Creek and Empire Gulch. Again, the 2002 BiOp did not consult on leopard frog critical habitat designation, nor are we aware that BLM engaged in consultation when renewing the Empire-Cienega grazing permit in 2025. Doing neither is a violation of law.

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[34] Vallentine, J. F. 1990. Grazing management. San Diego, CA, USA: Academic Press. 533 pp.; Popolizio, C.A., Goetz, H. and Chapman, P.L., 1994. Short-term response of riparian vegetation to 4 grazing treatments. *Rangeland Ecology & Management/Journal of Range Management Archives*, *47*(1), pp. 48-53.

[35] Erman et al. 1977, Osborne, L.L. and Kovacic, D.A., 1993. Riparian vegetated buffer strips in water-quality restoration and stream management. *Freshwater biology*, *29*(2), pp. 243-258.

[36] Harper, K.T. and Marble, J.R., 1988. A role for nonvascular plants in management of arid and semiarid rangelands. In *Vegetation science applications for rangeland analysis and management* (pp. 135-169).; Springer, Dordrecht., Orodho, A.B., Trlica, M.J. and Bonham, C.D., 1990. Long-term heavy-grazing effects on soil and vegetation in the four corners region. *The Southwestern Naturalist*, pp.9-14.; Schlesinger, W.H., Reynolds, J.F., Cunningham, G.L., Huenneke, L.F., Jarrell, W.M., Virginia, R.A. and Whitford, W.G., 1990. Biological feedbacks in global desertification. *Science*, *247*(4946), pp. 1043-1048.; Bahre, C.J., 1991. *A legacy of change: historic human impact on vegetation in the Arizona borderlands*. University of Arizona Press.

[37] Hendrickson, D.A. and Minckley, W.L., 1985. Cienegas-vanishing climax communities of the American Southwest. *TNHC-Publications*.; Jancovich, J.K., Davidson, E.W., Morado, J.F., Jacobs, B.L. and Collins, J.P., 1997. Isolation of a lethal virus from the endangered tiger salamander Ambystoma tigrinum stebbinsi. *Diseases of Aquatic Organisms*, *31*(3), pp.161-167.; Listing of the Chiricahua Leopard Frog (*Rana chiricahuensis*), Final rule with a special rule, Department Of The Interior Fish and Wildlife Service, Federal Register, Vol. 67, No. 114, June 13, 2002, page 40801.; 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.; Poff, B., Koestner, K.A., Neary, D.G. and Henderson, V., 2011. Threats to riparian ecosystems in Western North America: an analysis of existing literature [Journal of the American Water Resources Association, 47(6)] pp. 1241-1254.

The severely outdated 2002 BiOp rests on the assumption that "degradation and loss of Chiricahua leopard frog habitat is not a factor in the area." 2002 BiOp at 89. It allows mortality, injury, or harassment of only up to 5 adult or metamorph Chiricahua leopard frogs and 5 egg masses annually during livestock management actions associated with exclosures, creek crossing and watering areas. *Id.* at 96. Noting the degree of cattle damage we have documented in riparian areas BLM assumes are "closed" to livestock (*see* **Attachs. 2, 3 & 4**), and that some exclosure fences protecting frog critical habitat are non-functional (*see* **Attach. 5**) or appear to have never been built at all (for example along the west side of Empire Gulch near the confluence of Cienega Creek), BLM's poor management has likely caused, and is continuing to cause leopard frog 'take.'

The Center's documentation of significant cattle impacts in riparian areas BLM assumes are closed to livestock underscores that the actual impacts of grazing far exceed those analyzed in the 2002 BiOp. Reinitiation of formal consultation is required if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered.[38]

E. Chub

Gila chub were granted endangered species status in 2005 and received critical habitat designation concurrently with their listing.[39] Historically, chub were found in approximately 43 rivers, streams, and spring-fed tributaries throughout the Gila River basin in southwestern New Mexico, central and southeastern Arizona, and northern Sonora, Mexico[40] but now occur in only 10-15% of their former range. Chub require perennial pools, uncontaminated water or an appropriate temperature, healthy instream and riparian vegetation and a natural hydrologic regime[41] all of which are impacted and altered by grazing cattle.[42]

Riparian and aquatic communities across the Southwest have been lost, degraded and destroyed by human activities. By the late 1800s, many southern Arizona watersheds were in poor condition due in part to livestock grazing.[43] Livestock grazing has long been recognized as one of the most pervasive and enduring sources of adverse impacts to native fish and their habitats. Grazing practices can destabilize stream channels, impair riparian ecosystem functions, and lead to nutrient loading in aquatic systems. Grazing can also strip riparian vegetation critical to fish

[38] 50 C.F.R. § 402.16.

[39] USFWS. Rules and Regulations. Listing Gila Chub as Endangered With Critical Habitat; Final Rule. Federal Register Vol. 70, No. 211. Wednesday, November 2, 2005.

[40] *Ibid.*

[41] *Ibid.*

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

[43] USFWS. Rules and Regulations. Listing Gila Chub as Endangered With Critical Habitat; Final Rule. Federal Register Vol. 70, No. 211. Wednesday, November 2, 2005.

habitat, resulting in elevated stream temperatures, increased sedimentation, soil erosion, and deteriorating water quality.

Small, isolated populations cause chub to be highly susceptible to threats, including habitat degradation from livestock.[44] In an extensive 2004 survey of impaired riparian zones in southeastern Arizona, Stefferud and Stefferud (2004)[45] provide several examples of how small, arid-land streams can heal following cattle exclusion, including improvement in vegetative cover, stream function and extent of perennial water. Chub and other native, imperiled fish will ultimately require this management action to persist in a hotter and drier climate.

In addressing impacts to the chub, the 2002 BiOp is based on assumptions that exclosure fences would be built and functional. *See* 2002 BiOp at 41. At Las Cienegas, those fences are either non-functional (*see* **Attach. 5**) or were never built at all, such as on the west bank of Empire Gulch near the confluence of Cienega Creek. The Center's documentation of significant cattle impacts in riparian areas BLM assumes are closed to livestock (*see* **Attachs. 2, 3 & 4**) underscores that the actual impacts of grazing far exceed those analyzed in the 2002 BiOp and refutes the BiOp's prediction that BLM's grazing management will result in steadily improving ecological conditions throughout the Conservation Area. Our evidence reveals a failing exclosure system with chronic cattle intrusion and degraded riparian zones. Reinitiation of formal consultation is required if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered.[46]

Even still, the 2002 BiOp contains certain mandated measures that "shall be implemented" to reduce livestock grazing impacts to endangered chub. These include avoiding livestock use of Cienega Creek crossings known to be occupied by Gila chub (at the time, chub occupied most of the Creek but no longer do), checking and monitoring exclosure fences when the adjacent pasture is being used, promptly repairing fences if there are issues, taking action to prevent livestock from lingering in crossing and watering lanes, and monitoring crossings to determine if there are problems with erosion, sedimentation, vegetation condition, or any other resource conditions. To prevent cattle from lingering in and damaging grazing exclosures goes without saying.

According to the 2002 BiOp, "if the Gila chub is listed as threatened or endangered and any subsequent adoption of the conference opinion, the BLM shall request reinitiation of consultation if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect the species in a manner or to an extent not considered in the conference opinion; 3) the BLM is subsequently modified in a manner that causes an effect to the species that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action." (2002 BiOp at 119). BLM failed to do so, and we

[44] *Ibid.*

[45] Jerome A. Stefferud Sally E. Stefferud 2004. Aquatic and Riparian Surveys of Selected Stream Courses on Sierra Vista and Nogales Ranger Districts, Coronado National Forest, Cochise and Santa Cruz Counties, Arizona.

[46] 50 C.F.R. § 402.16.

are not aware that BLM engaged in consultation when renewing the Empire-Cienega grazing permit in 2025. Again, doing neither is a violation of law.

New Information

Aside from the various new species listings and critical habitat designations that have occurred, the BLM and FWS overlooked critical facts in carrying out their consultation duties under Section 7 of the ESA regarding the impact of final agency actions, including the issuance of term grazing permits, Allotment Management Plans ("AMPs") and Allotment Operating Instructions ("AOIs"), and authorizing grazing on the Empire Cienega allotment within the Conservation Area. Our December 2024, January 2025, April 2025, May 2025, and October 2025 surveys of grazing exclosures of the Conservation Area (*see* **Attachs. 4, 5, 6**) revealed widespread cattle intrusions and significant, unauthorized cattle impacts within closed areas, within critical habitat designations, and even during or immediately prior to nesting season for flycatchers and cuckoos.

The RMP's and BiOps' assumptions that BLM would effectively exclude cattle from streamside habitat, and that regular monitoring of effective exclusion fencing would occur—have not been met. Thus, the assumptions upon which the conclusions of the 2002 BiOp are based are fatally flawed, rendering the consultation document wholly ineffective at serving its purpose of protecting imperiled native species from the continuous onslaught from herds of domestic cattle.

The 2002 BiOp for the 2003 RMP requires BLM to "continue to monitor the Chiricahua leopard frog and its habitat to document levels of take and determine effectiveness of conservation measures," and to "reduce the impacts of … livestock grazing" to the frog. 2002 BiOp at 10.

According to Terms and Conditions of the 2003 RMP:

> The fences of all exclosures that have occupied Chiricahua leopard frog, desert pupfish, Gila chub, Gila topminnow and/or Southwestern willow flycatcher habitat will be checked at least once when the adjacent pasture is being used. If there is a problem with the fence, and livestock are in that pasture, the fence will be repaired within one week of the fence problem being discovered. If cattle are not in the adjacent pasture, the fence will be repaired before livestock are returned to the pasture (TC15).
>
> Use of creek crossings and watering areas for livestock should minimize impacts to Chiricahua leopard frogs and desert pupfish (same as TC29).[47]
>
> Inspect and maintain riparian exclosure fences at least once annually just prior to use of lands adjacent to the exclosures (AA37).
>
> The following reasonable and prudent measures are necessary and appropriate to minimize take of the Chiricahua leopard frog. To be exempt from the prohibitions

[47] Note this excludes cuckoo, flycatcher, garter snake and chub because it predates their listings and critical habitat designations.

of section 9 of the Act, the BLM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting and monitoring requirements. These terms and conditions are non-discretionary.

2.6 Check the fences of all exclosures that have occupied Chiricahua leopard frog habitat at least once when the adjacent pasture is being used. If there is a problem with the fence, and livestock are in that pasture, repair the fence within one week of the fence problem being discovered. If cattle are not in the adjacent pasture, repair the fence before livestock are returned to the pasture.

2.8 All BLM personnel working in aquatic habitats will use the protocol described in FWS/AGFD/NMGF (2002) to reduce the spread of chytrid fungus.

2.9 To minimize the loss of egg masses from livestock grazing at Cinco Ponds, BLM shall build a partial exclosure fence.

According to the February 21, 2012 BiOp, the "BLM **will** … [r]emove trespass livestock shortly after detection in areas with exclosures" and "[m]onitor and maintain fences around ponds."[48]

Overall, the 2002 BiOp's terms and conditions and ITS emphasize the need to promptly close exclosure breaches and strictly limit cattle destruction of and lingering in riparian zones. The lack of functional fencing (and in some cases the total absence of fencing) across the most ecologically important sections of the Conservation Area is causing impacts to the cuckoo, flycatcher, garter snake, leopard frog, and chub to an extent not previously considered. The current action is not what the agency committed to or consulted on. BLM's failure to maintain exclusion fences and failure to exclude livestock are causing new, unforeseen, and damaging impacts to listed species. Similarly, new information, including BLM's failure to construct required fencing, shows that the action the agency consulted on (the 2003 RMP) has changed.

Our surveys show that few of these supposedly exclosed areas can actually be considered free of grazing. Most of Cienega Creek cannot be considered non-grazed land. We have documented cattle, including with identifiable brands, in designated critical habitat for five species, throughout the calendar year, and within multiple areas that the RMP closed to livestock. Here, new information reveals that agency actions may affect listed species or critical habitat in a manner or to an extent not considered in the 2002, 2008, and 2012 BiOps 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 the 2002, 2008 and 2012 BiOps.

The severely outdated 2003 RMP predicted that ecological conditions should be maintained and improved during its 20-year life. But despite these original intentions, the ecological condition of the area has diminished considerably since 2003. The 2003 RMP was written at the time when chub occupied most of Cienega Creek, when "degradation and loss of Chiricahua leopard frog

[48] February 21, 2012 BiOp at 7 (emphasis added).

habitat [wa]s not a factor in the area" (2002 BiOp at 89), and when the list of imperiled species occupying the Conservation Area was much shorter. In addition, advancing regional climate change and drought has brought dramatic changes to the Conservation Area. Once-perennial wetlands that the 2003 RMP relied on to conserve native species are now only ephemeral. Wildlife habitat is steadily dwindling, and the fewer perennial waters within the Conservation Area must be better protected and with increased urgency. Because of the multi-decadal drought and increasing anthropogenic pressures that threaten keystone aquatic ecosystems, it is time to update the 2003 RMP to reflect current conditions and to guide the future management of the Conservation Area.

To summarize our concerns:

Livestock activities managed by BLM's Gila District[49] within the Conservation Area 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). BLM must halt these violations immediately.

The BLM is failing to implement the 2003 RMP as adopted regarding livestock grazing within the Conservation Area because large areas that are supposed to be cattle-free are in reality consistently grazed, due to shabby, nonfunctional or entirely absent exclosure fences. Worse, livestock graze within exclosures during nesting seasons and during times when native riparian trees are actively growing in the late autumn to early winter, during recruitment and bud-break, and during winter/spring germination of native riparian trees,[50] leaving sprouts and seedlings vulnerable to consumption by livestock.

The 2003 RMP regarding livestock grazing within the Conservation Area lags far behind in analyzing grazing impacts to listed species and allows designated riparian critical habitat to be managed without riparian exclosures, instead using unenforced seasonal restrictions and disregarded cattle grazing utilization metrics that do not protect riparian dependent endangered species.

The 2003 RMP regarding livestock grazing within the Conservation Area is severely outdated. The RMP must not only be updated to address all listed species and their critical habitat designations, but also to analyze the impacts of the last two decades of regional drought and loss of perennial water across the Conservation Area, and to address, include or consider the additive and cumulative impacts of riparian grazing and climate change to imperiled riparian-obligate

[49] BLM final agency actions authorizing domestic livestock grazing challenged herein include but are not limited to the issuance of term grazing permits, allotment management plans ("AMPs"), and allotment annual operating instructions ("AOIs") by the BLM Gila District.

[50] Stromberg, J.C., 1997. Growth and survivorship of Fremont cottonwood, Goodding willow, and salt cedar seedlings after large floods in central Arizona. The Great Basin Naturalist, pp.198-208.

species considering the extensive body of scientific literature that exists regarding climate change and grazing impacts.[51]

Legal Violations

The BLM Is in Ongoing Violation of the ESA by Failing to Reinitiate Consultation on the Las Cienegas RMP.

Reinitiation of consultation is required and must be requested by the BLM 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 a new species is listed or critical habitat designated that may be affected by the identified action. 50 C.F.R. § 402.16(a).

BLM has violated and remains in ongoing violation of the ESA by failing to reinitiate consultation, and the BLM and FWS have violated and remain in ongoing violation of the ESA by failing to complete consultation on the impacts of the 2003 Las Cienegas RMP on threatened and endangered species and designated critical habitat. First, new information reveals that livestock grazing within the Conservation Area has adversely affected, and will continue to adversely affect, the cuckoo, flycatcher, garter snake, leopard frog, and chub, and their designated critical habitat, in a manner and to an extent not considered in the 2002 Biological Opinion. *See* 50 C.F.R. § 402.16(a)(2); 16 U.S.C. § 1536(a)(2). This includes information from the Center's December 2024 letter (*see* **Attach. 1**), the April 2025 letter (*see* **Attach. 2**), and the May 2025 letter (*see* **Attach. 3**), which demonstrate, among other things, the presence of livestock within specific areas that the RMP and biological opinions assume are excluded from livestock. It also includes information provided in this Notice, which includes continued documentation of ongoing livestock damage and adverse modification to critical habitat in

[51] For example: Adapting to Climate Change on Western Public Lands: Addressing the Ecological Effects of Domestic, Wild and Feral Ungulates; Robert L. Beschta, Debra L. Donahue, Dominick A. DellaSala, Jonathan J. Rhodes, James R. Karr, Mary H. O'Brien, Thomas L. Fleischner, and Cindy Deacon Williams, Environmental Management (2013) 51:474-491.; Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*), Federal Register, Vol. 79, No. 192, Page 59992, October 3, 2014.; Livestock Production, Climate Change, and Human Health: Closing the Awareness Gap, Debra L. Donahue, Environmental Law Reporter, 45 ELR 11112, 12-2015, http://ssrn.com/abstract=2696741; citing: *See, e.g.*, Beschta et al., *supra* note 59, at 476-81; Ripple et al., *supra* note 2, at 2, 3. Almost nothing is known, however, about the ability of shrublands to sequester carbon. *See* Jack A. Morgan et al., *Carbon Sequestration in Agricultural Lands of the United States*, 65 J. Soil & Water Conservation 6A, 7A (2010), doi:10.2489/jswc.65.1.6A. This is a "critical research need," *see id.*, particularly since shrubs dominate large areas of the public lands.; Climate change scenarios of herbaceous production along an aridity gradient: vulnerability increases with aridity, Carly Golodets, Marcelo Sternberg, Jaime Kiegel, Bertrand Boeken, Azlmen Henkin, No'am G. Silgmean and Eugene D. Ungar, DOI 10.1007/s00442-015-3234-5, February 7, 2015.; Riparian vegetation of ephemeral streams, Stromberg, J.C., Setaro, D.L., Gallo, E.L., Lohse, K.A. and Meixner, T., *Journal of Arid Environments*, *138*, 2017, pages 27-37.

excluded areas in May and October 2025 (*see* **Attach. 4**), non-existent or non-functional livestock fences, when the 2003 RMP and the BiOp analyzing that RMP assume fences will be constructed and effective (*see* **Attach. 5**); and documentation of ongoing livestock damage and adverse modification to critical habitat areas purportedly protected by utilization limits (*see* **Attach. 6**).

