

WILD SHEEP FOUNDATION

CONSERVATION



IMPACT

FY 2022 - 2023

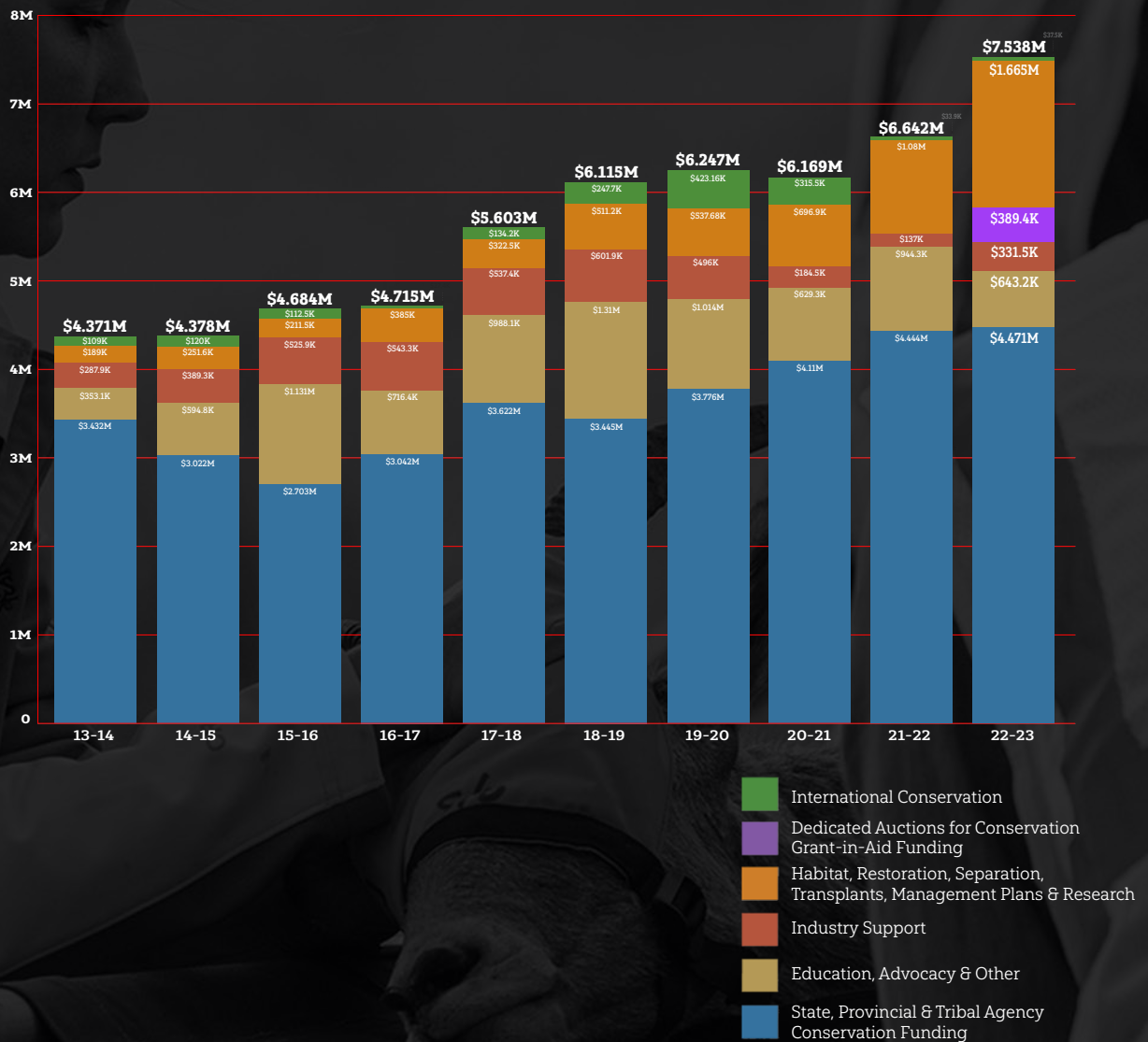




FISCAL YEAR 2013-2014 THROUGH FISCAL YEAR 2022-2023

10-YEAR MISSION PROGRAM FUNDING

\$56.462 MILLION



COVER IMAGE COURTESY
OREGON DEPARTMENT OF FISH
AND WILDLIFE

PROJECT ARTICLES,
UPDATES, AND SUMMARIES
CHESTER MOORE

MESSAGE

From the CEO

The Wild Sheep Foundation (WSF) casts a very long conservation shadow given our relatively small membership size at about 11,000 worldwide. Through exceptional support from our membership, sponsors, donors, and industry partners, WSF has been able to raise and direct during the past ten years more than \$56 million to Mission Program Funding which represents programs enhancing and restoring wild sheep worldwide.

