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2026 Cattle Impact Surveys of Critical Habitat Within Areas Closed to Grazing Along the Upper Verde River in Prescott National Forest

Center for Biological Diversity
April 2026

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

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

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

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

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

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

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

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

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

Muldoon Allotment

2025

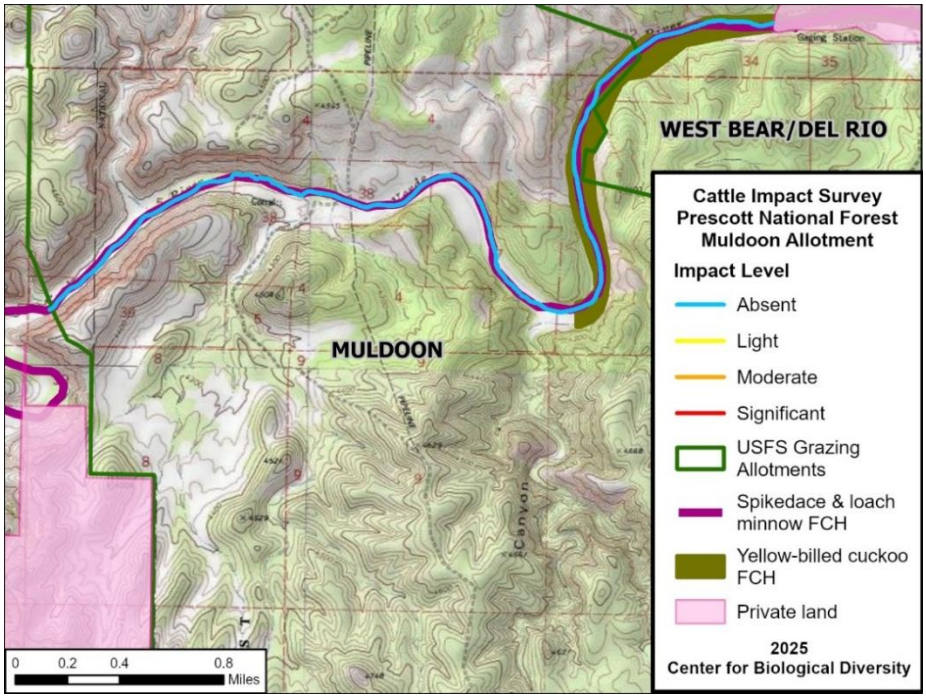

Figure 1. Cattle impacts in off-limits areas of the Muldoon allotment in 2025.