Second, the action (the RMP) 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)(3). Specifically, although the 2003 RMP and accompanying BiOp assumed that critical habitat and riparian areas would be closed to livestock grazing, the Center's surveys and letters have repeatedly shown that this assumption is false—to the contrary, livestock grazing is degrading critical habitat and riparian areas throughout supposedly protected riparian areas within the Conservation Area.

ESA implementing regulations provide a limited exception to reinitiation of consultation on RMPs when reinitiation is based solely upon the fact that a new species has been listed or new critical habitat designated. *See* 50 C.F.R. § 402.16(b). However, that exception is expressly conditioned on BLM completing action-specific consultation on subsequently authorized actions, such as BLM's issuance of the Empire-Cienega grazing permit. *See id.* § 402.16(b) (stating that BLM need not reinitiate consultation on an RMP due to a new species listing or critical habitat designation, "provided that any authorized actions that may affect the newly listed species or designated critical habitat will be addressed through a separate action-specific consultation"). Because BLM is not consulting on any subsequently authorized actions (such as its 2025 issuance of the Empire-Cienega grazing permit), BLM must reinitiate consultation on the RMP to address the new species listings and critical habitat designations.

Moreover, the limited exception described above only applies to reinitiation that is based solely on a new species listing or critical habitat designation. *See id.* (providing that if BLM consults on subsequently authorized actions, BLM "shall not be required to reinitiate consultation after the approval of [an RMP] *upon listing of a new species or designation of new critical habitat*" (emphasis added)). Thus, even if reinitiation is not required based upon the new species listings and critical habitat designations, reinitiation is still required when new information reveals previously unconsidered effects to listed species or critical habitat, or when an action is modified in a manner that affects listed species or critical habitat. *See id.* § 402.16(a)(2)–(3).

In the absence of the required reinitiated consultation on the RMP, BLM is in ongoing violation of its obligation under ESA Section 7 to ensure that its actions are not likely to jeopardize the continued existence of the numerous ESA-listed species within the Conservation Area, including the chub, leopard frog, garter snake, flycatcher and cuckoo, or result in the destruction or adverse modification of their designated critical habitat. 16 U.S.C. § 1536(a)(2).

Once consultation has been reinitiated, BLM is prohibited from making any irreversible or irretrievable commitment of resources with respect to the action which may foreclose the formulation or implementation of any reasonable and prudent alternative measures. *Id.* § 1536(d). Accordingly, until consultation has been reinitiated *and* completed, BLM cannot allow livestock on the Empire-Cienega allotment. *See Pac. Rivers Council v. Thomas*, 936 F. Supp. 738 (D. Idaho 1996).

The BLM Violated the ESA by Failing to Consult on the 2025 Empire-Cienega Grazing Allotment Permit Renewal.

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)(2).

The BLM violated the ESA by failing to consult with FWS regarding the impacts of the 2025 Empire-Cienega grazing allotment permit renewal, and any annual operating instructions, allotment management plans, or other actions authorizing grazing in the Conservation Area, on threatened and endangered species and designated critical habitat. *See* 16 U.S.C. § 1536(a)(2). As demonstrated by the Center's repeated surveys, letters, and Notices, these actions affect threatened and endangered species and designated critical habitat. BLM's failure to consult with FWS on these actions thus violates ESA Section 7(a)(2), 16 U.S.C. § 1536(a)(2).

In the absence of the required consultation on the Empire-Cienega grazing permit, annual operating instructions, allotment management plans, and other actions authorizing grazing in the Conservation Area, BLM is in ongoing violation of its obligation under ESA Section 7 to ensure that its actions are not likely to jeopardize the continued existence of the numerous ESA-listed species within the Conservation Area, including the chub, leopard frog, garter snake, flycatcher and cuckoo, or result in the destruction or adverse modification of their designated critical habitat. *Id.*

Once consultation has been initiated, BLM is prohibited from making any irreversible or irretrievable commitment of resources with respect to the action which may foreclose the formulation or implementation of any reasonable and prudent alternative measures. *Id.* § 1536(d). Accordingly, until consultation has been initiated *and* completed, BLM cannot allow livestock on the Empire-Cienega allotment. *See Pac. Rivers Council v. Thomas*, 936 F. Supp. 738 (D. Idaho 1996).

The BLM Has Violated, and Is in Ongoing Violation of ESA Section 9

Without the safe harbor of an ITS, the BLM has violated and is in ongoing violation of ESA Section 9, having chronically failed to uphold the terms and conditions put forth in grazing permits and in Section 7 consultations. The Center's repeated documentation and BLM's own records indisputably demonstrate that trespass cattle grazing and unauthorized permitted cattle grazing are adversely affecting listed species and their critical habitat in the Conservation Area in a manner that constitutes "take," in violation of Section 9 of the ESA (killing, injuring, harming, harassing, and otherwise taking members of these species). Because BLM could eliminate or at least reduce the risk of take by constructing and maintaining functional fencing, removing the trespass cattle, and closing allotments that overlap with the Conservation Area, BLM is "caus[ing] to be committed" unlawful take of listed species. 16 U.S.C. § 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").

Because grazing management has demonstrably strayed from Conservation Area's 2003 RMP—and therefore also from its associated 2002 BiOp and all subsequent BiOps that incorporated the 2002 BiOp—and because BLM and FWS have so far failed to candidly assess or lawfully authorize the foreseeable effects of the proposed action to the chub, topminnow, frog, garter snake, and cuckoo—BLM is in ongoing violation of Section 9 of the ESA by authorizing activities that are taking ESA-listed species in myriad ways and destroying and adversely affecting critical habitat in the Conservation Area. Because BLM lacks legally adequate authorization from the FWS to take any listed species or harm their critical habitat, BLM's actions are in ongoing—and significant—violation of Section 9. *See* 16 U.S.C. § 1538(a)(1)(B), (G).

The Broad View

Significant and unauthorized cattle damage to sensitive desert riparian zones is not a problem limited only to the Conservation Area. Instead, this is part of a widespread problem 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 in Arizona and New Mexico, including grazing allotments in the Conservation Area. *See* **Attach. 7** (*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 change[52] and livestock grazing on public lands in the Southwest, the report concludes that agencies (such as BLM) should 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.

This NOI provides specific examples of the extensive cuckoo critical habitat degradation caused by livestock in off-limits sections of the Conservation Area, through photographs and maps, which include: 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; extensive areas of exposed, compacted soils around natural springs, seeps, and surface water; and pervasive trampling and severe soil disturbance.

[52] 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.

Likewise, the Center also finalized a comprehensive, three-year field survey effort and compiled a report to document the condition of northern Mexican garter snake critical habitat in Arizona and New Mexico. *See* **Attach. 8** (*Livestock Production Adversely Modifying Most Critical Habitat for Northern Mexican Garter Snakes on Public Lands in Arizona, September 2024*). In 2021, FWS designated 20,326 acres of critical habitat for garter snakes, 11,860 acres of which occur on public lands managed by the U.S. Forest Service and the Bureau of Land Management. From 2021 to 2023, Center for Biological Diversity field biologists surveyed 8,127 acres (69%) of the garter snake's critical habitat on public land for adverse modification from livestock grazing. Surveys found moderate to significant impacts and adverse modification across 6,835 acres (84%) of the critical habitat on public lands surveyed and on 58% of all garter snake critical habitat on public lands managed by federal agencies.

Also included in this Notice is the Center for Biological Diversity's *2024 Annual Report*, completed in 2025, summarizing region-wide surveys of livestock grazing impacts to critical habitat including within the Conservation Area from 2017-2024. *See* **Attach. 9**.

According to the U.S. Department of Justice, "[i]t's well settled that cattle and riparian areas do not mix."[53] BLM must finally live up to its long-ago commitments to exclude livestock from the NCA's riparian areas.

Conclusion

The Las Cienegas National Conservation Area has a long, well-documented history of chronic livestock trespass, along with numerous grazing permit violations and compliance issues that persist without consequence. For years, Center members, the general public, and even BLM employees and contractors have reported trespass and unauthorized cattle grazing within the Conservation Area, and within occupied and designated critical habitat for threatened and endangered species. As shown by the Center's survey data and photographs, damage to these habitats, and to primary constituent elements thereof, is widespread, chronic, and often severe.

BLM states that it "manages Las Cienegas NCA with restrictions on multiple use activities that would impair ecological processes on watershed and riparian areas." 2012 BiOp at 8. Based on our observations in December 2024, January 2025, April 2025, May 2025, and again in October 2025, cattle are degrading Cienega Creek and its tributaries in complete discordance with this statement. Despite evidence of trespass cattle and chronic unauthorized grazing, BLM has yet to repair/install effective fences or otherwise meaningfully address the chronic, unauthorized presence of cattle in the most ecologically important sections of the Conservation Area, including habitat for threatened and endangered species.

For the reasons explained above, and as demonstrated in the attached material (*see* **Attachs. 1-6**), if BLM fails to request reinitiation of consultation prior to the expiration of the 60-day window set forth in the ESA's citizen suit provision, and provide for increased protections for the listed species and critical habitat during the reinitiated consultation as required by ESA Section 7(d),

[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; NM CATTLE v USFS OMNI 020124

16 U.S.C. § 1636(d), we will add this latest information to the growing record and proceed with legal action.

We urge BLM and FWS to focus their resources on reinitiating consultation and addressing these serious, chronic violations of federal law, prioritizing the survival and recovery of the chub, topminnow, frog, garter snake, flycatcher, pupfish, and cuckoo over continued cattle grazing in these sensitive areas of our public lands.

Sincerely,

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

Robin Silver, M.D.
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CC: USFWS Regional Director Amy Lueders (rdlueders@fws.gov)
BLM Arizona State Director Raymond Suazo (rmsuazo@blm.gov)

List of Attachments:

Attach. 1- December 16, 2024 letter regarding dead frogs at Maternity Well
Attach. 2- April 14, 2025 letter regarding unauthorized cattle damage at Las Cienegas
Attach. 3- May 28, 2025 letter regarding continued illegal cattle damage at Las Cienegas
Attach. 4- May and Oct. 2025 critical habitat surveys within Las Cienegas grazing exclosures
Attach. 5- Current state of exclosure fences in Las Cienegas
Attach. 6- Cattle impacts in unfenced critical habitat at Las Cienegas
Attach. 7- 2024 yellow-billed cuckoo adverse modification report
Attach. 8- 2024 northern Mexican garter snake adverse modification report
Attach. 9- 2025 cattle grazing summary report 2017-2024

ATTACHMENT 1

CENTER for BIOLOGICAL DIVERSITY Because life is good.

December 16, 2024

Anthony Feldhausen, Gila District Manager
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Heather Whitlaw, Arizona State Supervisor
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
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Heather_whitlaw@fws.gov

RE: Immediate BLM Action Requested - Dismantled Cattle Exclosure Fence and Massive Chiricahua Leopard Frog Mortality at Maternity Well, Las Cienegas National Conservation Area.

Dear District Manager Feldhausen and State Supervisor Whitlaw,

We request immediate FWS and BLM investigation and corrective action to respond to the deaths of dozens of threatened Chiricahua leopard frogs in a pond within the Las Cienegas National Conservation Area ("Las Cienegas").

On December 14, 2024, we visited Maternity Well in Las Cienegas. Nearby to Maternity Well is a protected pond, fed by the well, that is occupied by Chiricahua leopard frogs. This pond also occurs within designated critical habitat for threatened northern Mexican garter snakes. This pond is located on the Empire Cienega grazing allotment at approximate location 31.761683; -110.665237.

Congress established Las Cienegas in part "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife … and riparian resources and values" of the area. 16 U.S.C. § 460ooo–3(a). Threatened and Endangered species at Las Cienegas are managed primarily through cattle restrictions in riparian zones and by postage-stamp sized cattle exclosures around artificial water features. It is imperative that the tiny proportion of land here that is supposed to be cattle-free remains free of cattle. The Biological Opinion for the Las Cienegas 2003 Resource Management Plan required BLM to "continue to monitor the Chiricahua leopard frog and its habitat to document levels of take and determine effectiveness of conservation measures," and to "reduce

the impacts of … livestock grazing" to the frog. Las Cienegas RMP Biological Opinion, #02-21-02-F-162 (Oct. 2002) at 10.

At Maternity Well, cattle are provided watering troughs outside of the protected and frog-occupied pond. We noticed immediately upon arrival that the exclosure fence surrounding the pond had been deliberately dismantled. Further investigation revealed that two different sections of the exclosure had been dismantled, allowing cattle unrestricted access to the protected pond.

At the pond, we observed that cattle have significantly impacted the shoreline through trampling and consumption of vegetation. We observed 60-80 dead Chiricahua leopard frogs (on the shore, floating in the water, or on the bottom substrate). The following images document our observations at the protected pond. The photos were taken on December 14-15.

The pond at Maternity Well is protected from cattle for the benefit of threatened Chiricahua leopard frogs and threatened northern Mexican garter snakes. Cattle feces and grazed grasses can be seen behind the sign, within the exclosure.

A deliberately dismantled cattle exclosure fence at Maternity Well. Note the removed pieces are neatly stacked on the ground and grazing impacts are readily apparent.

A second section of deliberately dismantled cattle exclosure fence at the protected pond near Maternity Well.

Heavily grazed and trampled shoreline of a protected, Chiricahua leopard frog-occupied pond at Las Cienegas.

More trampled shoreline at the protected pond at Maternity Well, with cow feces.

A mangled Chiricahua leopard frog carcass next to a heavily trampled shoreline at the protected pond at Maternity Well.

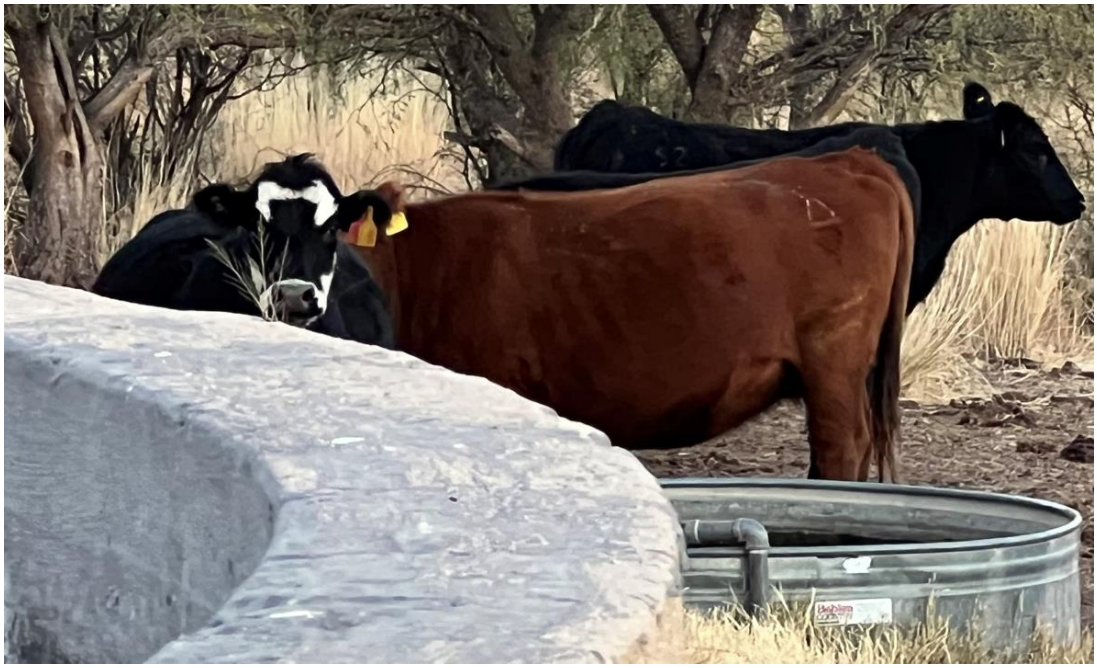
Another deceased Chiricahua leopard frog along the trampled shoreline of the protected pond at Maternity Well.

Another deceased Chiricahua leopard frog along the trampled shoreline of the protected pond at Maternity Well.

Deceased Chiricahua leopard frogs in the water at the protected pond at Maternity Well.

More deceased Chiricahua leopard frogs in the water at the protected pond at Maternity Well.

Multiple deceased Chiricahua leopard frogs at the protected pond at Maternity Well.



Ear-tagged, branded cattle at Maternity Well near the exposed protected pond.

Another ear-tagged, branded cow at Maternity Well, with the cattle exclosure fence in the background.

In cold weather months, Chiricahua leopard frogs may be embedded or buried in shallow mud and thus are vulnerable to trampling. Being thermoregulators, frogs that remain on the surface may also be too cold to escape heavy cattle hooves in the early morning or late at night, depending on their body temperature which dictates the ability to react and respond.

Cattle tanks are highly simplified aquatic systems which can often serve as population sinks for frogs. These aquatic features appear superficially attractive but are often defined by a myriad of problems (lack of vegetative and subsurface cover, increased trampling risks, higher pollutants, higher risk of disease) that ultimately lead to decreased survival rates for frogs. This is a perfect example of the inherent problems that arise when managing water resources for both cattle production and for threatened and endangered species conservation.