In a relentless effort to improve processes and programs to better achieve our Vision, Purpose, and Mission, during the spring of 2022 WSF revised our Grant-In-Aid (GIA) process to one which better engages our Chapter and Affiliates as participating stakeholders while focusing our GIA on larger, bolder, and multi-year legacy projects from \$50,000 to \$250,000 and more. We envisioned that funding larger projects would act as a catalyst for additional support. It worked.

During the twelve months of July 2022 to June 2023 WSF funded more than \$7.53 million in Mission Program Funding (MPF) including \$1.35+ million to eighteen Grant-In-Aid programs requested through our Chapters and Affiliates, \$1.7+ Million in advocacy, research, education, and industry support GIA funding, plus \$4.47+ Million that was directed to our state, provincial and tribal/First Nation partners through 2023 conservation permit sales.

The following pages showcase the results of our spring 2022 refresh of our Grant-In-Aid funding process and the impact these eighteen projects are having on the wild sheep resource and the habitat they depend on. Our feature spotlight is the I.O.N. Partnership in Idaho, Oregon and Nevada, including Hart Mountain National Wildlife Refuge predator management, plus we provide updates on a multi-partner 3-way Movi testing project in Nebraska, the Harcuvar Mountain project in Arizona, and on-going Hells Canyon Initiative work in the Tri-States of Washington, Oregon, and Idaho, as well as summaries of the balance of the 14 funded projects.

This is your legacy and your work through your generous support. Thank you!

I also want to thank our Chapter and Affiliate partners and funding partners for their exceptional efforts, which together with the Wild Sheep Foundation, help accomplish our collective Purpose to Put and Keep Wild Sheep on the Mountain®! Please enjoy this inaugural WSF FY 2022-2023 Conservation Impact Summary.

Yours in wild sheep and wildlife conservation,



Gray N. Thornton
President & CEO

FY 2022-2023 MAP PROJECTS & FUNDING

Project Description (Sorted Geographically)	Funding Approved
Ungulate Enhancement - Yukon Territory	\$25,000
Movi Sampling Kits for Hunters – Yukon Territory	\$6,095
Prescribed Burns for Wild Sheep Enhancement in NE British Columbia	\$250,087
Ungulate Enhancement - Peace Region, British Columbia	\$100,000
Fraser River (British Columbia) Year 5 Surveillance, Recovery, & Management	\$100,000
Oregon/Idaho/Washington Test & Remove Bighorn Sheep Program	\$177,000
California Bighorn Sheep Population Analysis, Test & Remove, Health and Disease Surveillance in Idaho, Oregon & Nevada (ION Initiative)	\$152,450
Hart Mountain (Oregon) Bighorn Sheep Recovery	\$100,000
Wind River Reservation (Wyoming) Feral Horse Gathering	\$50,000
Chronic Carriers & Bighorn Sheep Population Density: Evaluation/Implementation of Management Tools (Wyoming)	\$40,000
Bighorn Sheep Restoration to Nebraska Panhandle	\$50,000
Desert Bighorn Sheep Collaring on Desert National Wildlife Refuge for Improved Population Management with Alternate Project to install Desert Bighorn Sheep Guzzler (Nevada)	\$19,500
Harcuvar Mountains (Arizona) Desert Bighorn Sheep Restoration	\$50,000
Socorro (New Mexico) BLM Field Office – Landscape-Scale Water Projects	\$106,000
Trap, Test, Transplant Desert Bighorns from Al Campo to Sierra El Alamo (Sonora, Mexico)	\$40,000
Water Distribution & Delivery System – Sierra El Alamo (Mexico)	\$30,000
Field Testing and Management Application of Canine Disease Detection West wide	\$50,000
Edit <i>Transmission</i> Film for Legislator Education & Advocacy	\$7,600
TOTAL	\$1,353,732

These eighteen projects totaling \$1.353 Million in conservation grants, plus an additional \$1.71 Million in advocacy, research, education and industry support funding makes up \$3.06 Million in Mission Program Funding funded through WSF operations during our July 1, 2022 through June 30, 2023 fiscal year.

