



Friends of Ironwood Forest

Fall 2025

Ironwood Forest National Monument Under Threat – Again!



Tom Hannagan addresses IFNM supporters on June 7, 2025



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IFNM Under Threat – Again!

Christine Flanagan
Friends of Ironwood Forest President

The rain is falling as I write this and I can't wait to see what changes it will nurture in our monument. I can almost hear the soil cryptobiota (the true and original form of (ecological) cryptocurrency!) rejoicing in the moisture that will be hoarded until the sky next opens. These modest, but mighty life forms, mostly cyanobacteria, are the colonists that establish fertility and stability in desert soils. Long lived and slow growing,

soil crusts don't attract much attention, but they are vital for the wellbeing of deserts and Ironwood Forest abounds with them. They are the base upon which rest all the ecosystem services that Ironwood delivers—clean air, moisture retention, erosion prevention, habitat, productivity, and biodiversity. These in turn enable thriving wildlife populations, recreation and stress relief for humans, and



The community turned out to support protection of the Ironwood Forest National Monument at the Waterman Trailhead on June 7, 2025. Photo by Kathleen Dreier.

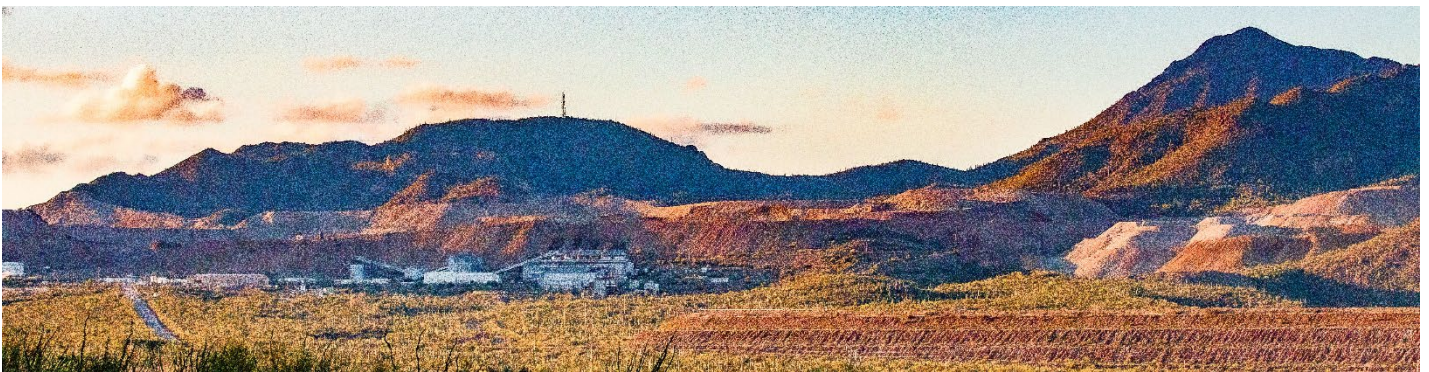
cultural connection to ancient lifeways. How much are these worth?

We can put a price tag on these values, but to those who see public land primarily as a place to raise cattle, extract minerals, tap natural gas, or harvest timber, it only counts when it shows up in the bank account. Yes, public lands support a recreational economy, but it often can't compete with a commodity market or be effectively channeled to the coffers of large corporations. And when extraction begins, even ranchers often lose out.

This isn't idle talk: Once again, Ironwood Forest National Monument is under threat. BLM currently manages the Monument guided by the values stated in Proclamation 7320 signed by President Clinton in 2000. But, if passed, H.R. 5393 introduced on Sept. 16 by Representative Paul Gosar (R-AZ-9), and cosponsored by Eli Crane (R-AZ-2) and Andy Biggs

(R-AZ-5), would nullify the proclamation and the land would lose its enhanced protection. To add insult, their districts all fall outside our monument. Rep. Ciscomani, are you going to let this pass?

But wait, there's more! The Trump administration plans to rescind the Conservation and Landscape Health Rulemaking, AKA, the Public Lands Rule. Enacted in 2024, the rule brought balance to public land management by declaring conservation a valid use. Rescinding the rule would return the agency to the management philosophy of the Federal Land Policy and Management Act of 1976, with emphasis on multiple use to "best meet the present and future needs of the American people." Politicians have different views on what this means, but for nearly all, extractive use frequently wins out. Do we want 247 million acres of public land to be



ASARCO's current Silver Bell Mine, viewed from the Monument's Waterman Restoration Interpretive Site.

managed with low priority or outright disregard for wildlife, recreation or cultural heritage? And what about I-11? Do we want the view from the patio of the Arizona-Sonora Desert Museum to look out over the farms and homes of rural Avra Valley, or over a noisy interstate freeway with the inevitable overpasses and truck stops?