The pipeline fences at issue are lockable by design. We urge BLM to act immediately to prevent breaching of the pond's fences, causing unnecessary and unwarranted mortalities of ESA-protected species from the impacts of public lands cattle production within a National Conservation Area. We further urge BLM to investigate the cause of death of these frogs, and to determine the parties who may be responsible for this mass killing, which, if due to human action, violates Section 9 of the Endangered Species Act. Finally, we urge that any investigation include water testing and frog necropsy to determine the cause of death if possible.

We look forward to your prompt response.

Sincerely,

Chris Bugbee
Southwest Conservation Advocate
cbugbee@biologicaldiversity.org

Robin Silver, M.D.
Co-founder and Board Member
Center for Biological Diversity
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CC: USFWS Director Martha Williams (martha_williams@fws.gov)
USFWS Regional Director Amy Lueders (rdlueders@fws.gov)
BLM Deputy Director Nada Culver (nculver@blm.gov)
BLM Arizona State Director Raymond Suazo (rmsuazo@blm.gov)

CENTER for BIOLOGICAL DIVERSITY Because life is good.

April 14, 2025

Lance Brady, Gila District Manager
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Heather Whitlaw, Arizona State Supervisor
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
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Re: Documentation of Widespread, Unauthorized Livestock Damage in Las Cienegas National Conservation Area– Immediate Action and Response Requested

Dear District Manager Brady and State Supervisor Whitlaw,

Beginning in December 2024, the Center for Biological Diversity ("the Center") conducted systematic surveys of designated critical habitat on the Empire-Cienega allotment within the Las Cienegas National Conservation Area ("Conservation Area"), to assess the degree of cattle damage and to document unauthorized cattle presence within cattle exclosures meant to protect sensitive riparian habitats from the deleterious impacts of grazing.

Center surveys documented numerous instances of damaged, nonfunctional fencing and miles of moderate to significant cattle damage to designated critical habitat for Gila chub, Chiricahua leopard frog, northern Mexican garter snake and yellow-billed cuckoo throughout the grazing exclosures of Cienega Creek and in important tributaries such as Empire Gulch and Mattie Canyon. This damage included degraded streambanks, trampled and grazed riparian understory vegetation, consumption of cottonwood and willow regeneration, and bare, denuded soils in adjacent uplands.

The following photographs highlight our survey findings specifically within riparian zones of the Conservation Area ***that are explicitly closed to livestock grazing*** per the July 25, 2003, Las Cienegas Resource Management Plan.

Grazed northern Mexican garter snake critical habitat and Chiricahua leopard frog occupied cattle exclosure at Maternity Well in Las Cienegas National Conservation Area. Cattle were deliberately allowed access to the exclosure from November-December 2024, resulting in Chiricahua leopard frog mortalities. 31.761598, -110.665357. December 15, 2024.

Fresh cattle feces within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, Chiricahua leopard frog and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.787663, -110.587554. January 8, 2025.

Fresh cattle feces within a grazed cattle exclosure in designated critical habitat for yellow-billed cuckoo, Chiricahua leopard frog and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.790655, -110.588395. January 8, 2025.

Trampled shoreline and grazed deergrass within a cattle exclosure in designated critical habitat for yellow-billed cuckoo, Chiricahua leopard frog and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.787925, -110.588463. January 8, 2025.

Downed exclosure fence, with significant cattle impacts on either side, in designated critical habitat for yellow-billed cuckoo and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.781991, -110.590415. January 8, 2025.

Downed exclosure fence with significant cattle impacts in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.790346, -110.584522. January 8, 2025.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.791644, -110.583703 (2). January 8, 2025.

Cattle impacts in a grazing-excluded pasture in designated critical habitat for yellow-billed cuckoo and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.805482, -110.588466. January 8, 2025.

Cattle impacts in a grazing-excluded pasture in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.805535, -110.589568. January 8, 2025.

Cattle impacts and ongoing erosion in a grazing-excluded pasture in designated critical habitat for yellow-billed cuckoo and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.780621, -110.590351 (2). January 8, 2025.

Continued cattle sign in the Cienega Creek exclosure, designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.807576, -110.588180 (1) 31.805333, -110.587987 (2). January 8, 2025.

Significant cattle impacts in a grazing-excluded pasture in designated critical habitat for yellow-billed cuckoo and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.817843, -110.591077. January 7, 2025.

Significant cattle impacts in a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.820359, -110.591206. January 7, 2025.

Significant cattle impacts in a grazing-excluded pasture in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.818706, -110.590548 (2). January 7, 2025.

Cattle impacts in a grazing-excluded pasture in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.840766, -110.582852. December 20, 2024.

Significant cattle impacts in a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.841966, -110.582877. December 20, 2024.

Continued cattle impacts in a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.842731, -110.582398. December 20, 2024.

Cattle impacts in a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.843867, -110.582269. December 20, 2024.

Browsed cottonwood recruitment in a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.847613, -110.577351. December 20, 2024.

Fresh cattle impacts in a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.866869, -110.568688 (1); 31.873123, -110.564103 (2). December 20, 2024.

Trampled grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.869076, -110.568216. December 20, 2024.

Continued fresh cattle sign and significant impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.869058, -110.568182. December 20, 2024.

Trampled critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub within a grazing exclosure on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.873019, -110.565721. December 20, 2024.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.807918, -110.590129. January 7, 2025.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.807030, -110.590115. January 7, 2025.

Another grazed exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.807511, -110.590415. January 7, 2025.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.806781, -110.590008. January 7, 2025.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.806666, -110.590169. January 7, 2025.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.803869, -110.591077. January 7, 2025.

Cattle impacts in grazing-excluded areas in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.803312, -110.591004 (1); 31.798635, -110.591334 (2). January 7, 2025.

Cattle impacts within a grazing exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Gila chub on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.799908, -110.591233 (2). January 7, 2025.

Grazed cattle exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784781, -110.630896 (1); 31.785888, -110.632716 (2). January 7, 2025.

Grazed cattle exclosure in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785565, -110.632284. January 7, 2025.

Grazed cattle exclosure in designated critical habitat for yellow-billed cuckoo and northern Mexican garter snake on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.787035, -110.660413. January 6, 2025.

Nonfunctional cattle exclosure with cattle impacts in designated critical habitat for yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.786627, -110.633455 (2). January 6, 2025.

Nonfunctional cattle exclosure in yellow-billed cuckoo critical habitat on the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784284, -110.629916. January 6, 2025.

FWS's 2002 and 2012 Biological and Conference Opinions for the Las Cienegas Resource Management Plan (RMP), as well as their recent 2024 Biological Opinion for the BLM's Gila District livestock grazing program, conclude that livestock would not cause jeopardy to any listed species in the Conservation Area based on the assumption that closures within the Conservation Area would effectively prohibit livestock grazing and associated ecological damage.

As this letter demonstrates, the assumption that cattle are excluded from riparian critical habitat within the Conservation Area is false. Our surveys revealed that livestock are grazing in violation of the Las Cienegas Resource Management Plan and BLM-mandated permit conditions that limit the use of land by cattle within the Conservation Area, and in a manner that degrades endangered species habitat in conflict with the relevant biological opinions and biological assessments. This letter provides evidence that the BLM and FWS are engaged in ongoing violations of the ESA through widespread failure of permittees and agencies to manage their livestock according to rules, regulations, permit stipulations and Section 7 consultations.

We will conduct follow-up surveys in the coming months. We strongly urge the agencies to correct as soon as possible these documented violations of grazing permits, consultations, and of federal law, and to prioritize the rehabilitation of important ecosystems necessary for survival and recovery of Gila chub, topminnow, Chiricahua leopard frog, northern Mexican garter snake and yellow-billed cuckoo in natural settings on our public lands.

We look forward to a response describing the remedial measures your agencies are taking.

Congress designated the Las Cienegas National Conservation Area in part to "conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife, vegetative, … [and] riparian resources and values" of the lands. We urge you to do what is necessary to fulfill this legal mission.

Sincerely,

Chris Bugbee
Southwest Conservation Advocate
cbugbee@biologicaldiversity.org

Robin Silver, M.D.
Co-founder and Board Member
Center for Biological Diversity
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CC: USFWS Regional Director Amy Lueders (rdlueders@fws.gov)
BLM Arizona State Director Raymond Suazo (rmsuazo@blm.gov)

CENTER for BIOLOGICAL DIVERSITY Because life is good.

May 28, 2025

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Heather Whitlaw, Arizona State Supervisor
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Arizona Ecological Services Field Office
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Re: Documentation of Continued, Unauthorized, Illegal Livestock Damage in Las Cienegas National Conservation Area– Immediate Action and Response Requested

Dear District Manager Brady and State Supervisor Whitlaw,

Congress designated the Las Cienegas National Conservation Area in part to "conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife, vegetative, … [and] riparian resources and values" of the lands.

Beginning in December 2024, the Center for Biological Diversity ("the Center") began conducting systematic surveys of designated critical habitat on the Empire-Cienega allotment within the Las Cienegas National Conservation Area ("Conservation Area"), to assess the degree of cattle damage and to document unauthorized cattle presence within cattle exclosures meant to protect sensitive riparian habitats from the deleterious impacts of grazing.

On April 14, 2025, we sent you a letter documenting a subset of our survey findings. The letter included 27 pages of photographs taken from within the supposed grazing exclosures of the Conservation Area. We have as yet received no response from BLM nor FWS.

On May 14, 2025, we revisited some of the perennial streams within the National Conservation Area. The following subset of photos shows a perennial water source that is overlapping designated critical habitat for **five different species**, including Gila chub, Chiricahua leopard frog, northern Mexican garter snake, southwestern willow flycatcher and yellow-billed cuckoo. These photos were also taken within an area (Empire Gulch, approx. location 31.803355, -110.591029) that is explicitly **closed to livestock grazing** per the July 25, 2003, Las Cienegas Resource Management Plan.

As our investigation continues to demonstrate, the assumption that cattle are excluded from important critical habitats within the Conservation Area is demonstrably false. Our surveys consistently reveal that livestock are grazing in violation of the Las Cienegas Resource Management Plan and BLM-mandated permit conditions that limit the use of land by cattle within the Conservation Area, and in a manner that degrades endangered species habitat in conflict with the relevant biological opinions and biological assessments.

The important designated riparian ecosystem shown here, defined by degraded streambanks, feces-laden water, trampled and grazed riparian understory vegetation, and lack of cottonwood and willow regeneration, cannot serve its primary function to support and recover species listed under the Endangered Species Act (ESA). This letter provides further evidence that the BLM and FWS are engaged in ongoing violations of the ESA through widespread failure of permittees and agencies to manage their livestock according to rules, regulations, permit stipulations and Section 7 consultations.

We will continue to conduct surveys throughout the 2025 field season. We strongly urge the agencies to correct as soon as possible these documented violations of grazing permits and federal law, and to prioritize the rehabilitation of important ecosystems necessary for survival and recovery of Gila chub, topminnow, Chiricahua leopard frog, northern Mexican garter snake, southwestern willow flycatcher and yellow-billed cuckoo in natural settings on our public lands.

We look forward to your reply, and to learning what prompt remedial action BLM intends to undertake. If the responsible parties continue to ignore our documentation of legal violations and fail to provide basic safeguards to riparian ecosystems, we will proceed with issuing a 60-day notice letter to FWS and the BLM Gila District to remedy these ongoing issues.

Sincerely,

Chris Bugbee
Southwest Conservation Advocate
cbugbee@biologicaldiversity.org

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

CC: USFWS Regional Director Amy Lueders (rdlueders@fws.gov)
BLM Arizona State Director Raymond Suazo (rmsuazo@blm.gov)

2025 Cattle Impact Surveys of Critical Habitat Within Areas Closed to Grazing in Las Cienegas National Conservation Area

Center for Biological Diversity
March 2026

From May 2-3 and again from October 7-15, 2025, the Center for Biological Diversity conducted systematic surveys of designated critical habitat on the Empire-Cienega allotments within the Las Cienegas National Conservation Area, to assess the degree of cattle impacts and to document unauthorized cattle presence. The Center documented significant, extensive cattle damage in critical habitat for endangered Gila chub, Chiricahua leopard frog, northern Mexican garter snake, southwestern willow flycatcher and yellow-billed cuckoo throughout the Conservation Area.

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, which are defined by FWS as required to ensure survival, reproduction, and recovery of endangered species. For example, cuckoo and southwestern willow flycatcher require dense, multi-layered 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 invertebrate and fish prey base for Chiricahua leopard frogs, as well as leopard frogs themselves in their tadpole phase. Stable banks and channels are required to prevent habitat loss from erosion or flooding, as Gila chub critical habitat includes streams with pools and undercut banks.

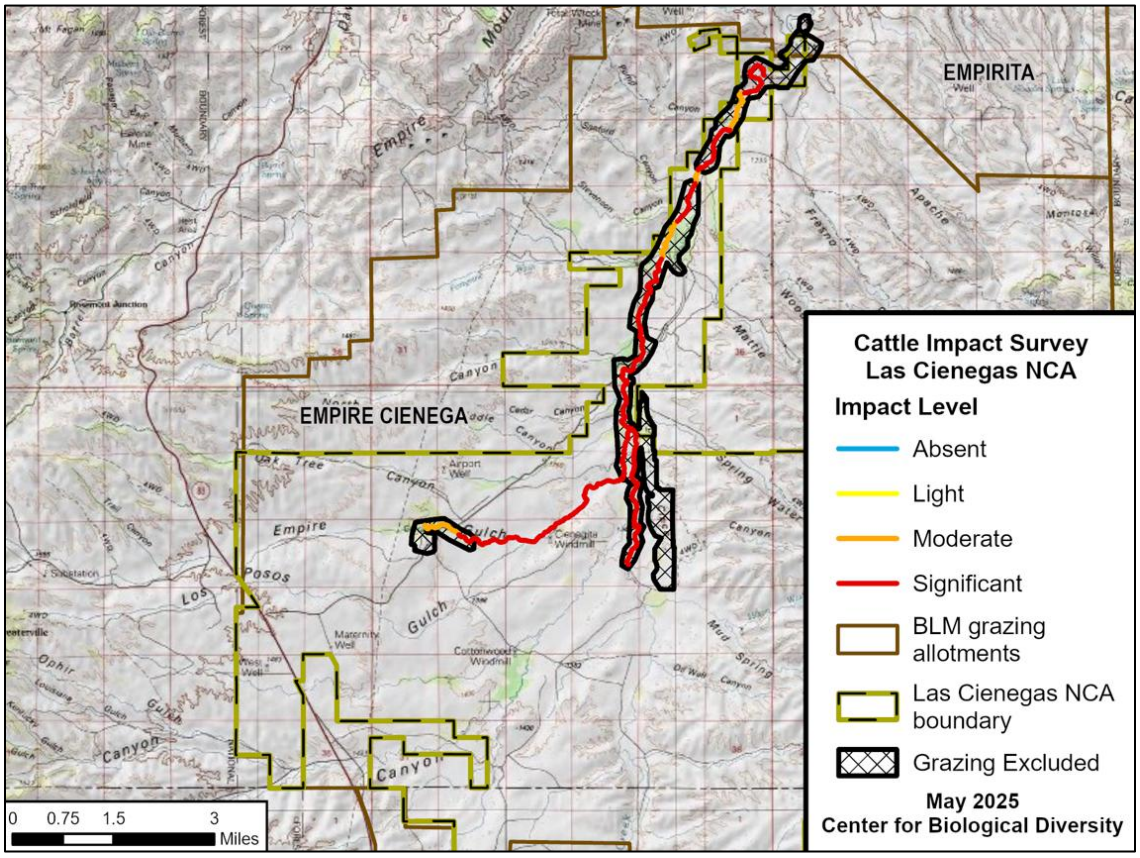
Examples of the extensive degradation of critical habitat caused by livestock that are documented herein through photographs and maps include: heavily browsed woody streamside recruitment; trails meandering through riparian zones; streamside impacts resulting in shearing of banks into vertical surfaces; heavily diminished grass and herbaceous growth; myriad instances of wallows and bare soils; significant removal of riparian vegetation and adjacent understory; extensive areas of exposed, compacted soils around natural springs, seeps, and surface water; and pervasive trampling and soil disturbances in riparian drainages and uplands.

All of the areas shown in images herein should have been cattle-free for the last two decades, assuming the BLM had followed its 2003 Las Cienegas RMP. Not included here are images from cattle crossing lanes (where cattle are allowed to cross Cienega Creek while moving to different pastures) with only one exception (on page 20) which was included to illustrate the significant damage to critical habitat that we often documented within designated crossing lanes and watering areas.

The Center's documentation of significant cattle impacts in riparian areas that BLM assumes are closed to livestock underscores that the impacts of grazing far exceed those analyzed in the 2002 Biological Opinion. Reinitiation of formal consultation is required if new information reveals effects of the agency action impact listed species or critical habitat in a manner or to an extent not previously considered. This must be done either for the 2003 RMP or for grazing permit renewal.

Only complete exclusion of cattle from designated critical habitats in arid lands can protect and rehabilitate fragile ecosystems so they can support recovery of endangered species.

May 2025



Grazing impact levels in designated critical habitat within the Las Cienegas National Conservation Area on the Gila District's Empire-Cienega allotment from May 2025.

Identifiable cattle brand within an exclosure (31.856974, -110.574204, May 2, 2025). Cattle were present during surveys in May and again in October (31.859118, -110.574075) in cuckoo, flycatcher, garter snake and chub designated critical habitat.

An unauthorized cow is photographed within an exclosure strictly off-limits to grazing, according to the 2003 RMP for the Conservation Area, and in cuckoo, flycatcher, garter snake and chub designated critical habitat. 31.854477, -110.576872. May 2, 2025.

Off-limits riparian critical habitat for cuckoo, flycatcher, garter snake and chub is grazed, trampled, compacted, and defecated upon within a grazing exclosure at Las Cienegas. 31.849300, -110.580083. May 2, 2025.