This \$3.06 Million added to the \$4.47 Million that was directed to our state, provincial and tribal/First Nation partners through 2023 conservation permit sales totals an incredible \$7.538 in Mission Program Funding. This is the fifth consecutive year of more than \$6 Million Mission Program Funding WSF has directed annually to Put and Keep Wild Sheep on the Mountain®.

CONSERVATION PARTNERS

During FY2022-23, the Wild Sheep Foundation was privileged to receive Grant-in-Aid funding from Take One, Put One Back donors at the 2023 Sheep Show®, the WSF Life Member Gregg Eriksmoen bequest, plus the following conservation partners.



Additional support was provided by the following Wild Sheep Foundation Chapters & Affiliates.

Alaska Wild Sheep Foundation | Arizona Desert Bighorn Sheep Society | California Wild Sheep Foundation | Elko Bighorns Unlimited | Fraternity of the Desert Bighorn | Idaho Wild Sheep Foundation | Iowa Foundation for North American Wild Sheep | Midwest Chapter Wild Sheep Foundation | Montana Wild Sheep Foundation | Nevada Bighorns Unlimited – Fallon | Nevada Bighorns Unlimited – Midas | Nevada Bighorns Unlimited – Reno | New Mexico Wild Sheep Foundation | Northern Guide Association | Oregon Wild Sheep Foundation | Texas Bighorn Society | Utah Wild Sheep Foundation | Washington Wild Sheep Foundation | Wild Sheep Society of British Columbia | Wyoming Wild Sheep Foundation | Yukon Wild Sheep Foundation

HOW CAN YOU HELP?

Whether we start by obtaining the required funding or determining significant projects to finance, our fundamental objective is to enable activities that conserve wild sheep. There is no other organization solely dedicated to wild sheep, and nobody does it better. This leaves us with just two questions: If not WSF, then who, and will you help us?



The Wild Sheep Foundation is a non-profit, tax exempt organization under Section 501(c)3 of the United States IRS Code. Donations are tax deductible to the full extent allowed by law. To make a credit card donation to the WSF Conservation Impact Projects or the Take One, Put One Back program, simply scan the QR code at left.

If you're interested in donating to the Wild Sheep Foundation by other means or to our other projects not listed on our donation web page, please contact Paige Culver, WSF Development Program Manager at (406) 404-8758.

CALIFORNIA DREAMING

I.O.N. Partnership Invests In Future Of California Bighorn Conservation, Hunting

C&A Partners: Idaho WSF, Oregon WSF, Nevada Bighorns Unlimited—Reno, NBU Fallon, NBU Midas, & Elko Bighorns Unlimited

A once-in-a-lifetime California bighorn tag is the stuff of dreams for sheep hunters. And as KC Ramsey glassed a massive ram while scouting a few weeks before the 2021 Idaho season opener, an ominous figure emerged in his field of view.

"I could see a giant ram sleeping, totally oblivious to its surroundings, and a tom mountain lion tucked in the rocks and ready to end this ram's ten-year career. It was a hunter's dream come true and a worst nightmare all at once," he said.

At 1,400 yards, he and his friends watched helplessly as the lion tried to get into position for an attack in the steep terrain, but after more than 10 minutes, it finally gave up and walked away.

"I was grateful the lion didn't make the kill then but nervous about what might happen in the coming weeks," he said.

Ramsey bagged a 170 2/8 ram on the third day of the season, ending a quest that captures the essence of the rugged, adjoining landscape of Idaho, Oregon, and Nevada (I.O.N.).

It is a truly wild place where extreme encounters and unforgettable hunting opportunities meet serious management challenges.