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

2026

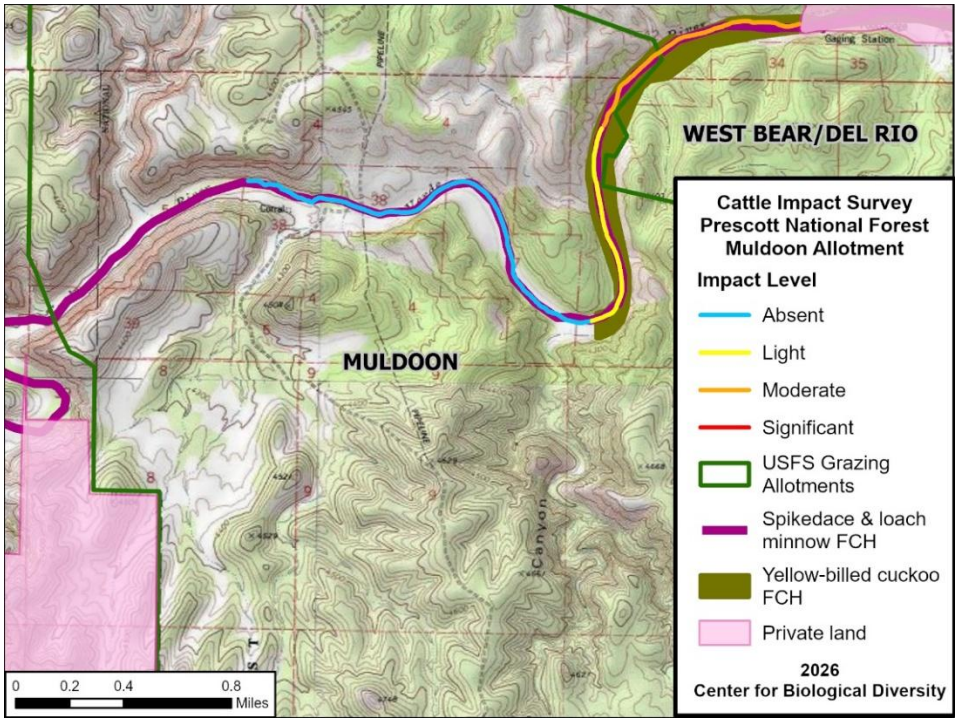

Figure 2. Cattle impacts in off-limits areas of the Muldoon allotment in 2026.

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

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

West Bear/Del Rio Allotment

2025

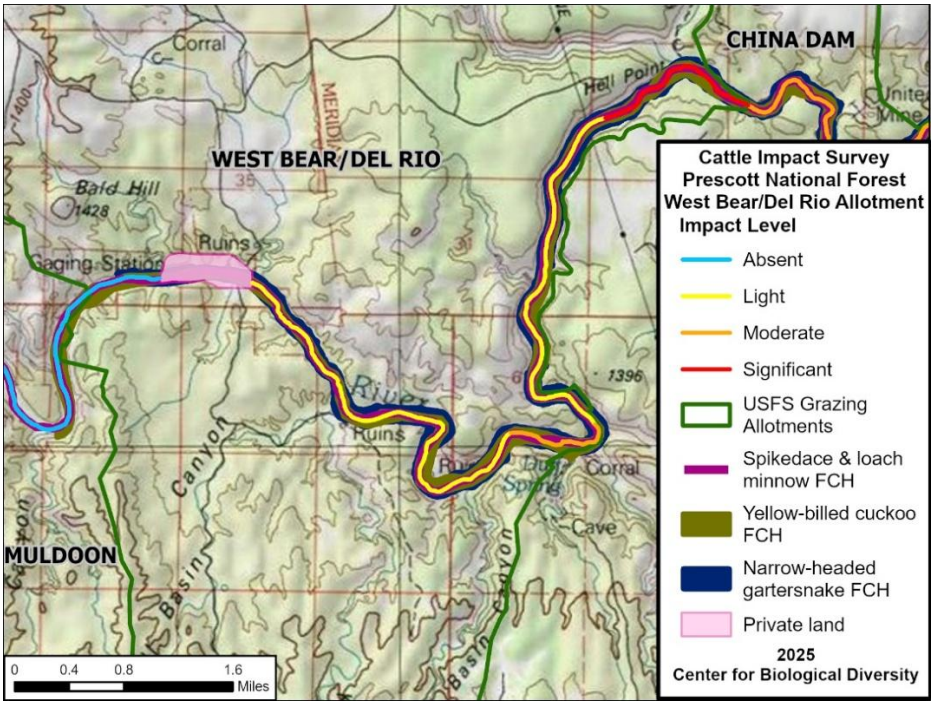

Figure 3. Cattle impacts in off-limits areas of the West Bear/Del Rio allotment in 2025.