A grazed, trampled and polluted critical habitat designation for cuckoo, flycatcher, garter snake and chub within a grazing exclosure at Las Cienegas, just south of 'Jesse's Crossing Lane'. 31.837941, -110.585036 (2). May 2, 2025.

A heavily grazed critical habitat designation for cuckoo, flycatcher, garter snake, and chub within an off-limits grazing exclosure south of 'Jesse's Crossing Lane'. 31.837941, -110.585036. May 2, 2025.

Extensive evidence of unauthorized cattle, including browse on woody recruitment, trampling and soil disturbance, and removal of herbaceous groundcover within an off-limits grazing exclosure and designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub. 31.866936, -110.568675 (May 2, 2025); 31.821553, -110.591301 (May 3, 2025)

Tracks, feces, trampling and groundcover removal indicate sustained cattle presence within a grazing exclosure south of 'Jesse's Crossing Lane', and in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub. 31.836142, -110.585855. May 2, 2025.

Cattle tracks and significant soil disturbances in a grazing exclosure containing designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub south of 'Rick's Lane'. 31.828891, -110.586726. May, 2, 2025.

This well-worn and compacted cattle trail, with fresh cattle tracks, indicates a sustained livestock presence within an off-limits grazing exclosure containing designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub 31.819224, -110.591690. May 3, 2025.

Extensive vegetation removal and soil disturbances within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub. 31.817071, -110.591334. May 3, 2025.

Another photo showing extensive vegetation removal and soil disturbances within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub. 31.817071, -110.591334. May 3, 2025.

Unauthorized cattle continue to degrade and disturb designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub within an exclosed area strictly off-limits to grazing. 31.809964, -110.591492. May 3, 2025.

A denuded, compacted, and eroding riparian critical habitat designation for cuckoo, flycatcher, garter snake, and chub within a grazing exclosure at Las Cienegas. 31.813533, -110.591050. May 3, 2025.

Perennial water that remains in a critical habitat designation for cuckoo, flycatcher, garter snake, and chub, within a grazing exclosure, is trampled and polluted by cattle. 31.812258, -110.591335. May 3, 2025.

Another identifiable brand photographed on an unauthorized cow within a degraded, off-limits riparian critical habitat designation for cuckoo, flycatcher, garter snake, and chub. 31.810257, -110.591081. May 3, 2025.

Extensive vegetation removal and soil disturbances within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub. 31.808741, -110.589952. May 3, 2025.

A decaying cow carcass within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and chub. 31.806587, -110.588115. May 3, 2025.

Cattle-browsed woody regeneration within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.806286, -110.588175. May 3, 2025.

Two more examples of extensive vegetation removal and soil disturbances, together with fresh feces upon a cattle trail, within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.804200, -110.588566 (1); 31.802355, -110.588679 (2). May 3, 2025.

A cattle-trampled wetland within a grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.797956, -110.589079. May 3, 2025.

This photo shows the extent and degree of cattle trampling and vegetation removal in wetlands protected by grazing exclosures in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.797956, -110.589079. May 3, 2025.

An example of the cattle damage done to a "crossing lane" in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.795876, -110.587999. May 3, 2025.

This photo is from an off-limits grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog just south of a designated crossing lane. Ground cover is gone and replaced with feces, resembling a feedlot rather than a protected natural area. 31.795291, -110.589227. May 3, 2025.

Another grazed and trampled perennial wetland, within an off-limits grazing exclosure, in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.788418, -110.588324. May 3, 2025.

Further examples of trampled perennial waters and extensive removal of herbaceous groundcover, within an off-limits grazing exclosure, in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.786561, -110.588044 (1); 31.784605, -110.588144 (2). May 3, 2025.

Significant cattle damage, including trampling of wet soils and removal of herbaceous vegetation, within an off-limits grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.785506, -110.588344. May 3, 2025.

A heavily trampled perennial wetland with browsed, stunted willow trees within an off-limits grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.783394, -110.588285. May 3, 2025.

Extensive loss of riparian vegetation within a heavily trampled grazing exclosure in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. 31.782439, -110.589251. May 3, 2025.

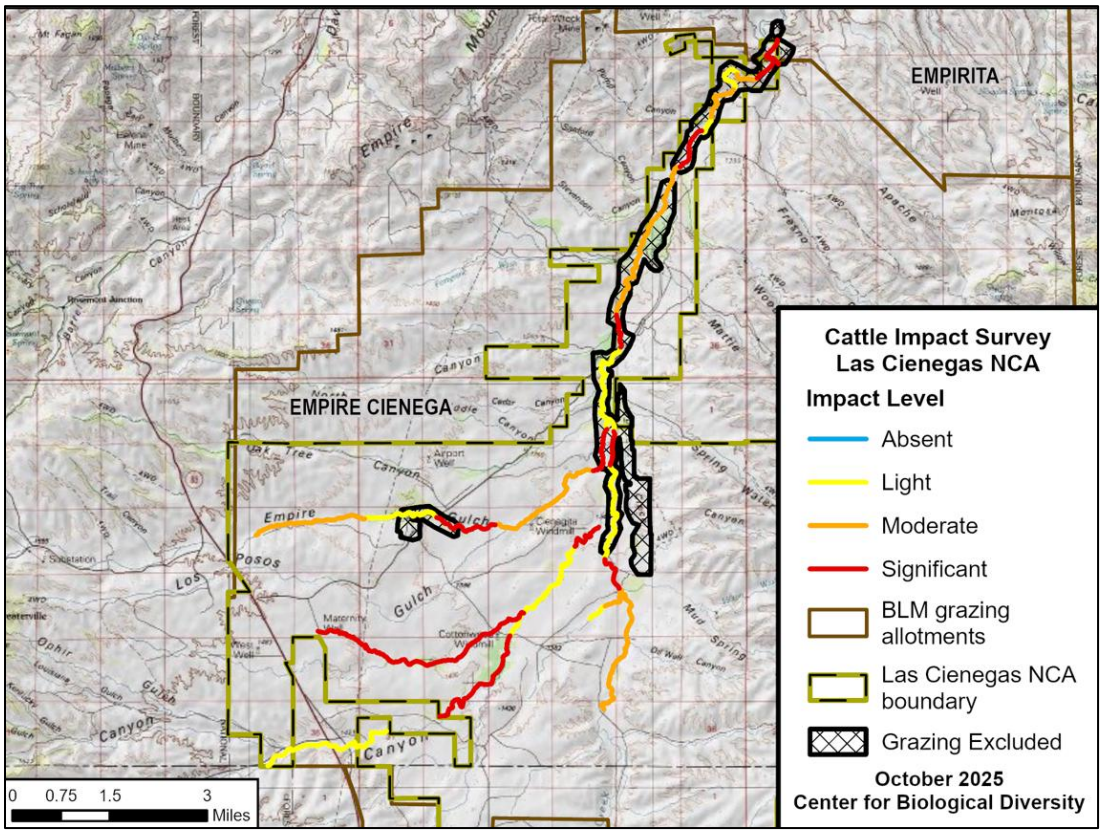
Feces-laden water, trampled and grazed riparian understory vegetation, and lack of cottonwood and willow regeneration define this supposed grazing exclosure in Empire Gulch, which has no fence at all on the west side. This is designated riparian critical habitat for cuckoo, flycatcher, garter snake, leopard frog, and chub. 31.803370, -110.590885 (1); 31.787747, -110.637741 (2). May 3, 2025.

A denuded, eroding riparian zone reveals the long-term consequences of riparian vegetation removal and trampling by cattle. Fresh feces indicate the problem persists. These images are from a supposedly excluded area and in designated critical habitat for cuckoo, garter snake, and leopard frog. 31.784902, -110.630939. May 3, 2025.

Continued trampling and vegetation removal within supposedly closed areas and in designated riparian critical habitat for cuckoo, flycatcher, garter snake, and leopard frog 31.787633, -110.636833 (1); 31.787796, -110.637174 (2). May 3, 2025.

Bankline vegetation is consumed and streambanks trampled within an off-limits grazing exclosure, in designated riparian critical habitat for cuckoo, garter snake, and leopard frog. 31.787127, -110.634387. May 3, 2025.

October 2025



Grazing impact levels in designated critical habitat within the Las Cienegas National Conservation Area on the Gila District's Empire-Cienega allotment from October 2025.

Examples of a grazed, off-limits exclosure with extensive removal of understory herbaceous vegetation in cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.875037, -110.563958 (1); 31.875188, -110.563908 (2). October 9, 2025.

Evidence of cattle presence including browsed woody material in a grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.872895, -110.564784. October 9, 2025.

Extensive trampling, herbaceous groundcover removal, and fresh tracks in a grazing exclosure in cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.870295, -110.567988. October 7, 2025.

Significant soil compaction in a section of Cienega creek north of the delineated 'Fresno Crossing Lane' that has no fencing at all but is described as excluded in the 2003 RMP. Cattle were present at time of survey within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.864680, -110.572117 (1); 31.865256, -110.570792 (2). October 7, 2025.

Continued sign of cattle presence within the grazing exclosure south of 'Jesse's Crossing Lane', where we documented significant damage to cuckoo, flycatcher, garter snake, and chub designated critical habitat in May. 31.837677, -110.585176. October 7, 2025.

Continued cattle sign within an off-limits grazing exclosure containing cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.833033, -110.587931. October 7, 2025.

Cattle tracks in the off-limits grazing exclosure south of 'Rick's Lane' continued in October within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.829019, -110.586797 (1) 31.830432, -110.586815 (2). October 7, 2025.

A degraded and eroding stream bank full of cattle tracks in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.827421, -110.586554 October 7, 2025.

Significant vegetation removal in a compacted riparian zone, located in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.827196, -110.586268. October 7, 2025.

A supposedly off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat shows heavy grazing damage to herbaceous vegetation and no woody recruitment. 31.822437, -110.588814. October 8, 2025.

Another large patch of groundcover removal in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.821636, -110.590434. October 8, 2025.

Cattle sign, including feces, trails, and chutes within a grazing exclosure containing cuckoo, flycatcher, garter snake, and chub designated critical habitat 31.818312, -110.590889 (1); 31.818051, -110.591226 (2). October 8, 2025.

Cattle trail, tracks, and hoof shearing in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.815829, -110.590717. October 8, 2025.

This off-limits grazing exclosure, within cuckoo, flycatcher, garter snake, and chub designated critical habitat, shows signs of heavy livestock disturbance. 31.813538, -110.590752. October 8, 2025.

Despite some regrowth of herbaceous vegetation over the summer, this off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and chub designated critical habitat shows characteristics of heavy livestock disturbance including bank degradation and soil disturbances. 31.813533, -110.591078. October 8, 2025.

Fresh cattle tracks and degraded, eroding stream banks were observed near a watering point in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, chub, and leopard frog designated critical habitat. 31.806011, -110.590785. October 10, 2025.

Example of livestock soil disturbances in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and leopard frog designated critical habitat. 31.805820, -110.588026 (1); 31.804868, -110.588211 (2). October 8, 2025.

Tracks, bank degeneration and woody regeneration browse in an off-limits grazing exclosure within cuckoo, flycatcher, garter snake, and leopard frog designated critical habitat. 31.803269, -110.588469 (1); 31.803073, -110.588463 (2). October 8, 2025.

Cattle trails, tracks, and feces in an off-limits grazing exclosure containing cuckoo, flycatcher, garter snake, and leopard frog designated critical habitat. 31.797883, -110.588769 (1); 31.794219, -110.588893 (2). October 8, 2025.

Cattle tracks and feces in an off-limits exclosure containing cuckoo, flycatcher, garter snake, and leopard frog designated critical habitat. 31.797194, -110.587972 (1); 31.795291, -110.589227 (2). October 8, 2025.

Disturbances and fresh tracks in an off-limits grazing exclosure containing cuckoo, flycatcher, garter snake, and leopard frog designated critical habitat. 31.784151, -110.588095. October 8, 2025.

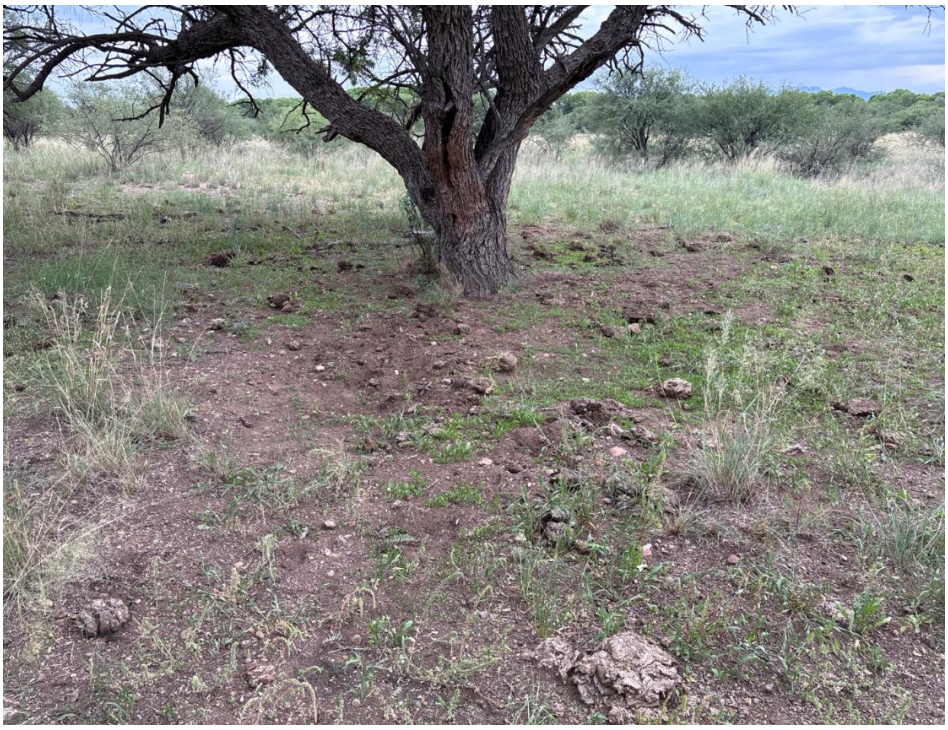
Cattle feces and removal of understory vegetation an off-limits grazing exclosure containing cuckoo designated critical habitat. 31.808137, -110.584481. October 8, 2025.

Cattle feces and removal of understory vegetation an off-limits grazing exclosure containing cuckoo and flycatcher designated critical habitat. 31.805788, -110.584936. October 8, 2025.

Extensive removal of understory vegetation in an off-limits grazing exclosure containing cuckoo and flycatcher designated critical habitat. 31.803690, -110.584905. October 8, 2025.

Soil disturbances and vegetation removal in an off-limits grazing exclosure containing cuckoo, flycatcher, and garter snake designated critical habitat. 31.802421, -110.585270. October 8, 2025.

Mineral supplements placed in a supposedly off-limits area (according to the 2003 RMP and BLM's GIS exclosure map) containing cuckoo, flycatcher, and garter snake designated critical habitat. 31.802301, -110.58500. October 8, 2025.



A cattle loafing area showing soil disturbances and vegetation removal in an off-limits grazing exclosure containing cuckoo, flycatcher, and garter snake designated critical habitat. 31.799851, -110.584889. October 8, 2025.

This designated cuckoo critical habitat is supposed to be closed to grazing, according to the 2003 RMP and BLM's GIS exclosure map. 31.783728, -110.580358. October 8, 2025.

This designated cuckoo critical habitat is supposed to be closed to grazing, according to the 2003 RMP and BLM's GIS exclosure map. 31.776609, -110.579513. October 8, 2025.

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 grasses 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 limited 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 sign present but no obvious signs of bank degradation.	**LOW** Trails lead 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, shearing 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, ***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
	(UNLESS (5) TWOS-` then moderate)	*(UNLESS (3) THREES- then significant)*	

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's College of Agriculture and Life Science who majored in Environment and Sustainability with a

focus in Environmental Biology & Applied Ecology, had a GPA of 3.94, 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.

Fenceline Surveys of Grazing Exclosures in Las Cienegas National Conservation Area

Center for Biological Diversity
March 2026

While conducting cattle impact surveys from Oct 7-9, 2025, the Center conducted a focused survey of fence lines meant to delineate grazing exclosures as described in the 2003 Conservation Area RMP. To assist our field surveys of exclosure fences we obtained, via Freedom of Information Act, a digital layer of Las Cienegas grazing enclosures from BLM. This digital layer comported with what was described in the 2003 RMP, only with more detail regarding exclosure boundaries, crossing lanes, and watering areas.

The following pages contain the results of our 2025 Las Cienegas fence line surveys. Photographs presented herein represent exclosure fences that align with the digital GIS exclosure layer obtained directly from BLM's Tucson Field Office. Some photos below are from our May 2025 surveys, where downed fences were photographed opportunistically during cattle impact survey. Most, however, are from the Center's focused fenceline surveys in October.

Most of the photos herein show non-functional exclosures which cannot serve their intended purpose of keeping cows out of off-limits areas. In other examples, large sections of supposed exclosure fence appeared to have been deliberately dismantled. Finally, in some important designated perennial sections it appears that exclosures have never been built at all– for example along the west side of Empire Gulch near the confluence of Cienega Creek. Here, we could find no evidence of exclosure fences at all for approximately ¾ mile and cattle damages were significant in designated critical habitat for cuckoo, flycatcher, garter snake, leopard frog, and chub.

All of these situations represent significant departures from what is described in the 2003 RMP and its associated 2002 Biological Opinion. Reinitiation of formal consultation is required if new information reveals effects of the agency action impacts listed species or critical habitat in a manner or to an extent not previously considered, either for the 2003 RMP or for grazing permit renewal.