That's why, in 2022, the Wild Sheep Foundation (WSF) and WSF chapters and affiliates in the region, along with agency and tribal allies, connected as the I.O.N. Partnership. The goal is to combine resources, expertise, and experience to create a sheep hunting and conservation legacy for California bighorns on this shared ground.

Icon of the I.O.N.

The California bighorn is a distinct subspecies that serious sheep hunters revere, but its existence has flown under the radar of the greater hunting community. The rams are typically leaner and have wider flaring horns than Rocky Mountain rams, and they have darker coats.

This area has a long history of record-class rams and conservation wins, but the collective population is down 50 percent from just 20 years ago.

"WSF wanted to step up our wild sheep conservation funding to include larger, landscape-scale projects. This tri-state collaborative I.O.N. Partnership project does just that, as management approaches are shared and coordinated across state lines," said Kevin Hurley, WSF Vice-President for Conservation.

WSF committed \$152,450 for fiscal year (FY) 2022-23 and has continued support with \$210,000 for FY 2023-24.

"Sheep tags in this region are truly once-in-a-lifetime for those fortunate enough to draw, and that's not something that's lost on the group's members," said Kevin Martin, 1st Vice President of the Oregon Wild Sheep Foundation.

"These are incredible animals. They are regal and beautiful and can navigate the most difficult terrain. When a hunter gets that once-in-a-lifetime tag, we want them to be able to fill it and have that incred-

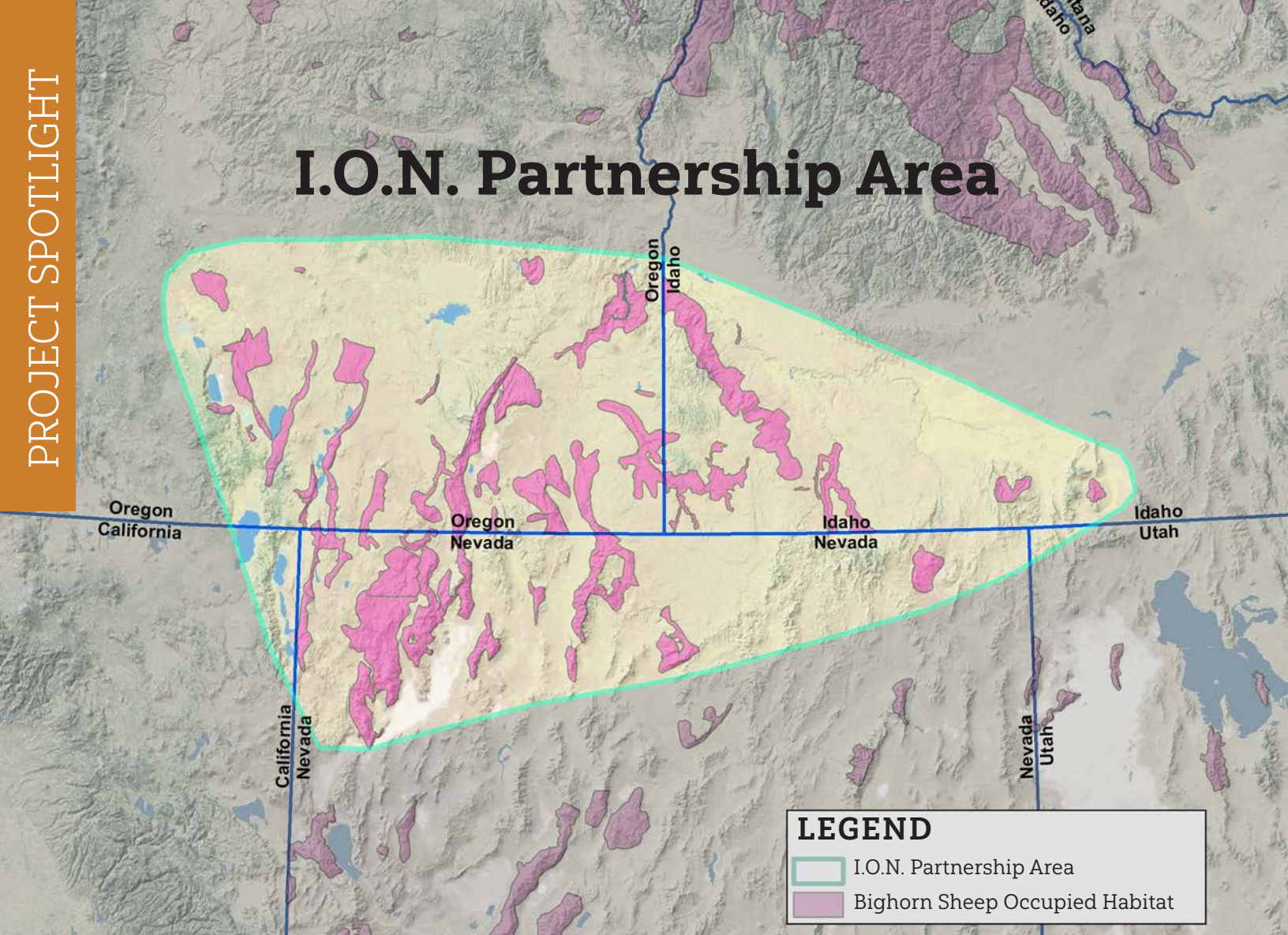
"I could see a giant ram sleeping, totally oblivious to its surroundings, and a tom mountain lion tucked in the rocks and ready to end this ram's ten-year career. It was a hunter's dream come true and a worst nightmare all at once," he said.