The Town of Marana, City of Tucson, and the Pima County Board of Supervisors have

already come out in strong support of keeping Ironwood Forest National Monument intact and protected. Thank you! But Ironwood Forest needs your support, too. Watch carefully the progress of HR 5393 and contact your Congressional delegation to express your opposition. Public lands are our insurance that open space, wildlife, and the ecosystems that keep our planet habitable will endure. Your support is their best defense.

I'll see you in Ironwood,
Chris

Our Mission

Friends of Ironwood Forest is a local non-profit organization that works for the permanent protection of the biological, geological, archaeological, and historical resources and values for which Ironwood Forest National Monument was established.

FIF provides critical volunteer labor for projects on the monument, works with the Bureau of Land Management and many other partners, and strives to increase community awareness through education, public outreach, and advocacy.

Your Financial Contributions at Work

We rely on the financial support of people like you to help us with our mission to protect the natural and cultural resources of Ironwood Forest National Monument. We also work to increase awareness of the monument and improve visitor experience there.

Please consider donating to support our work. We couldn't do this without you. You can donate online at:

<https://ironwoodforest.org/donate>

Managing Big Horn Sheep in the Monument

Rana A. Murphy

*Senior Terrestrial Wildlife Specialist
Arizona Game & Fish Department*

Did you know: the Silver Bell bighorn sheep herd is one of the oldest “original” bighorn sheep herds in Arizona? Did you know: this herd was nearly wiped out in 2003? Did you know: this herd “exploded” in number for unknown reasons between 2011-2014, and is now one of the most sought-after resources for transplants in the state?

Bighorn sheep across North America have struggled to persist on the landscape since the arrival of European settlers. Competition with non-native ungulates for forage, changes to the landscape such as fencing, water diversion, and fire suppression, unregulated hunting, and exposure to novel diseases from domestic sheep caused this species to decline in number rapidly, leaving less than 30,000 across the United States and beyond by the mid-1800s where they had once numbered in the millions.

Arizona was no exception. Early records indicate that desert bighorn sheep could be found in almost every mountain range, but by the time the first formal census was conducted in 1953, most mountain ranges in eastern Arizona were devoid of this iconic species. The two exceptions in

southeastern Arizona were the Silver Bell and Santa Catalina Mountains.

While there were rumors of bighorn sheep in the Silver Bell Mountains prior to 1963, the first observation recorded by the state’s newly formed Arizona Game and Fish Department did not occur until that year. This observation only consisted of six bighorn sheep, but surveys conducted each year following showed a much broader presence on the landscape. The highest number recorded prior to 2014 was 74 animals in 1992, but the average number typically observed was only 35-40. Similar numbers were also recorded in the Catalina Mountains, but that herd effectively disappeared by the late 1990s, leading to a historic collaborative effort to restore bighorn sheep in that mountain range in 2012-2016. While the new population has not expanded to the extent that wildlife managers had hoped, the herd persists and is available today for the enjoyment of recreationists and visitors to the Catalina Mountains.

Meanwhile, the bighorn sheep of the Silver Bell mountain range continued to be observed and were the focus of a University of Arizona graduate



AZGFD photo by Rana Murphy

student's study in 2003 when an outbreak of keratoconjunctivitis, commonly known as pink eye, occurred shortly after hundreds of domestic goats were discovered in and around the mountains. While pink eye is treatable, it requires securing the animal and applying medication. Securing any wild animal is difficult, but with the aid of helicopters and nets fired from a special "gun", many of the animals known to be infected were treated and survived the outbreak. Soon after pink eye was detected in the herd, another malady

known as sore mouth (contagious ecthyma) appeared as well. This viral infection causes swelling, scabbing, and bleeding of the mouth and lips, and as a result, of the udders of lactating ewes, often reducing their lambs' ability to nurse. The infection itself is not treatable once acquired, but as long as the animal does not get a secondary infection from the wounds, it can survive. A total of 35 bighorn sheep (representing a significant part of the population) were captured and medicated resulting in the recovery of 12 bighorn

sheep with pink eye and 13 with sore mouth, but at least 15 bighorn sheep died as a result of this outbreak. This number may not seem like a lot, but when annual surveys average around 40, 15 is quite a few!