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

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

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

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

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

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

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

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

2026

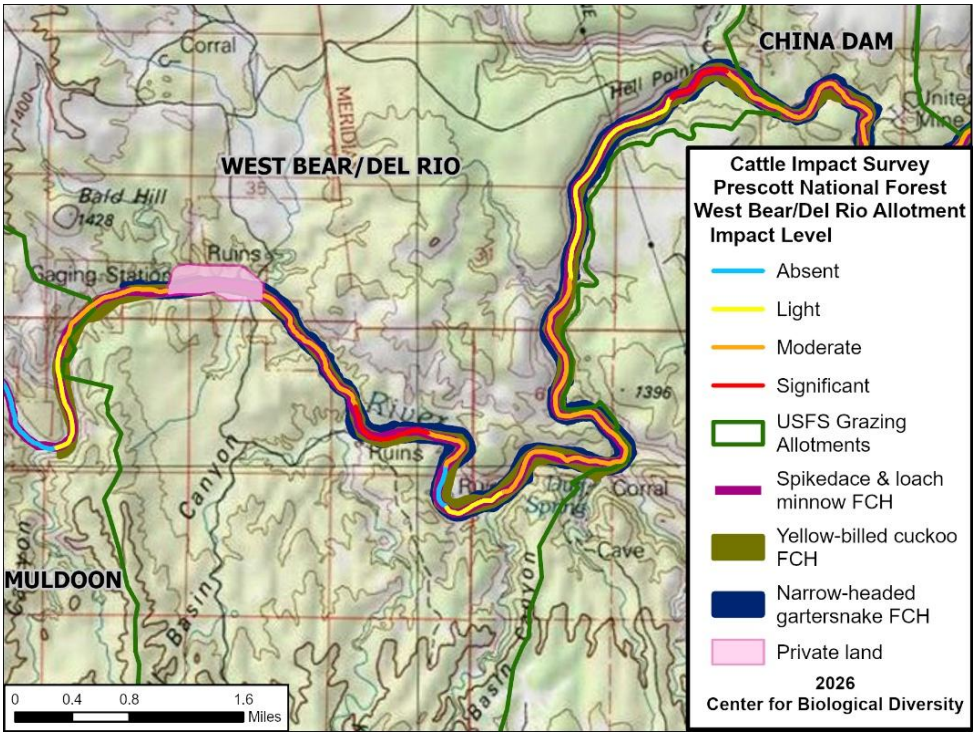

Figure 4. Cattle impacts in off-limits areas of the West Bear/Del Rio allotment in 2026.

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

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

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

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

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

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

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

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

China Dam Allotment

2025

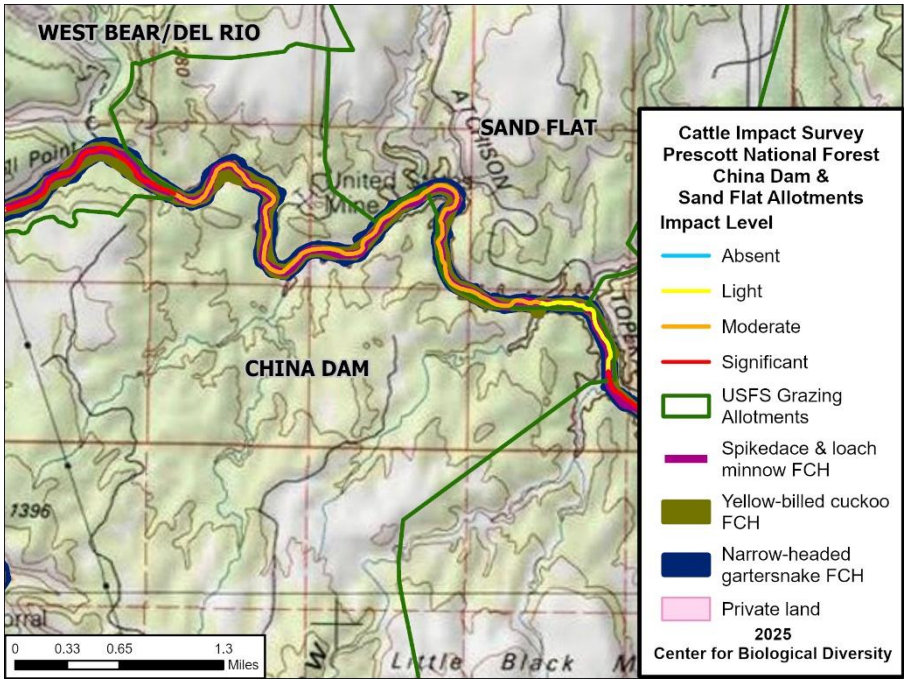

Figure 5. Cattle impacts in off-limits areas of the China Dam allotment in 2025.