RIGHT: KC Ramsey admires the impressive horns of the ram he harvested in Idaho during the 2021 season.

COURTESY KC RAMSEY



I.O.N. Partnership Area



ible moment of harvesting a bighorn. The I.O.N. Partnership will go a long way toward making that happen and securing populations of these great animals well into the future as we face some big challenges.”

Dealing With Disease Head-On

Mycoplasma ovipneumoniae (Movi) is the deadly respiratory pathogen that bighorns have faced since they first met domestic sheep and goats.

It is well-documented to wipe out entire herds and most vigorously cut off lamb survival. Dealing with disease will be the chief priority for the I.O.N. Partnership.

“Movi is something everyone involved in sheep conservation understands is the major obstacle. This partnership will help us get a better look at what’s going on across the different areas and how we can conserve and increase our herds,” said Tom Fennell with Nevada Bighorns Unlimited.

With disease, it makes perfect sense to work with a regional mindset.

This area provides strong connectivity for big-

horns and other wildlife, such as mule deer, and that’s typically a positive. But as with everything involving wild sheep, this too is complicated.

If a healthy herd increases and they expand into a sick herd, the cycle of early and unnecessary death often repeats.

“One of the great things about the I.O.N. Partnership is since we are managing shared lands and herds, we are working together to address the disease issue and communicating things we’re all facing in our states,” said Mike Cox, the statewide bighorn and mountain goat biologist for the Nevada Department of Wildlife.

A key component is test and remove, a strategy to help herds return to a healthy status. It involves

RIGHT: During FY2022-2023, more than 120 bighorn sheep were captured, collared, sampled in the I.O.N. Partnership Area. Of those, three were removed after their test results came back positive for Movi. At right, Stacey Davis Dauwalter of IDFG tends to a ewe during a capture in Idaho.

COURTESY IDAHO FISH & GAME – B. PEARSON



Scan to watch a
6-minute video about
the I.O.N. Partnership.

A Silverline Films
Production



3 STATES

121 Number of Sheep
Captured, Collared,
and Tested in
Idaho, Oregon,
and Nevada100+
VOLUNTEERS

capturing and testing bighorns for Movi and euthanizing infected bighorn sheep.

Last year, the WAFWA Wild Sheep Working Group and WSF held Test and Remove Workshop 2.0 at the Sheep Show in Reno, Nevada.

Scientists from throughout North America presented to a group of 65 sheep researchers and managers, with more than 100 others viewing online on this crucial topic.

And despite constant discussion of viral variants, algorithms, and testing, the feel in the room was not only academic.

When Jesse Bone's award-winning test and remove documentary *Transmission* played, there were few dry eyes in the room. In the scenes showing the hard but very correct decision to kill infected sheep, the emotions were palpable.

"We have great admiration for these animals, and what sometimes has to be done on a test and remove event is something no one enjoys doing," Cox said.