Significant cattle damage on both sides of a grazing exclosure meant to protect off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. Note cattle feces on the wrong side of the fence. 31.808747, -110.589955. May 3, 2025.

A shabby, nonfunctional fence line delineating a grazing exclosure at Las Cienegas NCA. Cattle damage and feces were evident on both sides but worsen within the exclosure, in designated critical habitat for cuckoo, flycatcher, and garter snake. 31.800311, -110.588975. May 3, 2025.

A broken, nonfunctional fence line delineating a grazing exclosure at Las Cienegas NCA. This lack of barrier allows cattle access into off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.874824, -110.563335. October 9, 2025.

Another inadequate and neglected fence line delineating a grazing exclosure at Las Cienegas NCA. This section allows cattle access into off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.872616, -110.565041. October 9, 2025.

A nonfunctional fenceline delineating a 'crossing lane' from an adjacent grazing exclosure. This is a well-worn cattle route into off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.872579, -110.565835. October 9, 2025.

An exclosure fence abruptly ends (photo #1, 31.869342, -110.567816). A well-worn cattle shoot nearby indicates that livestock routinely access the off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat that exclosure fences are in place to protect. 31.869263, -110.567917. October 9, 2025.

A nonfunctional exclosure fence lays on the ground across a well-used cattle shoot leading into off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.871207, -110.567766. October 9, 2025.

A fallen fence in the uplands delineating a grazing exclosure meant to protect off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.866839, -110.569369. October 7, 2025.

Two more examples of downed exclosure fences that fail to serve their intended purpose of protecting off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat 31.855491, -110.575641 (1); 31.854896, -110.576271 (2). October 7, 2025.

This shabby, nonfunctional fence, with only a lose top wire, fails to serve its intended purpose of protecting off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.852447, -110.577751. October 7, 2025.

A shabby fence line ends abruptly just north of this location. No other fence line was confirmed on this supposed grazing exclosure, running along the east side of Cienegas Creek. This unfinished exclosure fails to protect off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.847244, -110.580695. October 7, 2025.

A completely nonfunctional exclosure fence fails to serve its intended purpose of protecting off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat 31.830104, -110.586872. October 7, 2025.

Another shabby, nonfunctional fence at 'Bahti's' water crossing lane. There was no fence at the northern boundary of this crossing lane, just a T-post. Thus, there is no exclosure in place here to protect off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.817562, -110.591394. October 8, 2025.

One section of exclosure fence falling, and another one nearby with passable gaps and evidence of cow traffic. These barriers fail to protect off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.816240, -110.591501. October 8, 2025.

An exclosure fence with no bottom strand, easily passable for cattle and failing to protect off-limits cuckoo, flycatcher, garter snake, and chub designated critical habitat. 31.816982, -110.591484. October 8, 2025.

A shabby, nonfunctional gate easily traversable to cattle and failing to protect off-limits cuckoo, flycatcher, garter snake, and frog designated critical habitat from livestock. 31.803066, -110.588758. October 8, 2025.

A large gap in an exclosure fence with evidence of cattle traffic. This exclosure fails to serve its purpose to protect off-limits cuckoo, flycatcher, garter snake, and frog designated critical habitat. 31.799884, -110.589171. October 8, 2025.

Another example of a downed exclosure fence which fails to protect off-limits cuckoo, flycatcher, garter snake, and frog designated critical habitat. 31.794055, -110.589379. October 8, 2025.

Another example of a downed exclosure fence which fails to protect off-limits cuckoo, flycatcher, garter snake, and frog designated critical habitat. 31.793826, -110.589308. October 8, 2025.

Mineral supplements for cattle appear to have been placed *within* a heavily impacted grazing exclosure meant to protect off-limits cuckoo, flycatcher, garter snake, and frog designated critical habitat from cattle. 31.788835, -110.588778. October 8, 2025.

Both sides of this supposed grazing exclosure are equally impacted by livestock, evident by soil disturbances, vegetation loss, and feces. Livestock here are accessing off-limits cuckoo, flycatcher, garter snake, and frog designated critical habitat. 31.783674, -110.587646. October 8, 2025.

A grazing exclosure in cuckoo critical habitat is non-functional and easily traversable by livestock. 31.794730, -110.582166. October 8, 2025.

A grazing exclosure in cuckoo critical habitat abruptly ends. 31.794695, -110.580735. October 8, 2025.

A large gap of cut/broken wires in a grazing exclosure in cuckoo critical habitat makes it easily permeable to livestock. 31.793612, -110.579718. October 8, 2025.

A completely dismantled and nonfunctional exclosure fence with cattle trails crossing in cuckoo critical habitat. 31.793006, -110.579781. October 8, 2025.

A completely dismantled and nonfunctional exclosure fence with cattle trails and track crossing into cuckoo critical habitat. 31.791639, -110.579748. October 8, 2025.

Another dismantled and nonfunctional exclosure fence with cattle trails and tracks crossing into cuckoo critical habitat. 31.789720, -110.579645. October 8, 2025.

A nonfunctional exclosure fence on the ground in cuckoo critical habitat. 31.790364, -110.582332. October 8, 2025.

A shabby and nonfunctional grazing exclosure fence with cow pies on either side in cuckoo critical habitat. 31.787686, -110.579666. October 8, 2025.

Another fence delineating a supposedly exclosed area, on the ground in cuckoo critical habitat. 31.786687, -110.579675. October 8, 2025.

Another fence seemingly cut and dismantled deliberately, in cuckoo critical habitat 31.784799, -110.579698. October 8, 2025.

Another example of an exclosure fence on the ground in cuckoo critical habitat. 31.784343, -110.579620. October 8, 2025.

A grazing exclosure fence with missing sections and cattle trails into cuckoo critical habitat. 31.784038, -110.579602. October 8, 2025.

A shabby fence line delineating a supposed grazing exclosure, easily traversable by livestock and with significant removal of vegetative ground cover on either side in cuckoo critical habitat. 31.781466, -110.579609. October 8, 2025.

A shabby fence line delineating a supposed grazing exclosure, easily traversable by livestock and with impacts on either side in cuckoo critical habitat. 31.774170, -110.580896. October 8, 2025.

A collapsing, nonfunctional exclosure fence in Empire Gulch, easily traversable by livestock and unable to serve its intended purpose in excluding livestock from designated cuckoo, garter snake, and leopard frog critical habitat. 31.784569, -110.629833. October 9, 2025.

A downed exclosure fence allows cattle access into designated cuckoo, flycatcher, garter snake, and leopard frog critical habitat. 31.787805, -110.637562. October 9, 2025.

Another downed exclosure fence allows cattle access into designated cuckoo, flycatcher, garter snake, and leopard frog critical habitat where significant damage was documented. 31.787541, -110.638034. October 9, 2025.

More broken strands on a nonfunctional grazing exclosure allows cattle access into designated cuckoo, flycatcher, garter snake, and leopard frog critical habitat. 31.787186, -110.638397. October 9, 2025.

A sizable gap along an Empire Gulch grazing exclosure fence allows access to cattle into designated critical habitat for cuckoo, flycatcher, garter snake, and leopard frog. Significant damage was documented to critical habitat in the riparian zone below. 31.788952, -110.637162. October 9, 2025.

Another downed grazing exclosure fence allows livestock access into designated cuckoo, flycatcher, garter snake, and leopard frog critical habitat. 31.787117, -110.640081. October 9, 2025.

Broken center strands in a grazing exclosure result in a barrier that fails to serve its intended purpose in protecting designated cuckoo, flycatcher, garter snake, and leopard frog critical habitat 31.788627, -110.642984. October 9, 2025.

Cattle Impact Surveys of Critical Habitat Managed by 'Utilization' in Las Cienegas National Conservation Area

Center for Biological Diversity
March 2026

Beginning in December 2024, and again from January 6-8, 2025, May 2-3, 2025, and October 8-15, 2025, the Center for Biological Diversity conducted systematic surveys of designated critical habitat on the Empire-Cienega allotments within the Las Cienegas National Conservation Area, to assess the degree of cattle impacts in designated critical habitat and to document unauthorized cattle presence. The Center documented significant, extensive cattle damage in critical habitat for endangered Gila chub, Chiricahua leopard frog, northern Mexican garter snake, southwestern willow flycatcher and yellow-billed cuckoo throughout the Conservation Area.

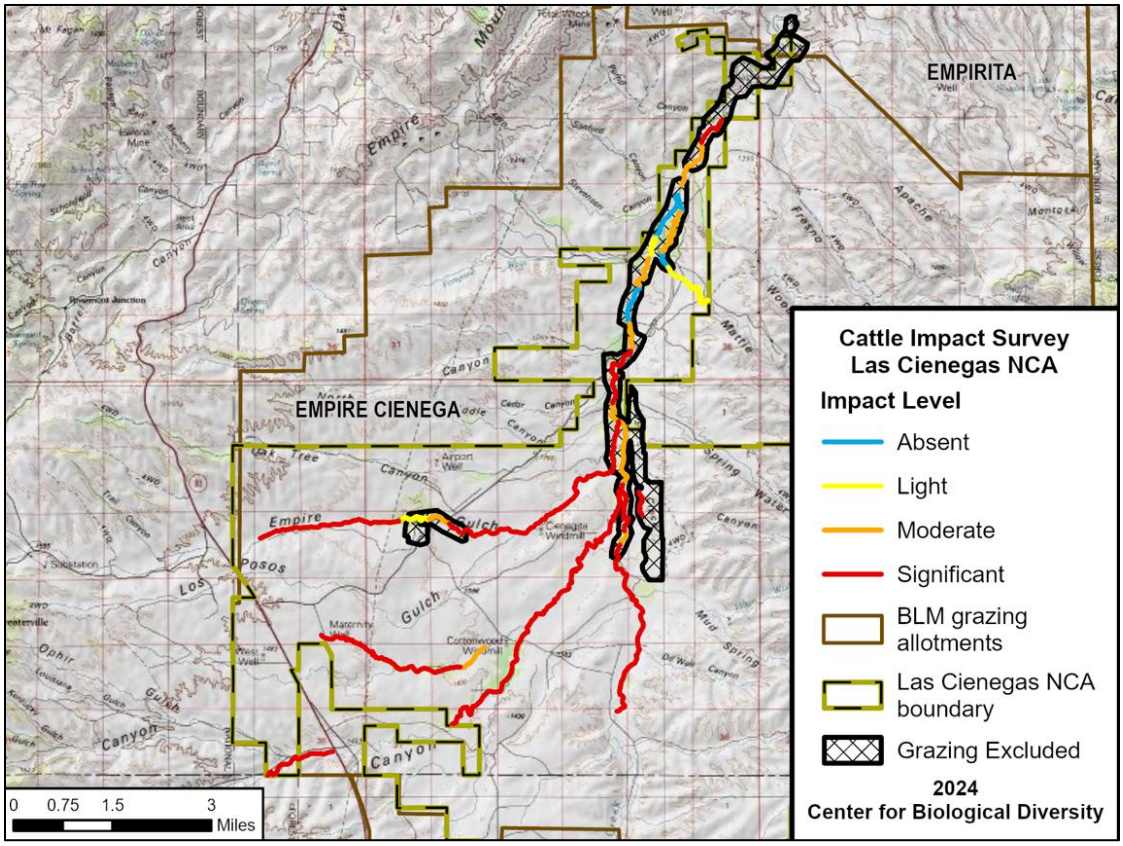
Designated critical habitat acres are 'protected' either by relying on grazing exclosures— which we have found to be in disrepair through the Conservation Area— or by using 'rest-rotation' grazing strategies, whereby cattle are rotated from pasture to pasture to avoid overuse, which is informed by setting limits on 'utilization' of cattle-preferred 'forage'. Our surveys found BLM's scheme of protecting designated riparian critical habitat by relying on non-applicable cattle metrics is failing to protect the Primary Constituent Elements (PCEs) or Physical and Biological Features (PBFs) of endangered species habitat, which are defined by FWS as required to ensure survival, reproduction, and recovery of endangered species. For example, cuckoo and southwestern willow flycatcher require dense, multi-layered 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 invertebrate and fish prey base for Chiricahua leopard frogs, as well as leopard frogs themselves in their tadpole phase. Stable banks and channels are required to prevent habitat loss from erosion or flooding, as Gila chub critical habitat includes streams with pools and undercut banks.

Examples of the extensive degradation of critical habitat caused by livestock that are documented herein through photographs and maps include: heavily browsed woody streamside recruitment; trails meandering through riparian zones; streamside impacts resulting in shearing of banks into vertical surfaces; heavily diminished grass and herbaceous growth; myriad instances of wallows and bare soils; significant removal of riparian vegetation and adjacent understory; extensive areas of exposed, compacted soils around natural springs, seeps, and surface water; and pervasive trampling and soil disturbances.

The Center's documentation of significant cattle impacts in riparian areas that BLM assumes are closed to livestock underscores that the impacts of grazing far exceed those analyzed in the 2002 Biological Opinion. Reinitiation of formal consultation is required if new information reveals effects of the agency action impact listed species or critical habitat in a manner or to an extent not previously considered. This must be done either for the 2003 RMP or for grazing permit renewal.

Only complete exclusion of cattle from designated critical habitats in arid lands can protect and rehabilitate fragile ecosystems so they can support recovery of endangered species.

December 2024- January 2025



Grazing impact levels in designated critical habitat within the Las Cienegas National Conservation Area on the Gila District's Empire-Cienega allotment from December 2024- January 2025.

Trampling, vegetation removal and soil disturbances in northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.755048, -110.639711. December 14, 2024.

Trampling, vegetation removal and soil disturbances in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.742365, -110.631927. December 14, 2024.

Extensive vegetation removal and soil degradation in northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.756164, -110.648538 (2). December 14, 2024.

A cattle trail with bank damages in grazed northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.754786, -110.642674. December 14, 2024.

A heavily grazed terrace adjacent to northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.755243, -110.646837. December 14, 2024.

Extensive herbaceous groundcover removal in northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.755825, -110.628766. December 14, 2024.

Significant trampling and soil disturbances lead to erosion in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.747316, -110.625861. December 14, 2024.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.735984, -110.673029. May 12, 2024.

Continued groundcover removal in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.746221, -110.628694. December 14, 2024.

Grazed yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.746221, -110.628694. December 14, 2024.

Another area of herbaceous groundcover removal and trampling in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.745199, -110.630024. December 14, 2024.

Continued examples of yellow-billed cuckoo critical habitat lacking in herbaceous groundcover in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.743752, -110.631326 (2). December 14, 2024.

A cow carcass decays on bare ground in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.763579, -110.622915. December 20, 2024.

An extensive area of soil compaction and vegetation removal in yellow-billed cuckoo critical habitat, immediately adjacent to northern Mexican garter snake critical habitat, in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.766227, -110.610326. January 8, 2025.

Cattle trails and fresh tracks cross a degraded streambank in yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.771886, -110.603821. January 8, 2025.

Banks are eroding with trampling and vegetation removal in northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.772869, -110.602387. January 8, 2025.

Continued examples of denuded, trampled banks in northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.778372, -110.600155 (2). January 8, 2025.

A large area of bare ground in grazed yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.779430, -110.599104. January 8, 2025.

After vegetation is consumed and trampled, bare soils remain in yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.780731, -110.598117. January 8, 2025.

A wetland in yellow-billed cuckoo critical habitat is heavily trampled and contaminated with feces in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.782301, -110.598773. January 8, 2025.

Another expanse of northern Mexican garter snake critical habitat devoid of herbaceous vegetation in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.791573, -110.589621. January 8, 2025.

Cattle remove a wide strip of herbaceous vegetation in yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.793372, -110.587447. January 8, 2025.

A large expanse of bare soils left by grazing cattle in yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.781967, -110.597037. January 8, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.781833, -110.595477. January 8, 2025.

Vegetation removal and trampling cause gullying to advance in yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.790187, -110.588724. January 8, 2025.

Removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.756337, -110.585498. January 8, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.782050, -110.590471. January 8, 2025.

Cattle and associated soil disturbances and erosion in yellow-billed cuckoo critical habitat in Cienega Creek, Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.757930, -110.584783 (2). January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.752602, -110.588445. January 7, 2025.

Significant vegetation removal and trampling contribute to erosion in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.751422, -110.588917. January 8, 2025.

A compacted, denuded cattle passage in grazed yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.750279, -110.589546. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.749269, -110.589518. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.748156, -110.588881. January 7, 2025.

Another denuded cattle passage causes continued erosion in yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.746575, -110.588781. January 7, 2025.

Another patch of yellow-billed cuckoo critical habitat grazed to the soil in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.745808, -110.589468. January 7, 2025.

Grazed yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.797677, -110.592363. January 7, 2025.

Standing water trampled and polluted in yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.797945, -110.591648 (2). January 7, 2025.

Another trampled and polluted wetland, with mineral attractant, in yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.797421, -110.593561 (1); 31.797495, -110.593679 (2). January 7, 2025.

A recently wetted low spot trampled and denuded of groundcover in yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.797550, -110.594587 (1); 31.797550, -110.594588 (2). January 7, 2025.

Continued significant herbaceous groundcover removal in yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.797562, -110.595793. January 7, 2025.

A heavily disturbed patch of bare soil in yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.796468, -110.599251. January 7, 2025.

Vegetation removal and advancing erosion in yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.796358, -110.598093 (2). January 7, 2025.

Another trampled and denuded wetland, with a placed mineral lick, in yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.796261, -110.599881 (1); 31.794741, -110.601054 (2). January 7, 2025.

Grazed, trampled yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog, and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.793793, -110.600954. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.793124, -110.600853. January 7, 2025.