Survey records show a notable decline in the number of ewes observed in the 3-5 years following the outbreak, but overall numbers stayed about the same, usually reaching the long-term average of 30-40 bighorn sheep. In 2011, the herd was deemed stable, and the standardized survey rotation was changed to a once-every-three-year schedule. Then in 2014, the unimaginable happened: the numbers quadrupled! The 2014 survey revealed a staggering 133 bighorn sheep! No significant changes had been made to survey methods; the herd just seems to have grown in size. While it is possible that some bighorns could have migrated from neighboring mountain ranges, they don't normally migrate in large numbers.

A more likely explanation is the increase in water availability created by multiple water catchment rehabilitation projects which were conducted in collaboration with the Arizona Desert Bighorn Sheep Society around that time. Changes in seasonal precipitation amounts over the past few decades have necessitated increased water storage capacity at the catchments; rather than rain falling slowly and steadily in the winter, and to some degree in the summer, the rains now come down hard and fast, with longer periods of



Water catchment rebuild in the western Silverbell Mountains. AZGFD photo by Rana Murphy

time between rainfall events. The deluges experienced today can fill the old storage tanks to capacity almost immediately, causing the following rain events to pass without capturing much runoff because the tanks are already full. Increasing water storage capacity remedies this situation, but is an expensive endeavor, and requires lots of time, planning, funding, and man/woman power! The bighorn herd residing on the Ironwood Forest National Monument has clearly taken advantage of the restoration of the many catchments in the area. Plans to further retrofit water catchments in adjacent ranges, such as the Roskrige Mountains

south of the Watermans, are under way to enable natural dispersal to areas of otherwise suitable habitat that currently are only sparsely inhabited.

Another notable change observed after 2011 was an increase in group size. Early survey records for this herd show observations consisting of small groups of 2-10 animals. More recent observations have included groups as large as 22 bighorn sheep, the most recent survey conducted in 2022 resulting in a total of 140 bighorn sheep observed – a slight decrease from the 162 observed three years prior. But the decrease is easily explained by the capture and translocation of 30 bighorn sheep in 2016, 30 more in 2018, and another 18 in 2021. These translocations served to boost the bighorn sheep population in the Galiuro Mountains, and reestablish a herd in the Picacho Mountains north of I-10. Over 100 bighorns are estimated to live in the Picachos now, as a result of the 2018 transplant effort! Creating and maintaining thriving meta-populations across the landscape is a primary goal of the Arizona Game and Fish Department, as it promotes genetic diversity, and may assist with survival of the species as a whole when disease outbreaks occur. With robust source populations available, it is also possible to repopulate historic habitat devoid of bighorn sheep such as the Picachos (once the reason they disappeared has been determined and mitigated).

Bighorn sheep from the Silver Bell herd are regularly observed during aerial surveys in the Watermans, Pan Quemados, West Silverbells, and even the Samaniegos, located almost 10 miles from Silver Bell Peak. Bighorn sheep have also been detected in the Sawtooth Mountains, although not as regularly. We occasionally receive reports, many with photographs, of wandering rams in far-away places, such as the Las Guijas Mountains just north of the US-Mexico border, west of Nogales, or in the cotton fields west of Picacho Peak. This does not come as a surprise, as bighorn sheep fitted with GPS-point collecting collars have shown extremely long-range movements, particularly by rams during the fall breeding season.

Connectivity between occupied bighorn sheep habitat is vital to maintaining genetic diversity, but disease transmission is the flip-side of that coin. If one wandering ram makes contact with a domestic sheep or goat carrying disease pathogens, then returns to its home range bringing that pathogen with it, the consequences could be devastating. This is why the Arizona Game and Fish Department takes reports of abandoned sheep or goats in bighorn sheep habitat very seriously and makes every feasible effort to retrieve those animals as quickly as possible. We ask that people who no longer want to keep pet goats or sheep do not release them onto the landscape but instead work to find a way to rehome pet or domestic livestock or surrender them for adoption. The best

possible prevention effort is to encourage separation between domestic sheep or goats and bighorn sheep, responsible husbandry practices, and careful management of resources on the landscape that provide habitat for bighorn sheep.