And while contact with domestic flocks remains a problem, it is not the only one.

"Super Shedders" within the bighorn herds are highly problematic.

"Just like COVID, there are some weird things that happen to a person's immune system or, in this case, a bighorn's immune system. In some of the sheep, the immune system kicks in, and they return to being healthy, but they still have this pathogen, and it's kind of bizarre. It has traits of a bacteria and a virus, and bighorns shed it in their snot and when they cough, and they can share that active pathogen with other animals for years," Cox said.

The Santa Rosa herd has about 150 left of a herd that once numbered 350.

"Movi hit there in 2004, and it's still on the landscape," Cox said.

"These states are all committed to working toward disease-free herds, and this I.O.N. Project allows us all to take a big step in that direction."

Not all aspects of test and remove are grim.

Biologists fit healthy captured sheep with GPS collars, which allow for a level of tracking that wildlife managers of the past could only dream of having. This information is shared among agencies and throughout the states to continue an ongoing database of bighorn movements and population trends.

RIGHT: A screenshot from a video taken during an aerial infrared survey on January 31, 2023, in Oregon. Along with Movi, mountain lions and other predators are a serious threat to bighorn populations throughout the I.O.N. Partnership area.

COURTESY OWYHEE AIR RESEARCH

Year	Date	Subherds Sampled	Total Captured and Sampled	Collared	Ewes	Rams	Movi ELISA Positive	Movi PCR Positive	Euthanized
2021	1/20	Peterman/Porcupine Creek	4	4	3	1	4	2	1
2021	3/21	Peterman/Andorno Creeks	3	3	3	0	2	1	1
2022	8/23-26	Peterman, Porcupine, Andorno, and Martin Creeks; Eight Mile Area	31	29	26	5	26	3	
2022	2/11-13	Peterman/Andorno Creeks; Sawtooth Mountain; Eight Mile/McConnel Park; Calico Mountain	19	18	17	2	13	1	1
2022	8/3-5	Martin Creek; Calico Mountain; Eight Mile Area	21	19	20	1	15	0	
2023	8/7-9	Martin Creek; Calico Mountain; Eight Mile Area	20	19	18	2	?	2	
		Totals	98	92	87	11	60	9	3

Test and Remove efforts on the Nevada's Santa Rosa Range over a three-year span.

The Perfect Sheep Predator

Mountain lions are considered one of the top game animals in the West.

Hunters and other wildlife enthusiasts respect them for their cunning skills and ability to remain nearly invisible within their range when pressured.

But lions like elk, bears, or other game animals need management.

That was the official conclusion of the U.S. Fish & Wildlife Service and Oregon Department of Fish & Wildlife regarding lions and bighorns in Oregon's

Hart Mountain National Wildlife Refuge.

Following an in-depth study of California bighorn decline there, they completed and published an Environmental Impact Statement (EIS). It stated that California bighorn sheep in the area were on the verge of extirpation (localized extinction).

"The plight of the herd compels us to take urgent action in a measured and focused manner. Since 2017, the herd has declined by almost 70 percent, and the continued downward trend of the population necessitates immediate management intervention."



In 1992, 400 sheep lived on the refuge. By 2017, they had declined to 150, and by 2020, it was down to 48 animals.

A \$100,000 FY 2022-2023 Grant-In-Aid from WSF aided the short-term goal of mountain lion control suggested by the Hart Mountain Bighorn Sheep Management Plan & EIS.

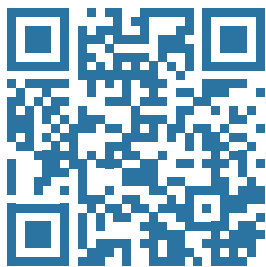
KC Ramsey not only had the intense mountain lion sighting profiled at the beginning of this story but also had another significant moment involving a lion during his hunt that is very pertinent to the overall predation topic.

Two large rams seen during scouting expeditions disappeared once the season opened.

Two of his friends were glassing one canyon while he glassed another, and they saw birds circling at the bottom.

"Having a bad gut feeling, they knew it had to be one of the two missing rams. Nature deals with some cruel and unfair situations, and this was one of them. That lion had stayed the course of survival and killed the ram I had set my hopes on just before my hunt," Ramsey said.