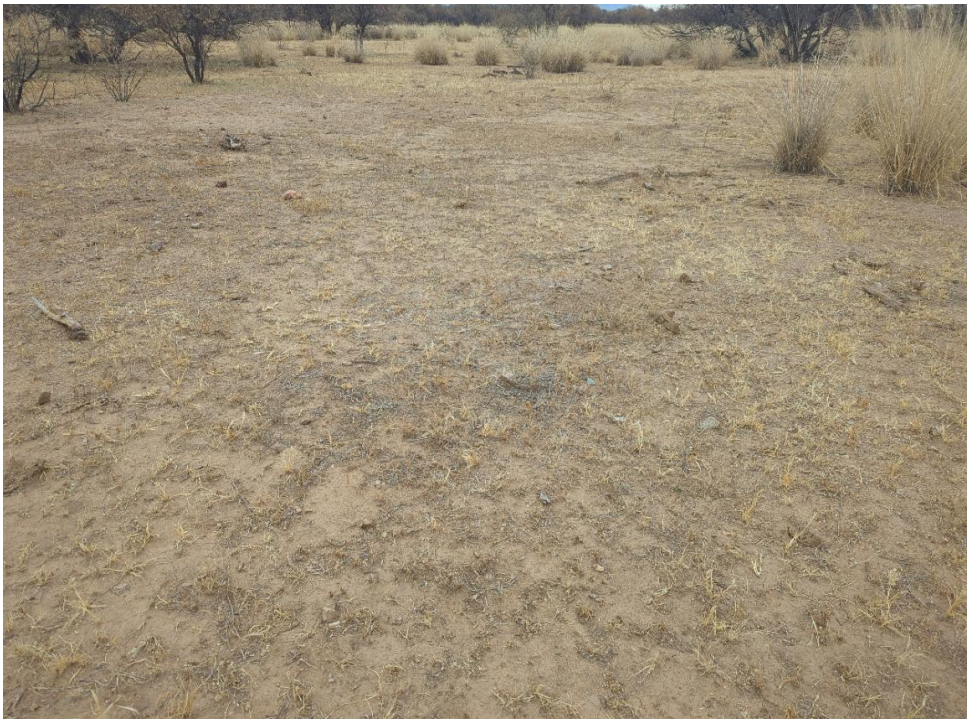
Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.792224, -110.601740. January 7, 2025.

Grazed, degraded drainage in yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.791203, -110.603035. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.789878, -110.605131. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.787622, -110.608514. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.786175, -110.608864. January 7, 2025.



Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785993, -110.611110. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785810, -110.611754. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784643, -110.613957. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake, Chiricahua leopard frog and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784837, -110.616782. January 7, 2025.

Continued examples of extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784619, -110.617698 (2). January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785676, -110.619386. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Gila chub critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785386, -110.620907. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo, northern Mexican garter snake and Chiricahua leopard frog critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784790, -110.621251. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784951, -110.622091. January 7, 2025.

Extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784869, -110.627828. January 7, 2025.

Grazed and trampled yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784237, -110.629279. January 7, 2025.

A cattle chute leads to another denuded patch of grazed yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.787105, -110.655195. January 7, 2025.

Grazed and trampled yellow-billed cuckoo and northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.786634, -110.661547. January 6, 2025.

Ground cover is removed on stream benches in grazed northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785538, -110.669594. January 6, 2025.

Continued examples of extensive removal of herbaceous groundcover in trampled yellow-billed cuckoo critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.786989, -110.664018 (2). January 6, 2025.

Fresh tracks and extensive removal of herbaceous groundcover in trampled northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.785567, -110.672118. January 6, 2025.

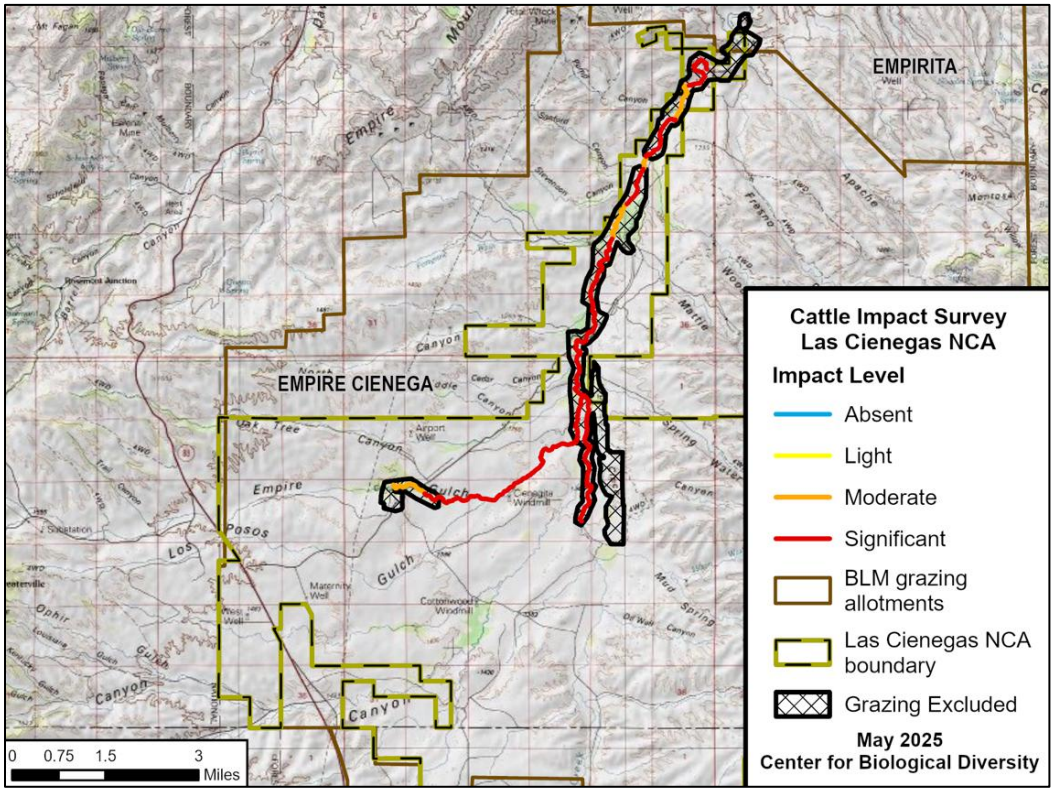
Only bare soils remain in this patch of grazed northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784501, -110.677154. January 6, 2025.

Fresh tracks and feces in grazed northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784350, -110.677595. January 6, 2025.

A cattle chute contributes to continued erosion in grazed northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784247, -110.680476. January 6, 2025.

Trampled, crumbling streambanks in northern Mexican garter snake critical habitat in the Empire-Cienega allotment, Las Cienegas National Conservation Area. 31.784071, -110.681109. January 6, 2025.

May 2025



Grazing impact levels in designated critical habitat within the Las Cienegas National Conservation Area on the Gila District's Empire-Cienega allotment from May 2025.

Compacted soils and lack of herbaceous ground cover define this designated critical habitat for cuckoo, flycatcher, and garter snake. A vegetative understory and woody regeneration are important elements required for recovery. 31.793903, -110.589542. May 3, 2025.

An extensive area of soil disturbances and removal of herbaceous ground cover in designated critical habitat for cuckoo and flycatcher. 31.815206, -110.591527. May 3, 2025.

Another example of soil disturbances and removal of herbaceous ground cover in designated critical habitat for cuckoo, flycatcher, and garter snake. 31.791231, -110.588801. May 3, 2025.

A cattle trail winds through heavily grazed and trampled designated critical habitat for cuckoo, flycatcher, and garter snake. 31.788461, -110.589066. May 3, 2025.

This grazed, trampled drainage is designated critical habitat for cuckoo, flycatcher, garter snake, leopard frog, and chub. 31.797894, -110.591858. May 3, 2025.

A cattle trail winds through grazed designated critical habitat for cuckoo, garter snake, and chub. 31.796954, -110.595397. May 3, 2025.

Important surface water that remains before monsoon season is trampled and contaminated with feces in designated critical habitat for cuckoo, garter snake, leopard frog, and chub. 31.797356, -110.594024. May 3, 2025.

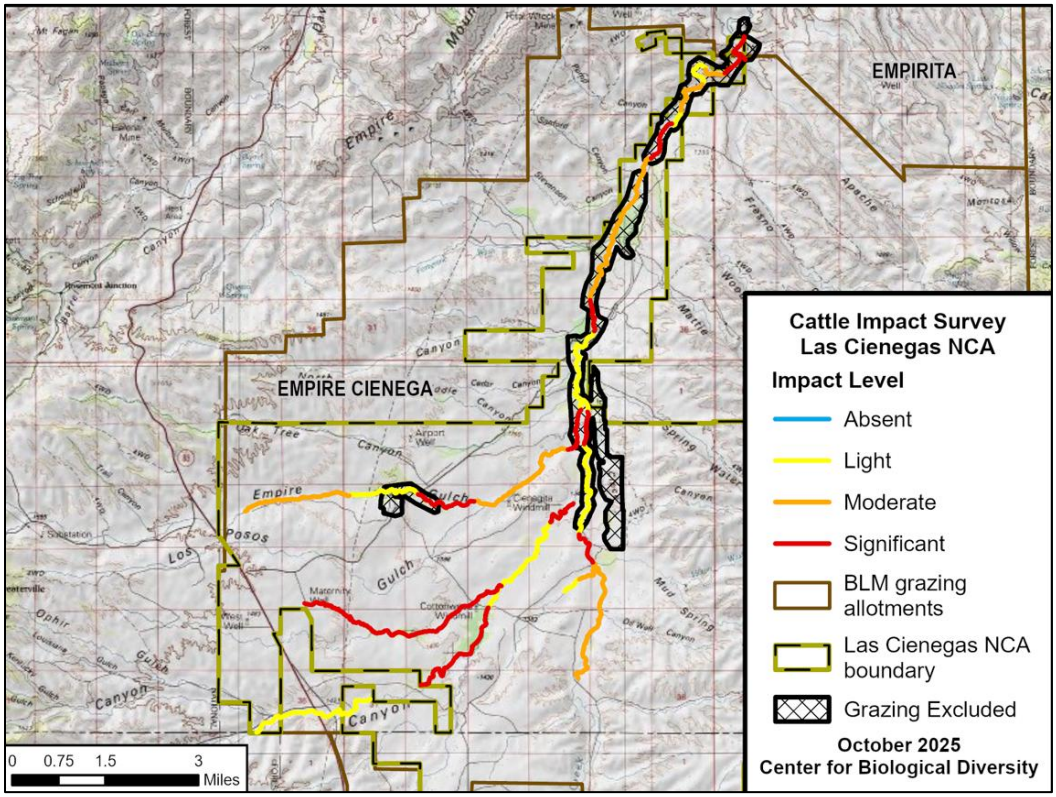
Extensive groundcover removal and soil compaction surround a stretch of perennial surface water in designated critical habitat for cuckoo, garter snake, leopard frog, and chub. 31.796286, -110.599716. May 3, 2025.

Cattle trail winds through a denuded and compacted critical habitat designation for cuckoo, garter snake, leopard frog, and chub. 31.791700, -110.602794. May 3, 2025.

A trampled riparian drainage defined by crumbling banks and lack of herbaceous ground within designated critical habitat for cuckoo, garter snake, and leopard frog. 31.784680, -110.622772. May 3, 2025.

An eroding, denuded riparian drainage serves as designated critical habitat for cuckoo, garter snake, and leopard frog in a National Conservation Area. 31.784781, -110.624499. May 3, 2025.

October 2025



Grazing impact levels in designated critical habitat within the Las Cienegas National Conservation Area on the Gila District's Empire-Cienega allotment from October 2025.

This designated critical habitat for cuckoo and flycatcher represents a long-degraded upland where bunchgrasses are grazed, disappearing, and exposing topsoil to erosion. 31.820907, -110.586923. October 10, 2025.

Loss of herbaceous groundcover and lack of woody regeneration, required for recovery of cuckoo and flycatcher, defines this section of their designated critical habitat. 31.820054, -110.588798. October 10, 2025.

Overgrazing in uplands leads to large swaths of bare soils in designated critical habitat for cuckoo and flycatcher. 31.817898, -110.587338. October 10, 2025.

Both uplands habitat and drainages exhibit large fecal loads and loss of herbaceous groundcover in designated critical habitat for cuckoo, flycatcher, and garter snakes. 31.792970, -110.589517 (1); 31.783331, -110.587616 (2). October 8, 2025.

This extensive area of overgrazed uplands, where cattle are concentrated around placed mineral supplements, is defined by bare soils and in designated critical habitat for cuckoo and flycatcher. 31.817302, -110.586942 (2). October 10, 2025.

Bunchgrasses are heavily grazed and groundcover removed in designated critical habitat for cuckoo, flycatcher, and garter snakes. 31.793396, -110.589354 (2). October 8, 2025.

Mineral supplements placed in designated critical habitat for cuckoo create a 'sacrifice area' devoid of groundcover, required for cuckoo recovery. 31.770290, -110.587625. October 10, 2025.

Herbaceous ground cover is removed and converted to fecal loads in designated critical habitat for cuckoo. 31.767387, -110.592430. October 10, 2025.

Decades of cattle overgrazing and trailing leads to eroding drainages and soil loss in designated critical habitat for cuckoo 31.770801, -110.584914. October 10, 2025.

A long-grazed and compacted streamside bench meant to serve as critical habitat for cuckoo, garter snake, leopard frog, and chub. 31.797289, -110.596538. October 9, 2025.

A long-grazed and compacted drainage is meant to serve as critical habitat for cuckoo, flycatcher, garter snake, leopard frog, and chub. 31.799335, -110.591075 (1); 31.797942, -110.591646 (2). October 9, 2025.

A perennial water source is devoid of streamside vegetation and surrounding herbaceous ground cover in designated critical habitat for cuckoo, garter snake, leopard frog, and chub. 31.796281, -110.599916. October 9, 2025.

Grazed and compacted designated critical habitat for cuckoo, garter snake, leopard frog, and chub. 31.793373, -110.600551. October 9, 2025.

Designated uplands are defined by high fecal loads, loss of herbaceous ground cover, and compacted soils in critical habitat for cuckoo, garter snake, leopard frog, and chub. 31.792856, -110.600880 (1); 31.792255, -110.601660 (2). October 9, 2025.

Extensive areas of garter snake-designated uplands where herbaceous ground cover is removed and soils are compacted by trampling. 31.785228, -110.672827 (1); 31.784558, -110.676989 (2). October 9, 2025.

A riparian corridor showing denuded benches, eroding banks and high fecal loads in cuckoo, flycatcher, and garter snake designated critical habitat. 31.784586, -110.592508. October 14, 2025.

A riparian corridor showing denuded benches, eroding banks and high fecal loads in cuckoo, flycatcher, and garter snake designated critical habitat. 31.783810, -110.593818. October 14, 2025.

Further examples of denuded, eroding banks and high fecal loads in designated riparian critical habitat for cuckoo, flycatcher, and garter snake. 31.783483, -110.594275 (1); 31.782630, -110.594917 (2). October 14, 2025.

Denuded, compacted riparian zone with high fecal loads in designated critical habitat for cuckoo and garter snake. 31.766818, -110.609514. October 14, 2025.

Heavily trampled designated riparian critical habitat for cuckoo with a high degree of herbaceous understory removal. 31.759312, -110.616257. October 15, 2025.

A cattle chute connects overgrazed uplands to a riparian zone where bunch grasses are grazed nearly to the roots in designated critical habitat for cuckoo and garter snake 31.764349, -110.615449. October 14, 2025.

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 grasses 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 limited 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 sign present but no obvious signs of bank degradation.	**LOW** Trails lead 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, shearing 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, ***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
	(UNLESS (5) TWOS-` then moderate)	*(UNLESS (3) THREES- then significant)*	

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.