While we have not surveyed the Silver Bell herd in three years, there is no

doubt in our mind that they continue to thrive on the Ironwood Forest National Monument. The next survey is scheduled for late October, 2025, and the results will be summarized on the Department's website:

www.azgfd.com/hunting/hunt-draw-and-licenses/harvest-reporting/



Ewe and lamb spotted during an aerial survey of the Waterman/Silver Bell Mountains in 2018. AZGFD photo by Rana Murphy.

Longtime Board Member & President Tom Hannagan Steps Down

By Mike Cardwell



After more than ten years on the Friends' board – including the last nine as president, Tom Hannagan passed the gavel to Christine Flanagan on July 31. Having only been on the board three years myself, I asked several past board members to provide their thoughts about Tom's leadership.

But first, I have my own anecdote: At our strategic planning meeting in May, facilitator Mike Quigley opened the gathering by asking us to introduce ourselves and explain why we were committed to the Monument and what motivated us to become board members. As we went around the table, our accounts of how we became board members were eerily similar. Each of us, I think without exception, explained how we casually met Tom at some event or other gathering, he struck up a conversation, and – before we

knew it, we were agreeing to be on the board! It makes us wonder, were those casual meetings really so coincidental? But seriously, Tom has skillfully maintained a great group of directors that get along well and get things done for the Monument.

Recollections of previous board members:

I don't recall exactly when Tom was first elected President of the Friends of Ironwood Forest, but under his leadership, we scored some important wins including: defeat of the first "Gosar Amendment," defeat of the unwanted and unneeded "road to nowhere," also known as I-11 in Avra Valley – including signing on as co-plaintiffs to a lawsuit filed by the Center for Biological Diversity to stop I-11.

Tom has organized and participated in many "hands on the

land" workdays, including removal of buffelgrass and trash, and improving wildlife habitat by removing unneeded fences. Fence removal is not a Friends of Ironwood project, per se, but a win for the desert inside and outside of the monument. Several of our members participated. Tom is also a reliable member of the "Meet the Monument" team from set up to take down.

Tom is indeed one of the Ironwood's very best friends.

Bill Thornton
Previous Vice President
2012–2023

Phase 3 of the march upward by the Friends of Ironwood Forest was marked by the ascent of one of our finest leaders, as the organization moved from the fight for survival to the challenges of growth.

The Friends found itself in an important place in the conservation community through hard, meaningful work, to be led by Tom. We had forged ahead through a dark tunnel, and finally were beginning to be more financially stable and starting to make progress with our message. The founders of the Friends put us on a solid and stable foundation in phase 1.

But in phase 2, we lost important funding, forcing our executive director to take her talents elsewhere. We found what it truly means to be an all-volunteer group. Without much money – but with great enthusiasm and faith – the

group recruited Tom to run for President with confidence that he would be the right one for our group. We were not wrong, and we did not let him go.

Gaile James
Previous President, Secretary
& Treasurer 2010–2019

I joined the board of the Friends of Ironwood Forest not too long after Tom signed on. At one of my first meetings, Tom took a break from the meeting and was elected President while he was gone. Kidding aside, he was well aware of the gravity of that decision; we now know that commitment lasted into its tenth year.

Although the FIF board is a very "hands on" group, there is no doubt that Tom led the way on so many events, decisions, protective actions, and board member recruitment. Tom's tenure saw significant changes to the organization including accounting, fundraising and banking. Many of the current board members now leading the board were recruited by Tom.

Those details are mostly "under the hood" for our Friends and volunteers; what most people will remember about Tom is his unrelenting commitment to the Monument. He rarely missed a workday, event, or meeting involving the Monument. Many will remember Tom being the last guy that wanted to keep working!

As well, Tom was always up-to-date on potential threats to the status of the Monument, whether they were from legislative attacks, potential freeway intrusion, illegal firearm discharge, or trash dumping. And then there was the whole challenge of the COVID era. Public Lands demand “Friends” to resist those that wish to depreciate the value of these natural assets. Tom is among the best friends that the Ironwood Forest has ever had.

Tom may have left the President’s position on the board, but he will never change his love for the Monument and surrounding lands, nor his support for the organizations that monitor these public holdings. Tom leaves the Friends of Ironwood Forest board to a competent, diverse, and hands-on organization. It is in good hands.

Dave Barker
Previous Secretary &
Treasurer 2015–2024

September 28, 2025 – The board presented Tom with John Woodin’s award-winning photo of Ragged Top in a custom frame adorned with rusty Desert Fence Buster barbed wire.