"We've found that a video is a powerful tool, and we're excited to be able to share the issues facing bighorns with the public and the work done to make a difference. Outreach is an essential part of I.O.N., and embracing video and social media is vital," London said.



Scan to watch *Going Big*.

"He was everything we knew from watching him—a ten-year-old giant ram. The timing of this was something you can't make up. He had escaped this situation more times than we will ever know and finally got caught."

Yes, Ramsey's hunt ended on a highly positive note, but owning lion hounds and having a deep understanding of these carnivores has given him solid and sobering insight into this predator issue.

"There are many lions out there, and they are making an impact. I

have seen it firsthand. Hunting is an important part of wildlife management, and it's one of those situations where the lions are putting real pressure on the herd. Any predator control work could be a real positive for the sheep."

A Hard Look at Genetic Diversity

In addition to disease and predation, a growing concern for California bighorns of the territory is genetic diversity.

"These animals have a family tree that looks like a palm tree. It doesn't have many branches," said Bill London, Past President of the Idaho Wild Sheep Foundation.

London served many years as a conservation officer for Idaho Fish & Game and said California bighorns were eliminated from Idaho, Oregon, and Nevada by the late 1940s. Sheep in the region can trace their roots back to several eras of translocations dating back to 1954, with significant efforts in the 1960s. The stock all came from British Columbia.

"The transplants tended to be from the same areas, and if you watch sheep, the ewes tend to run in maternal groups, so when you're capturing sheep, you're also maybe capturing a thinner genetic band, if you will," London said.

An intriguing graphic in the Idaho Fish & Game Bighorn Sheep Management Plan shows the genetics of every collared animal at the time of publication.

"There's a different color for where it came from. It's interesting because you might have a Rocky Mountain bighorn population that's had transplants from three or four different locations, but one or two stand out among the population. But when you get to the California bighorns on that graph, it's almost all the same color."

London said this issue affects not only Idaho but other areas as well, and some of them have no Movi and low lamb production.

"Predators can have a big role in lamb survival, but when the lambs just aren't hitting the ground, a genetic bottleneck is possible, and we'll need to look at it more closely."

All three states are taking genetic samples of captured and collared sheep and are beginning to take a deeper look at genetics as this partnership grows. Future considerations could be transplanting sheep with genetic diversities from other areas to strengthen herd health.

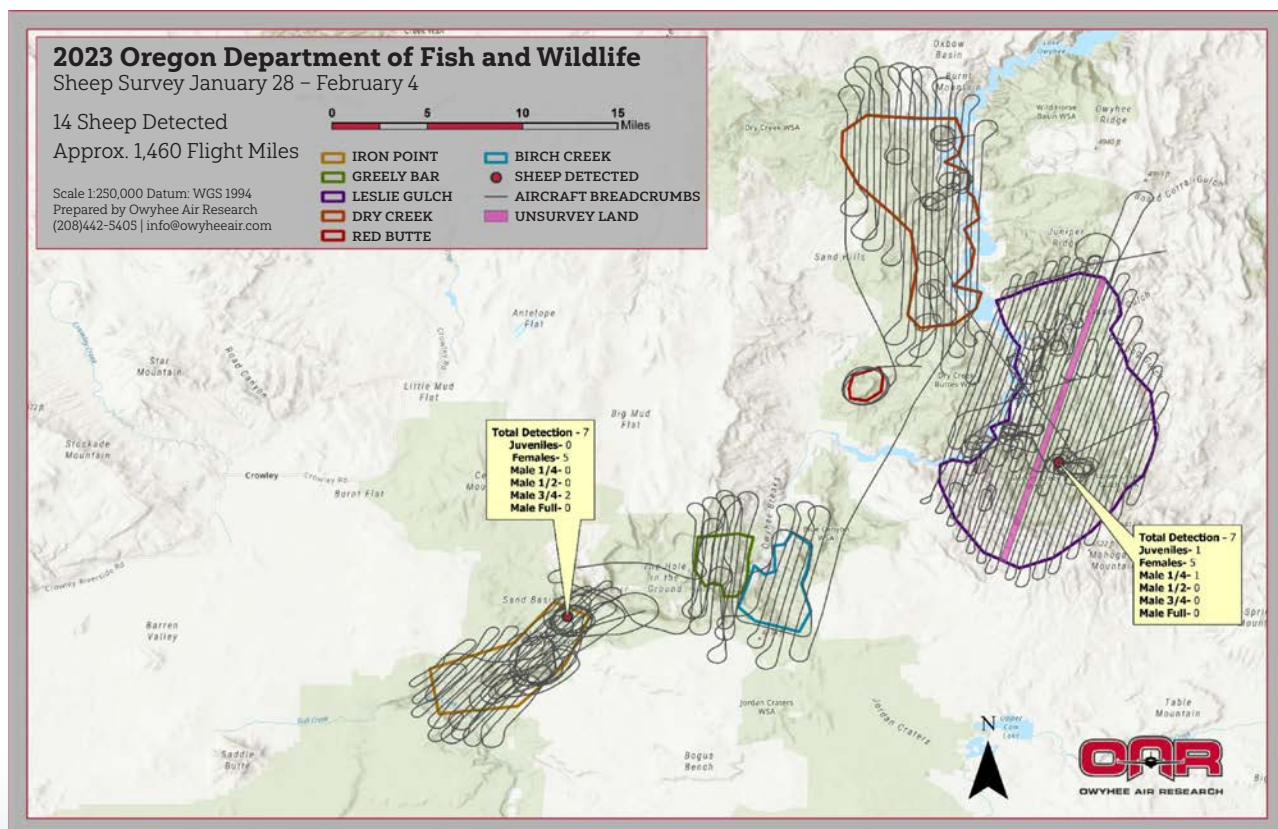
This project is not just about using strategies that worked somewhat in the past, but it is also trying new things that could help secure the future.