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 Act[6] 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 amphibians[14] 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]

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[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

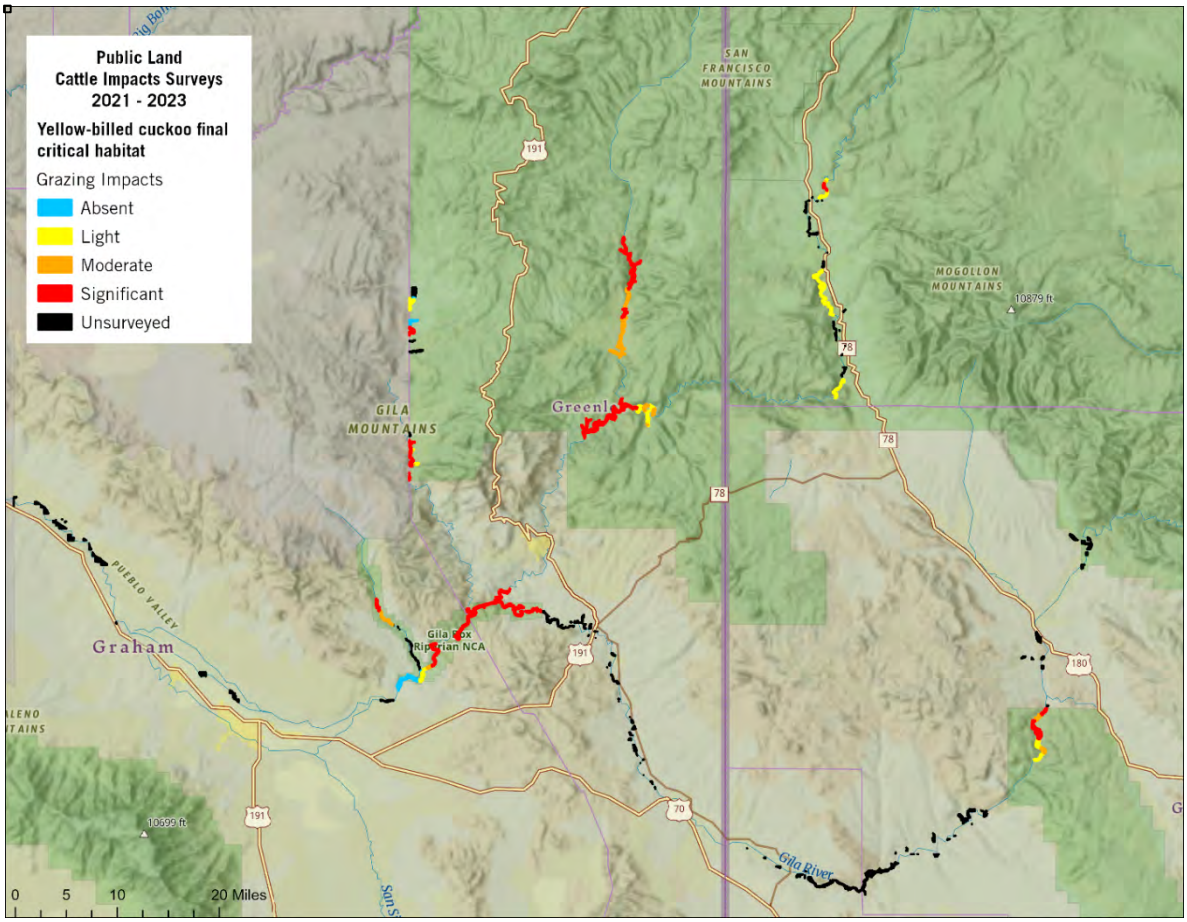

Figure 2. Designated yellow-billed cuckoo critical habitat in the Gila Box Riparian National Conservation Area, where no cattle grazing is allowed. 33.010634, -109.555424, June 1, 2021 (1); 32.972224,-109.350014, March 4, 2024 (2)

Figure 3. Cattle impacts on cuckoo critical habitat on public land in southern Arizona

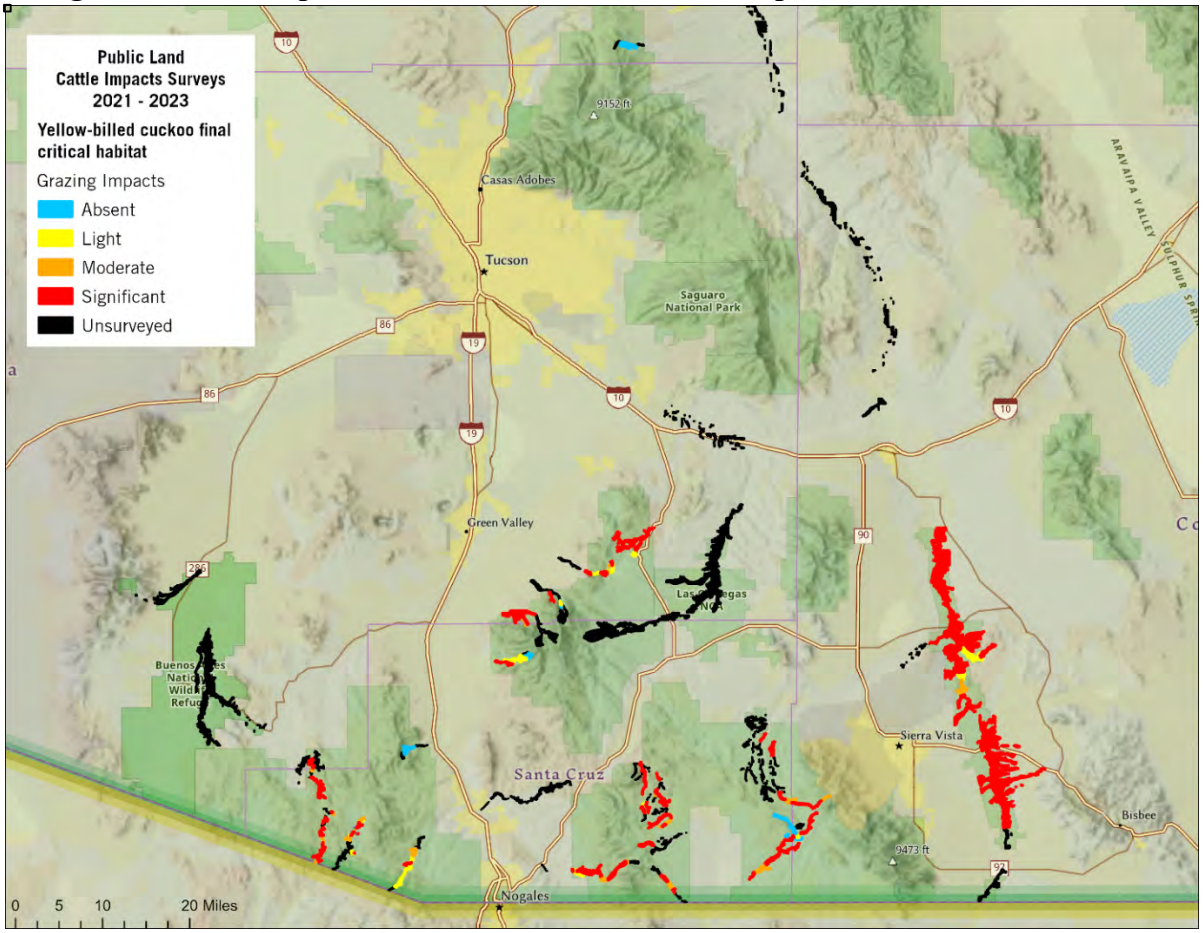

Figure 4. Grazed cuckoo critical habitat in the Coronado National Forest as it appeared prior to the arrival of nesting cuckoos in May 2022, and where pink flags mark heavily stunted ash saplings (*Fraxinus* sp.) 31.413335, -110.705831 (1), 31.409226, -111.237916 (2)

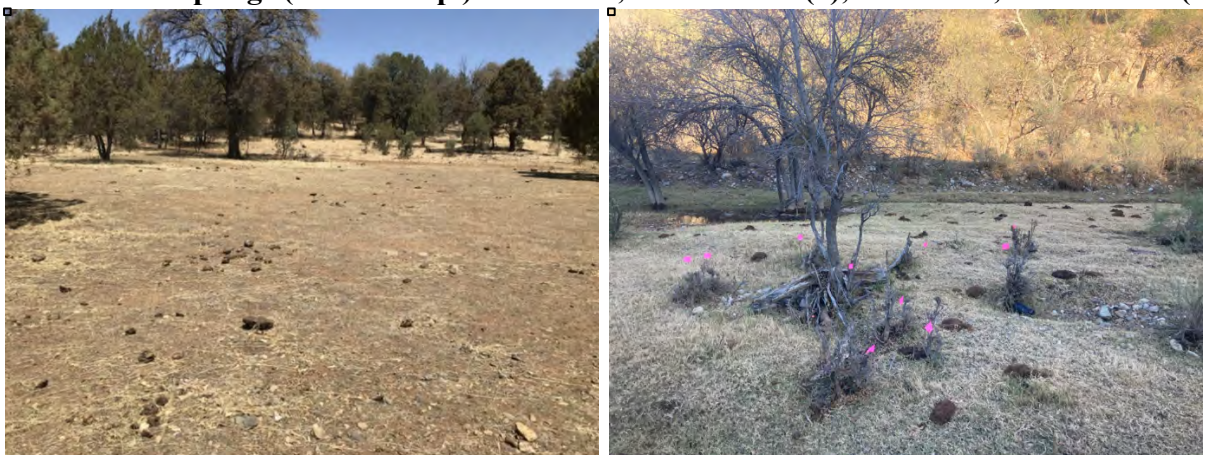

Figure 5. Cattle impacts on cuckoo critical habitat on public land in central Arizona

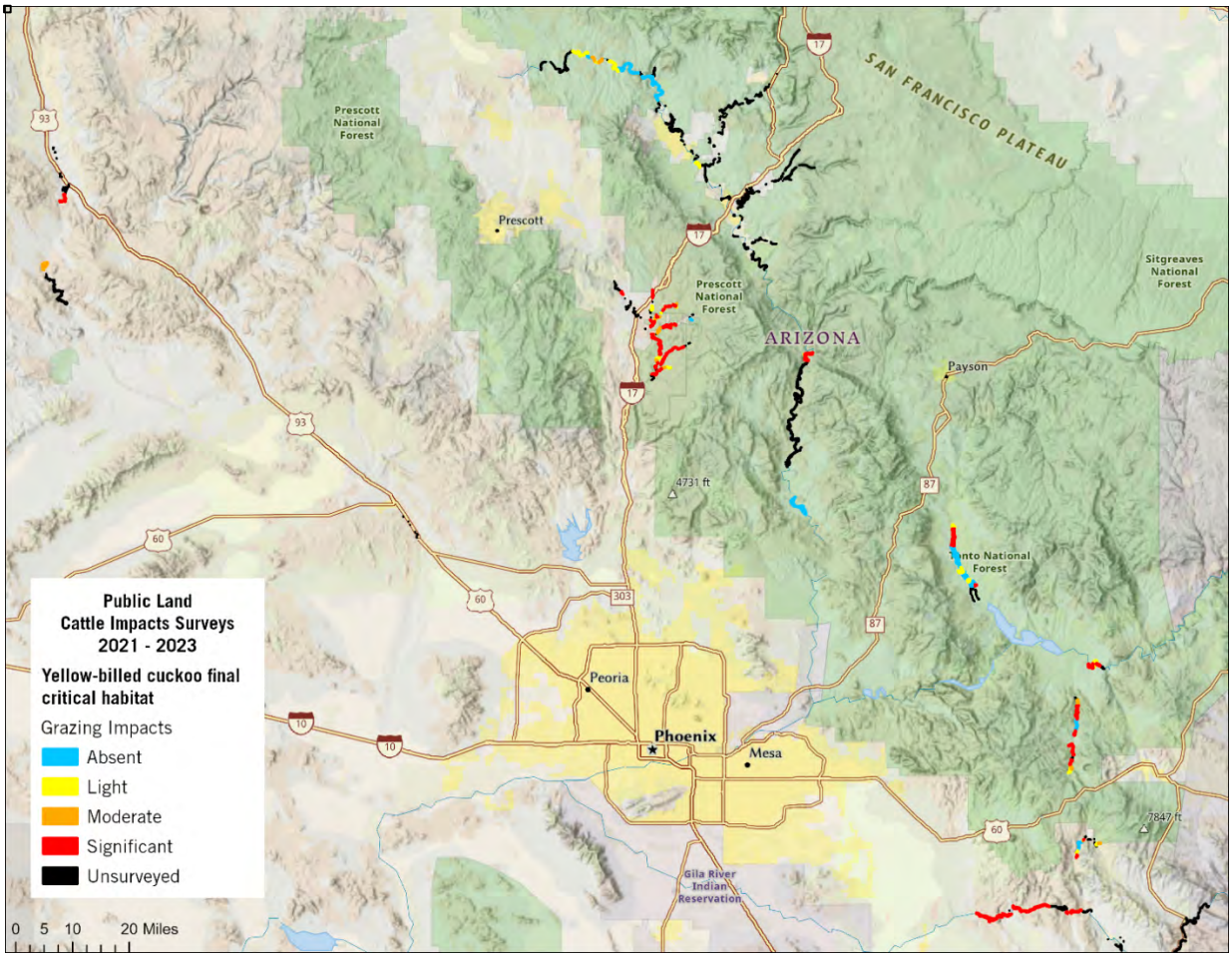

Fig. 6. Grazed yellow-billed cuckoo critical breeding habitat along Little Ash Creek, 34.361028, -112.061924, March 29, 2023 (1); and along the Agua Fria River, 34.240435, -112.06380, April 6, 2023 (2) in Agua Fria National Monument

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

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[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] Fleischner, 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 recently[44] 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

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[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] Fleischner, 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 inArizona 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.

Grazed to Death:

Livestock Production Adversely Modifying Most Critical Habitat for Northern Mexican Garter Snakes on Public Lands in Arizona

Center for Biological Diversity

September 2024

Summary

Livestock grazing has adversely modified at least 58% of the threatened northern Mexican garter snake's designated critical habitat on public lands in Arizona and New Mexico. In 2021 the U.S. Fish and Wildlife Service designated 20,326 acres of critical habitat for garter snakes, 11,860 acres of which occur on public lands managed by the U.S. Forest Service and the Bureau of Land Management. From 2021 to 2023, Center for Biological Diversity field biologists surveyed 8,127 acres (69%) of the garter snake's critical habitat on public land for adverse modification from livestock grazing. Surveys found moderate to significant impacts and adverse modification across 6,835 acres (84%) of the critical habitat on public lands surveyed and on 58% of all garter snake critical habitat on public lands managed by federal agencies.

Many native southwestern species found in riparian ecosystems, cienegas and other wetlands are threatened, endangered or otherwise imperiled due to habitat loss, degradation and ecosystem alteration.[1] The northern Mexican garter snake (*Thamnophis eques megalops*) is a uniquely adapted reptile native to Arizona and New Mexico that in recent decades has declined dramatically due to a combination of factors including habitat loss, destruction, modification and fragmentation, loss of native prey populations and establishment of nonnative predators.[2] This decline is reflected by widespread reductions of existing populations and local extirpations.[3] Garter snakes now exist in small, disconnected populations vulnerable to inbreeding depression, random events, and climate change with associated drought.[4]

Despite conceding that garter snakes were declining, severely threatened and extirpated from 85% to 90% of their range throughout the Southwest, the Fish and Wildlife Service declined for more than a decade to list garter snakes under the Endangered Species Act. Finally, in 2014, garter snakes were legally protected as a threatened species under the Act. In 2021 the agency designated 20,326 acres of protected critical habitat for northern Mexican garter snakes in Arizona and New Mexico,[5] a 90% reduction from the original acreage the agency had proposed in 2014 and 2020.[6] This drastic, scientifically unsupported reduction of the proposed critical habitat — that the Fish and Wildlife Service itself had previously recognized as necessary for recovery and meeting the statutory definition of critical habitat for garter snakes — is not nearly enough for these iconic native reptiles to survive and recover.

Unless the Fish and Wildlife Service designates the originally proposed critical habitat, garter snakes will remain in highly fragmented and isolated populations prone to extirpation through low genetic diversity, high inbreeding and random events. Worse still, this report shows that what remains of their designated critical habitat is being moderately to significantly degraded by authorized and unauthorized livestock grazing, and nonfunctional exclusion fences. Cattle grazing is causing significant damage to vegetation, water and soils in both riparian and upland habitat throughout public lands in Arizona. This is further contributing to the probability of garter snake extinction.

Garter Snake Habitat Needs and Damage Cause by Livestock Grazing

Although northern Mexican garter snakes have been found in a variety of vegetation types within the riparian zone (i.e., grasses, shrubs and wetland plants), the underlying habitat characteristic required by garter snakes appears to be dense vegetation or other natural structural

[1] 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.

[2] Threatened Status for the Northern Mexican Gartersnake and the Narrow-headed Gartersnake, Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 79, No. 130, July 8, 2014.

[3] Brennan, Thomas C., and Andrew T. Holycross. Field guide to amphibians and reptiles in Arizona. Arizona Game and Fish Dept., 2006.

[4] 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.

[5] Designation of Critical Habitat for the Northern Mexican Gartersnake, Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 86, No. 80, April 28, 2021.

[6] Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake, Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 85, No. 82, April 28, 2020.

components that provide cover for the species.[7] When not in the water, they usually conceal themselves under dense vegetation.[8]

According to the Fish and Wildlife Service,[9] the primary biological features required by garter snakes include perennial or intermittent streams that provide 1) slow-moving water with in-stream pools, off-channel pools and backwater habitat, and 2) aquatic and terrestrial garter snake habitat for population connectivity. Garter snakes also require streams, off-channel springs, cienegas and natural and constructed wetlands that contain 1) organic and natural inorganic structural features, including dense aquatic and wetland vegetation within the stream channel for thermoregulation, shelter, foraging opportunities and protection from predators, 2) terrestrial habitat adjacent to the stream channel that includes riparian vegetation and small mammal burrows, and 3) water quality that is absent of pollutants or, if pollutants are present, at levels low enough that recruitment of northern Mexican garter snakes is not inhibited.[10]

But despite the known importance of clean water and ground cover found in riparian, understory and upland vegetation, cattle production on national forests, national conservation lands, and other public lands has removed, degraded and/or eliminated these vitally important garter snake habitat components in riparian and upland ecosystems throughout the arid Southwest.[11] Arid lands livestock production, with its unavoidable harm to riparian ecosystems, cienegas and other wetlands, reduces the quantity, quality and distribution of key habitat features that are important for garter snake thermoregulation, shelter, foraging opportunities, protection from predators and recovery.

Livestock grazing causes wholescale and long-term changes to watershed function.[12] Cattle degrade riparian zones by removing bank-line and herbaceous ground-cover vegetation, preventing tree establishment, fouling water with animal waste, compacting soil, increasing runoff and erosion, and reducing water infiltration.[13] Intact vegetation functions as a barrier that

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[7] Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake, Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 85, No. 82, April 28, 2020, page 23615.

[8] *Id.*, page 23617.

[9] *Id*., page 23623-4.

[10] *Ibid.*

[11] 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.

[12] Armour, C., Duff, D. and Elmore, W., 1994. The effects of livestock grazing on western riparian and stream ecosystem. *Fisheries*, *19*(9), pp. 9-12.; 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.; Fleischner, T.L., 1994. Ecological costs of livestock grazing in western North America. *Conservation biology*, *8*(3), pp. 629-644.; Poff, B., Koestner, K.A., Neary, D.G. and Henderson, V., 2011. Threats to riparian ecosystems in Western North America: an analysis of existing literature 1. *JAWRA Journal of the American Water Resources Association*, *47*(6), pp. 1241-1254.