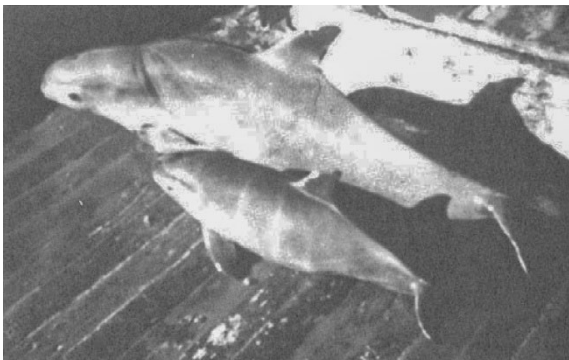
See Ironwood Gallery (page 16) for a larger look at this spectacular photo.



Introducing the Friends' new president: Christine Flanagan

Christine Flanagan assumed the office of President of the Friends of Ironwood Forest on August 1, following the retirement of president and longtime board member Tom Hannagan. Christine brings a wealth of experience and expertise that fits well with the Friends' mission and challenges.

A third generation Arizonan, she spent a decade at the University of Arizona earning three degrees, culminating in a PhD in Ecology and Evolutionary Biology in 1981. But her curiosity and passion for botany soon lured her east, first to the State Arboretum of Virginia, and then to the U.S. Botanic Garden in Washington, D.C. She held various interpretative and curatorial posts at both institutions before becoming Public Programs Manager for a decade at the USBG, until she retired in 2012.



Fun fact: The critically endangered vaquita porpoise was known only from skeletal remains before Christine captured this photo while monitoring bycatch on a fishing vessel in the Gulf of California in 1972.

Returning to Tucson after retirement, she has contributed to too many educational and conservation causes and programs to list here, including serving on the boards of the Inter-cultural Center for the Study of Deserts and Oceans and the Arizona-Sonora Desert Museum.



Photo: Kathleen Dreier

Christine's leisure interests include gardening, garden design, rock collecting and rock art, and listening to live music – particularly bluegrass, and exploring the desert with her husband Allan. But she is passionate about combating invasive plants, especially stinknet...

Stop the **Stink**(net)!
Report at stinknet.org

Christine is equally passionate about protecting our public lands from exploitation. Her combination of diverse training and experience, plus her familiarity with the local environment and community, make her an ideal leader for the Friends and an effective advocate for Ironwood Forest National Monument in these challenging times.



Friends of
Ironwood Forest

From the President

By Christine Flanagan

I am humbled and honored to follow Tom Hannagan as your president. I am inspired by the enthusiasm and dedication of the Friends I have met who give generously of their time, energy, and funds in support of the Monument. But most of all, I am inspired by the public land we know as the Ironwood Forest.

Our monument facilitates connection and boundless well-being: city dwellers find refuge from the stress and noise of the growing urban centers of Tucson, Eloy, and Casa Grande. Wildlife populations thrive and pass

through as they travel among the mountains of Pima and Pinal Counties, preserving the genetic diversity vital to their health. The Tohono O'odham and Pascua Yaqui come to reconnect with the lifeways that sustained them for millennia. Scientists study and credit the monument's intact ecosystems for a host of services that clean the air, retain moisture, combat erosion, and sustain biodiversity.

I look forward to meeting you and other Friends of Ironwood Forest at our upcoming events. Please feel free to reach out to me directly at

christine@ironwoodforest.org

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Arizona Native Plant Society	Pew Charitable Trust
Arizona Game and Fish Department	Pima Association of Governments
Arizona-Sonora Desert Museum	Pima County
Arizona Wildlife Federation	Sierra Club
Avra Valley Coalition	Sky Island Alliance
BKW Farms	Skydive Marana
Bureau of Land Management	Summit Hut
Center for Biological Diversity	Tohono O'odham Community College
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Coalition for Sonoran Desert Protection	Tortolita Alliance
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Historic Y	Tucson Herpetological Society
Marana Heritage Conservancy	Tucson Soaring Club
Marana Parks and Recreation	University of Arizona
National Park Service, Saguaro NP	The Wilderness Society
National Parks Conservation Association	

The Ironwood Gallery

Send us your favorite photographs of IFNM



*Ragged Top with poppies by John Woodin
2nd Place and Judge's pick at Discover Marana's
Ironwood Anniversary Photo Contest*