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

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

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

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

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

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

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

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

2026

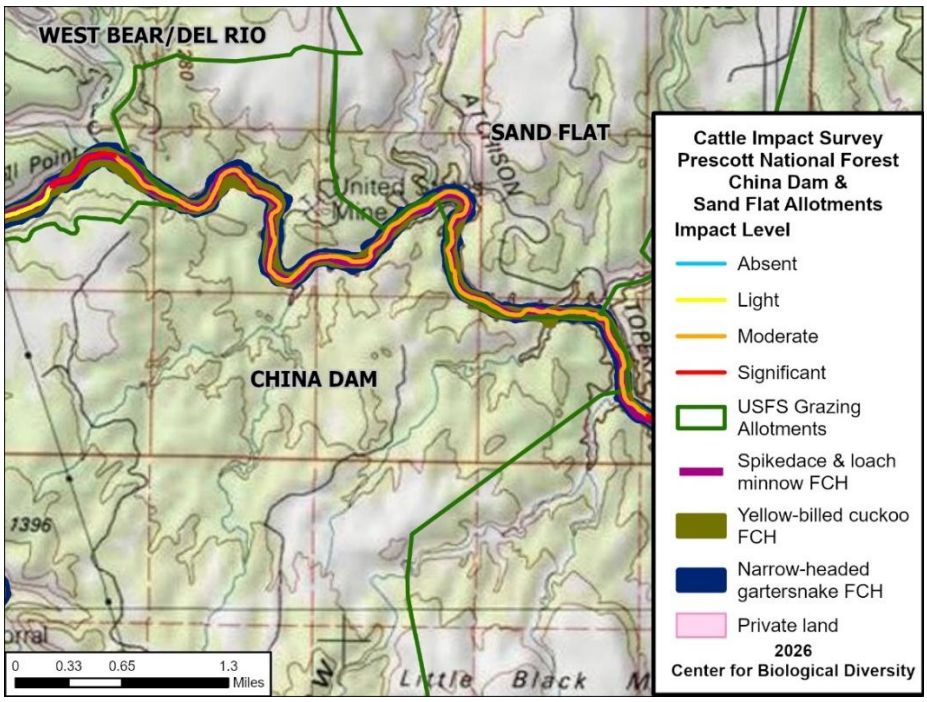

Figure 6. Cattle impacts in off-limits areas of the China Dam allotment in 2026.

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

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

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

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

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

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

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

Sand Flat Allotment

2025

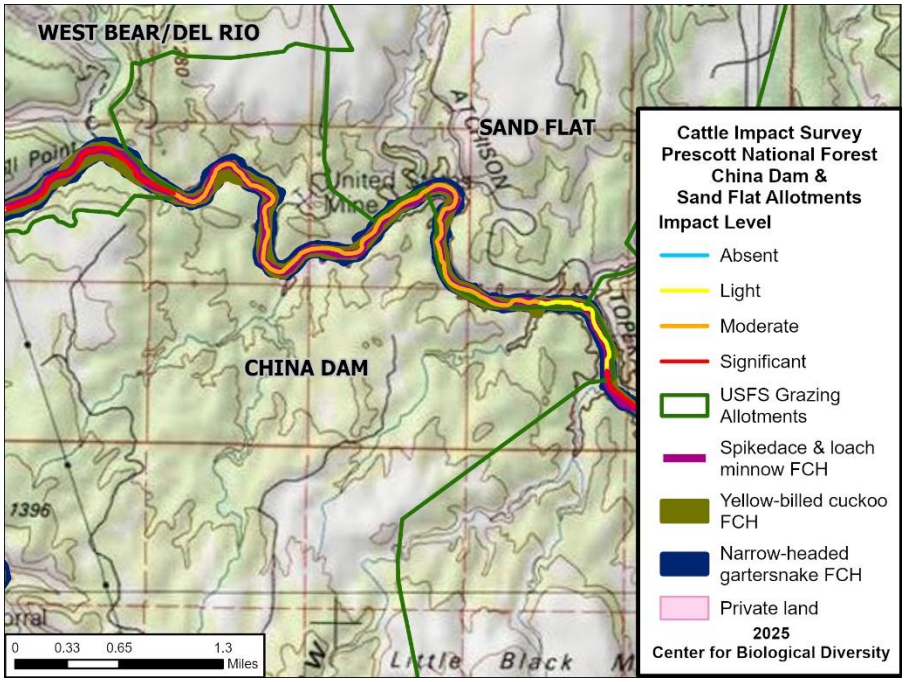

Figure 7. Cattle impacts in off-limits areas of the Sand Flat allotment in 2025.