[13] Fleischner, T.L., 1994. Ecological costs of livestock grazing in western North America. Conservation biology, 8(3), pp.629-644; Klebenow, D.A. and Oakleaf, R.J., 1984. Historical avifaunal changes in the riparian zone of the Truckee River; 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; Stromberg, J.C., 1993. Fremont cottonwood-Goodding

slows and traps rainfall, sediments and nutrients.[14] As livestock alter and reduce native plant communities,[15] soil exposure leads to interrill erosion (soil detached by raindrops, then transported by shallow sheet flow) and gullying following downpours.[16] Grazing harm to ecohydrological systems at any intensity reduce soil permeability and water infiltration.[17] For water-limited vegetation, growth and survival are improved if rainfall is allowed to permeate the soil, but not if it runs off-site.[18] These effects compound, exacerbating desertification and ultimately leading to loss of soil fertility, failure of rainfall to moisten soil layers and recharge groundwater, and higher ground temperatures during the hottest months of the year. This is a disastrous feedback cycle that prevents native plant recovery and reestablishment.[19]

According to the Fish and Wildlife Service,[20] activities likely to destroy or adversely modify garter snake critical habitat include, but are not limited to 1) actions that would significantly increase sediment deposition or scouring within the stream channel, including poorly managed livestock grazing,[21] 2) actions that would alter water chemistry beyond the tolerance limits of garter snake prey, including biological pollutants and/or livestock grazing that results in waters heavily polluted by feces,[22] and 3) actions that would remove, diminish or significantly alter the structural complexity of key natural habitat features in and adjacent to aquatic habitat.[23]

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willow riparian forests: a review of their ecology, threats, and recovery potential. Journal of the Arizona-Nevada Academy of Science, pp.97-110; Taylor, D. M., and C. D. Littlefield. 1986. Willow flycatcher and yellow warbler response to cattle grazing. American Birds 40:1169-1173; Schulz, T. T., & Leininger, W. C. (1990). Differences in riparian vegetation structure between grazed areas and exclosures. Journal of Range Management, 43(4), 295-299.

[14] Ludwig, J.A., Wilcox, B.P., Breshears, D.D., Tongway, D.J. and Imeson, A.C., 2005. Vegetation patches and runoff–erosion as interacting ecohydrological processes in semiarid landscapes. Ecology, 86(2), pp.288-297.

[15] Vallentine, J. F. 1990. Grazing management. San Diego, CA, USA: Academic Press. 533 pp.; Popolizio, C.A., Goetz, H. and Chapman, P.L., 1994. Short-term response of riparian vegetation to 4 grazing treatments. *Rangeland Ecology & Management/Journal of Range Management Archives*, *47*(1), pp. 48-53. 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

[16] Erman et al. 1977, Osborne, L.L. and Kovacic, D.A., 1993. Riparian vegetated buffer strips in water-quality restoration and stream management. Freshwater biology, 29(2), pp. 243-258; Schulz, T. T., & Leininger, W. C. (1990). Differences in riparian vegetation structure between grazed areas and exclosures. Journal of Range Management, 43(4), 295-299.; Fleischner, T.L., 1994. Ecological costs of livestock grazing in western North America. Conservation biology, 8(3), pp. 629-644.; Ohmart, R.D., 1996. Ecological condition of the East Fork of the Gila River and selected tributaries: Gila National Forest, New Mexico. General Technical Report RM., 272, p. 312; Abrahams, A.D., Parsons, A.J. and Wainwright, J., 1995. Effects of vegetation change on interrill runoff and erosion, Walnut Gulch, southern Arizona. Geomorphology, 13(1-4), pp.37-48.

[17] Gifford, G.F. and Hawkins, R.H., 1978. Hydrologic impact of grazing on infiltration: a critical review. *Water Resources Research*, *14*(2), pp.305-313. Ludwig, J.A., Wilcox, B.P., Breshears, D.D., Tongway, D.J. and Imeson, A.C., 2005. Vegetation patches and runoff–erosion as interacting ecohydrological processes in semiarid landscapes. Ecology, 86(2), pp.288-297.

[18] Colloff, M.J., Pullen, K.R. and Cunningham, S.A., 2010. Restoration of an ecosystem function to revegetation communities: the role of invertebrate macropores in enhancing soil water infiltration. Restoration Ecology, 18, pp.65-72. Ludwig, J.A., Wilcox, B.P., Breshears, D.D., Tongway, D.J. and Imeson, A.C., 2005. Vegetation patches and runoff–erosion as interacting ecohydrological processes in semiarid landscapes. Ecology, 86(2), pp.288-297.

[19] Schlesinger, W.H., Reynolds, J.F., Cunningham, G.L., Huenneke, L.F., Jarrell, W.M., Virginia, R.A. and Whitford, W.G., 1990. Biological feedbacks in global desertification. *Science*, *247*(4946), pp. 1043-1048.

[20] Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake, Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 85, No. 82, April 28, 2020, page 23615page 23633.

[21] *Ibid.*

[22] *Ibid.*

[23] Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake, Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 85, No. 82, April 28, 2020, page 23633.

The Fish and Wildlife Service has defined poor livestock management as "grazing conducted in a manner not in accordance with approved allotment management plans or otherwise considered adverse to maintaining natural habitat characteristics."[24] Poorly managed livestock grazing, a known and acknowledged threat to garter snakes, according to the agency,[25] is causing removal, diminishment, and/or significant changes to natural habitat features necessary for garter snakes to survive. Worse, it occurs wholescale within designated critical habitat that the Fish and Wildlife Service should be prioritizing to support garter snake recovery.

Surveying Adverse Modification of Critical Habitat from Livestock Grazing

In Arizona and New Mexico, approximately 11,860 acres of garter snake designated critical habitat overlaps with public lands managed by the U.S. Forest Service and the Bureau of Land Management. Following designation of garter snake critical habitat in 2021,[26] the Center began systematically surveying and quantifying cattle impacts to critical habitat on public lands in Arizona. The rationale for this effort is 1) the well-known harm to garter snake habitat from livestock grazing, and 2) the fact that neither the Bureau of Land Management nor the Forest Service systematically survey and assess the public lands they manage for the health of riparian ecosystems in the context of habitat needs of threatened and endangered species.

Each year professional field biologists document livestock impacts on 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, 2) severity of browsing impacts on streamside woody regeneration, 3) severity and extent of ground disturbances from trailing, trampling and wallowing, and 4) severity and extent of streambank degradation. Multiple georeferenced photo points are taken along each segment to document evidence of harm from livestock.

Each survey is broken down into ¼- ½ mile field-delineated segments of garter snake 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 snake-designated streams, 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 are collated and weighted. Survey results are prioritized by most recent year where survey years overlapped.

From 2021 to 2023 the Center surveyed approximately 69% of designated garter snake critical habitat on public lands for cattle impacts (8,127 of 11,860 acres). Of the total acres

[24] Listing and Designation of Critical Habitat for the Chiricahua Leopard Frog, Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 77, No. 54, March 20, 2012, page 16328.

[25] Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake, Proposed Rules, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 85, No. 82, April 28, 2020, page 23633.

[26] Designation of Critical Habitat for the Northern Mexican Gartersnake, Final Rule, DEPARTMENT OF THE INTERIOR Fish and Wildlife Service, Federal Register, Vol. 86, No. 80, April 28, 2021.

surveyed, 84% (6,835 acres) were found to have moderate to significant adverse modification, which is 58% of the total 11,860 acres of garter snake critical habitat found on public land in Arizona.

The Center's assessments of garter snake critical habitat on public lands in Arizona consistently show that grazing activities are continually diminishing riparian ecosystems on which these imperiled native reptiles depend. Appropriate and adequate vegetation to meet garter snake life- history requirements is often lacking because cattle consistently concentrate in riparian zones, leaving bare, denuded ground and polluted, feces-laden water. Survey results reasonably fit the Fish and Wildlife Service's own definition of overgrazing or poorly managed grazing, where cattle have created conditions that compromise or eliminate habitat required by garter snake populations.

Surveys conducted on the Coronado and Tonto national forests, the San Pedro Riparian National Conservation Area, and several other important public land riparian areas managed by the Bureau of Land Management have all led to litigation over the state and quality of critical habitat because of 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 and photos demonstrate the vast extent of cattle damage to designated garter snake critical habitat across Arizona. Interactive maps are also available.

Figure 1. Cattle impacts on northern Mexican garter snake critical habitat on public land in Arizona.

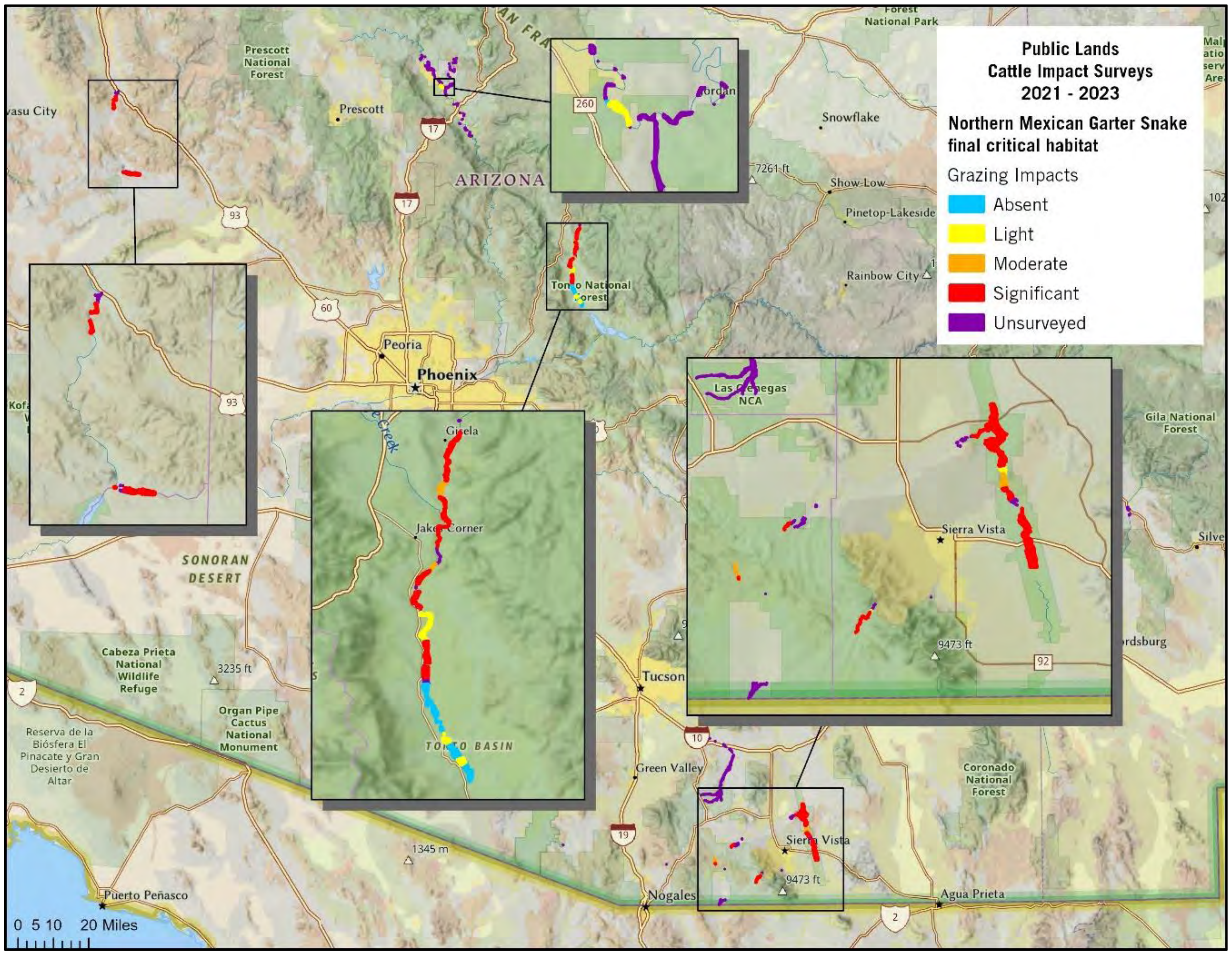

Figure 2. Northern Mexican garter snake designated critical habitat in the Coronado National Forest. 31.479971, -110.569226 (1), 31.510437, -110.617239 (2). June 2, 2021.

Figure 3. Northern Mexican garter snake designated critical habitat on the Tonto Basin allotment, Tonto National Forest, within the Tonto Creek Riparian Unit where no grazing is authorized. 33.897240, -111.306400 (1); 33.896018, -111.306614 (2). June 7, 2021.

Figure 4. Northern Mexican garter snake designated critical habitat on the Babocomari allotment, within the San Pedro Riparian National Conservation Area, Bureau of Land Management. 31.705706, -110.215737 (1), March 19, 2021; 31.709048, -110.206966 (2), March 31, 2023.

Discussion

The Fish and Wildlife Service designates critical habitat under the Endangered Species Act to ensure that this habitat is managed with the primary goal of recovering threatened and endangered plants and animals. The law requires that each federal agency must "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.[27]

Center survey data show adverse modification and destruction of critical habitat from Bureau of Land Management and Forest Service-managed livestock grazing on most the garter snakes' designated habitat on public lands. In violation of the Endangered Species Act and other laws, federal agencies continue to authorize cattle grazing in garter snake critical habitat often without any enforceable measures of protection and with no limits on the number of garter snakes that can be harmed or killed. In many locations, including the Tonto National Forest, there is no consultation in place for grazing allotments that support critical habitat for garter snakes. These threatened snakes and their designated riparian critical habitat therefore depend on business-as-usual livestock management, nonfunctional exclosures and non-applicable cow utilization metrics for their conservation and recovery, with no specific guidance or terms and conditions to avoid harming or killing the snakes.

Ecological conditions on western public lands have worsened recently,[28] mainly because of livestock production in conjunction with a changing climate and a historically unprecedented "megadrought."[29,30] Using public lands for livestock production is known to exacerbate the harms from climate change.[31] Within the past 100 years, an estimated 95% of riparian habitat in the West has been destroyed[32] and, as we demonstrate, this destruction is ongoing. There is no evidence to suggest that climate trends will suddenly change for the better.[33]

Federal agencies recognize this predictable and escalating climate problem but have failed to take meaningful action to mitigate it. Arid lands livestock production is well known to exacerbate and amplify harms from drought and climate change[34] and has a

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[27] 16 U.S.C. § 1536(a)(2).

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

[29] 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.

[30] 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

[31] 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

[32] 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.

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

[34] 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

disproportionally negative effect on rare riparian ecosystems.[35] Therefore, federal agencies that continually authorize known negative stressors such as cattle grazing in riparian critical habitat are responsible for hastening the extinction of threatened and endangered animals and plants.

Recommendations

Despite dire climate projections forecasted for the Southwest, the Forest Service, the Bureau of Land Management, and the Fish and Wildlife Service continue to authorize status quo livestock grazing on federal public lands with no practical or meaningful policies or actions to protect riparian ecosystems or the imperiled native species, such as northern Mexican garter snakes, whose future survival depends on them. Instead, the agencies implement management strategies that provide short-term benefits for livestock permit-holders at the cost of continual ecosystem degradation and removal of what little habitat and cover is available for wildlife.

The Center recommends that agencies exclude livestock from garter snake habitat in Arizona and New Mexico. This is based on our critical habitat survey results and the inability of federal land managers and livestock permit-holders to prevent continued degradation of riparian habitat on the majority of habitat surveyed. This recommendation is also based on the absence of management plans or conservation agreements that meaningfully conserve the physical and biological features that garter snakes depend on,

To ensure recovery of northern Mexican garter snakes, the small, disconnected parcels of designated critical habitat granted by the Fish and Wildlife Service must be protected year-round from livestock. Degradation should no longer be allowed to continue in areas designated as critical to recovering threatened and endangered species. The survival of these imperiled garter snakes will ultimately depend on riparian restoration, not degradation. Such an approach would have significant benefits to the garter snake, and all other wildlife that depend on riparian areas, with minimal harm to the livestock industry.

Keeping livestock out of these areas is the best way to mitigate climate change and aridification, as removal of cattle grazing has been correlated with dramatic increases in native riparian vegetation.[36,37,38,39] Only by eliminating the harm from livestock 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

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[35] 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.

[36] 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.

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

[38] 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.

[39] 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.

on public lands in the Southwest can be dramatically improved simply by excluding livestock from these areas. By eliminating chronic vegetation removal, trampling, and soil compaction and by reducing ongoing sedimentation and erosion, we can finally begin to promote recovery of native ecosystems before it's too late.

According to the U.S. Department of Justice, "it's well settled that cattle and riparian areas do not mix."[40] The Center's survey data reinforce this conclusion. It's time the federal agencies tasked with protecting our natural heritage do something about it.

[40] 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.

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 surveyed[1], 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 West[4] 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,

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[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 soil[13] 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

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[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.
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[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 ranges[22] 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 communities[25] and reestablishment of high-quality habitat[26] 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

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[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 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.

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
Foote 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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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
Corduroy		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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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
Corduroy		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
Negrito/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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**miles**	**percent**	**miles**	**percent**	**miles**	**percent**	**miles**	**percent**	**miles**
Black Range Ranger District	1.03	100.0%		0.0%		0.0%		0.0%	1.03
Corduroy	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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
District/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	miles	percent	miles	percent	miles	percent	miles	percent	miles
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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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, spikedace, 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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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.

	Absent		Light		Moderate		Significant		TOTAL
Unit/ Allotment	**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.

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[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

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[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
	(UNLESS (5) TWOS-` then moderate)	*(UNLESS (3) THREES- then significant)*	