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

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

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

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

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

2026

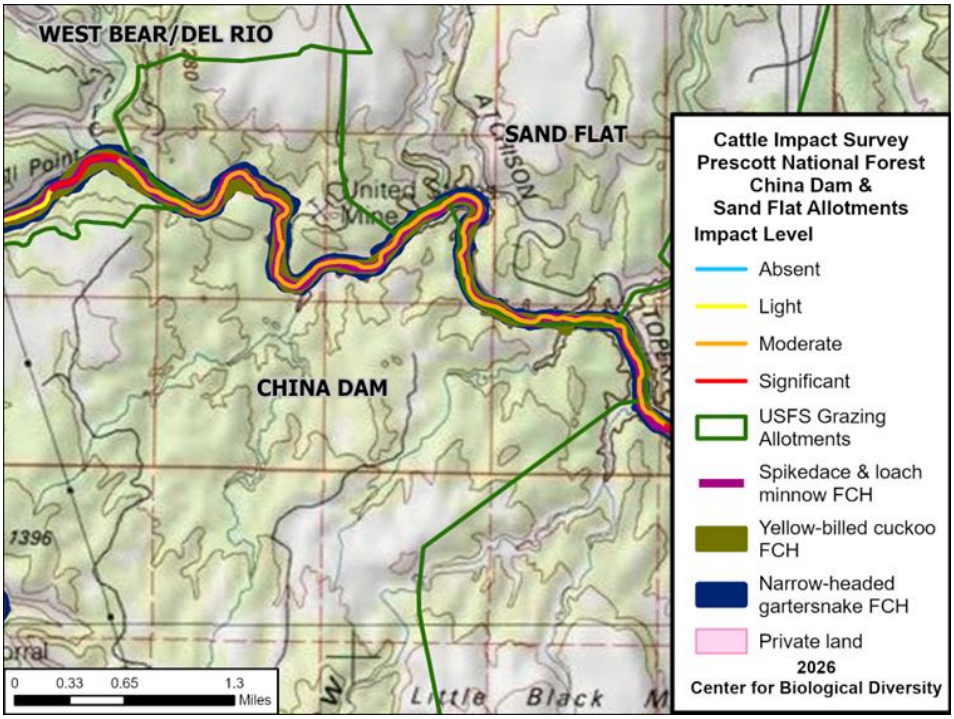

Figure 8. Cattle impacts in off-limits areas of the Sand Flat allotment in 2026.

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

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

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

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

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

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

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

Perkinsville Allotment

2025

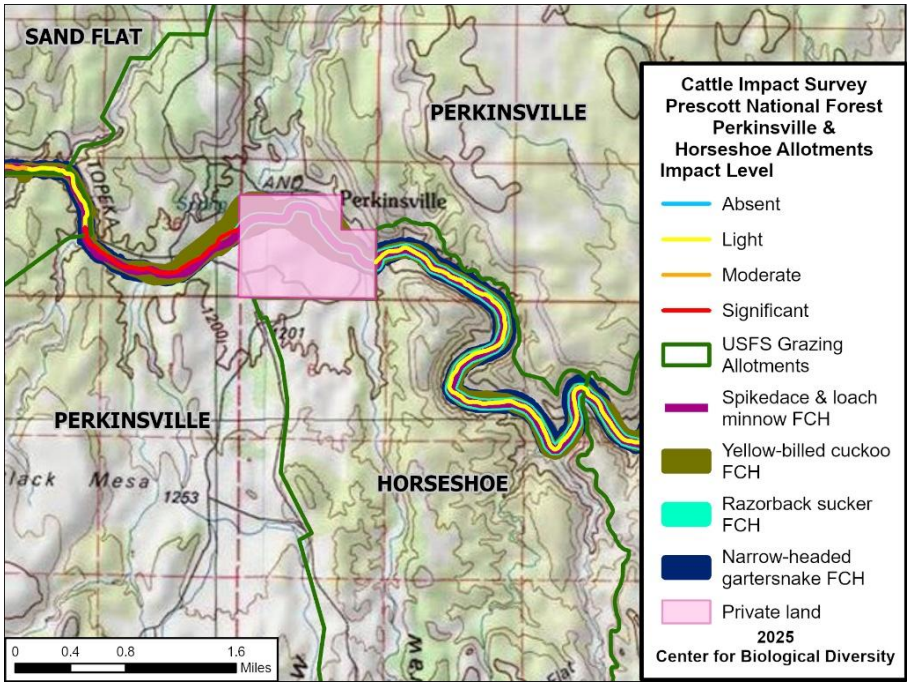

Figure 9. Cattle impacts in off-limits areas of the Perkinsville allotment in 2025.

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

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

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

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

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

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

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

2026

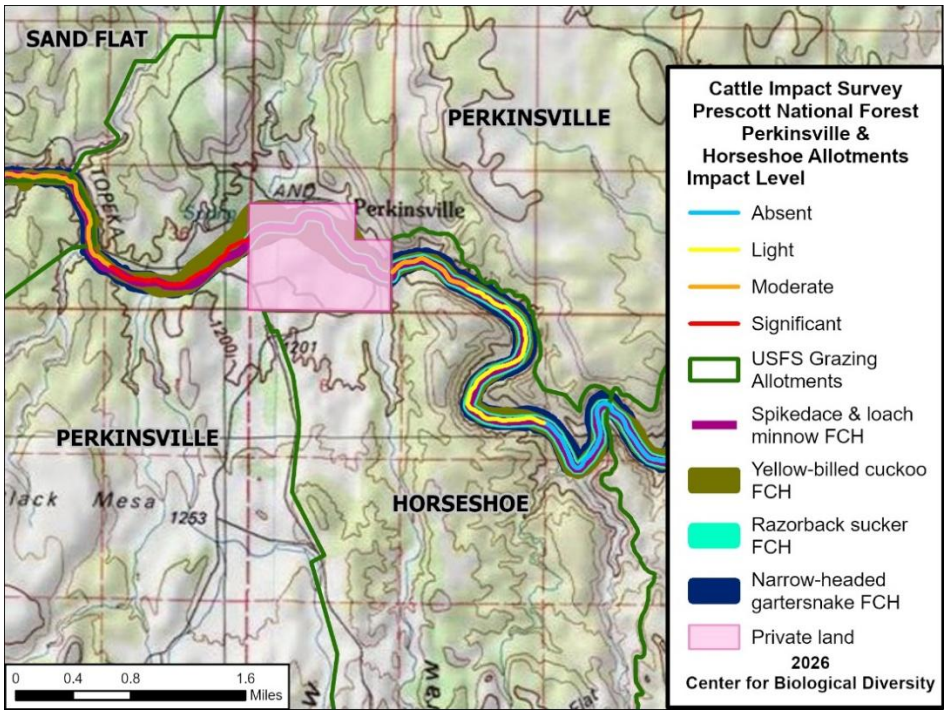

Figure 10. Cattle impacts in off-limits areas of the Perkinsville allotment in 2026.

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

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

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

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

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

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

Horseshoe Allotment

2025

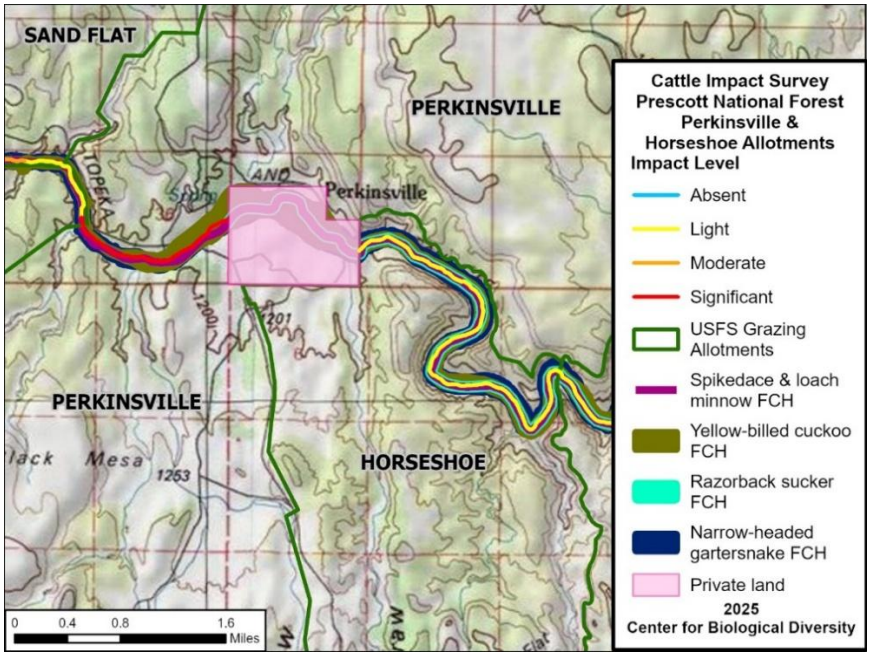

Figure 11. Cattle impacts in off-limits areas of the Horseshoe allotment in 2025.

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

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

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

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

2026

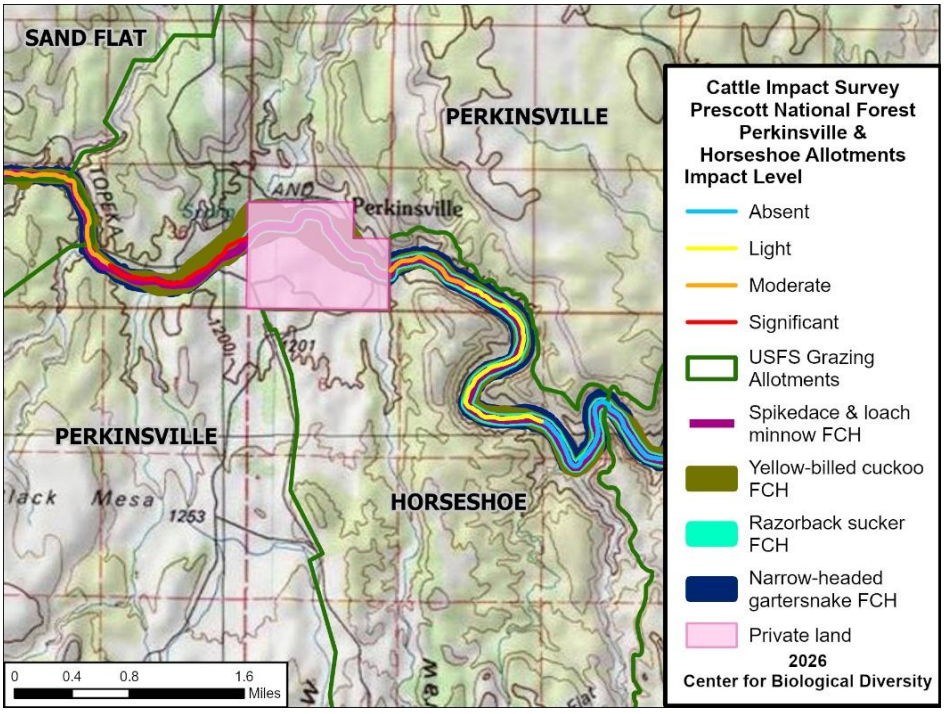

Figure 12. Cattle impacts in off-limits areas of the Horseshoe allotment in 2026.

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

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

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

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

Appendix A. Survey Methods

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

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

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

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

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

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

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

Category	Condition 1	Condition 2	Condition 3	Condition 4
GRAZING EVIDENCE ON GRASSES AND HERBACEOUS GROWTH	**LIMITED** Less than 1% of the 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