New, tech-centric strides also expand into social media outreach.

A key component is using video to bring to-

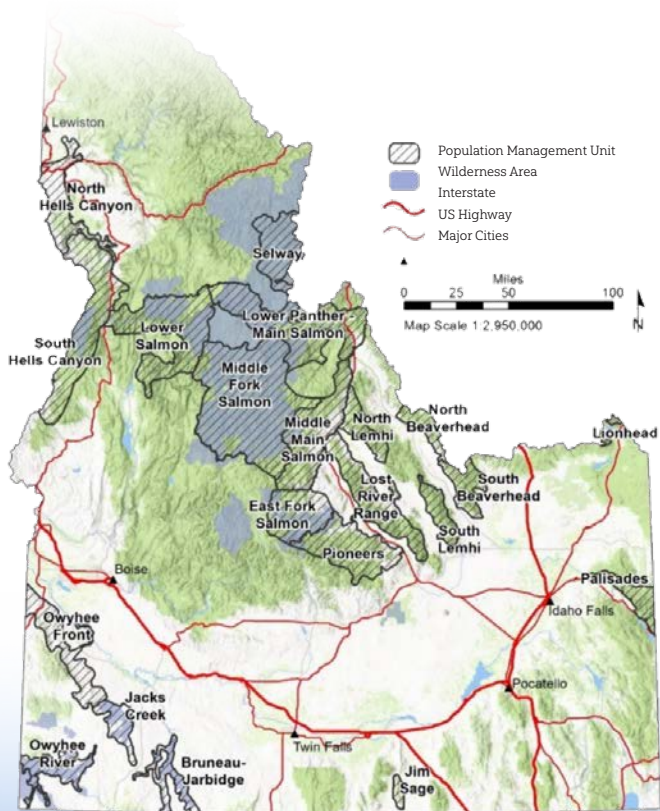
A crew of volunteers and biologists assist with monitoring the vitals of captured California bighorn sheep in southeast Oregon, Idaho and Nevada with the Oregon Department of Fish and Wildlife in January 2023. Keeping an animal's body temperature low within a safe limit is critical.

COURTESY OREGON DEPARTMENT OF FISH & WILDLIFE | ADAM BAYLOR



Survey area boundary and detections of bighorn sheep aerial survey. Flight tracks are shown to illustrate coverage and search efforts. The magenta square in the center of the Leslie Gulch polygon represents the portion of land that was not covered due to technical error.



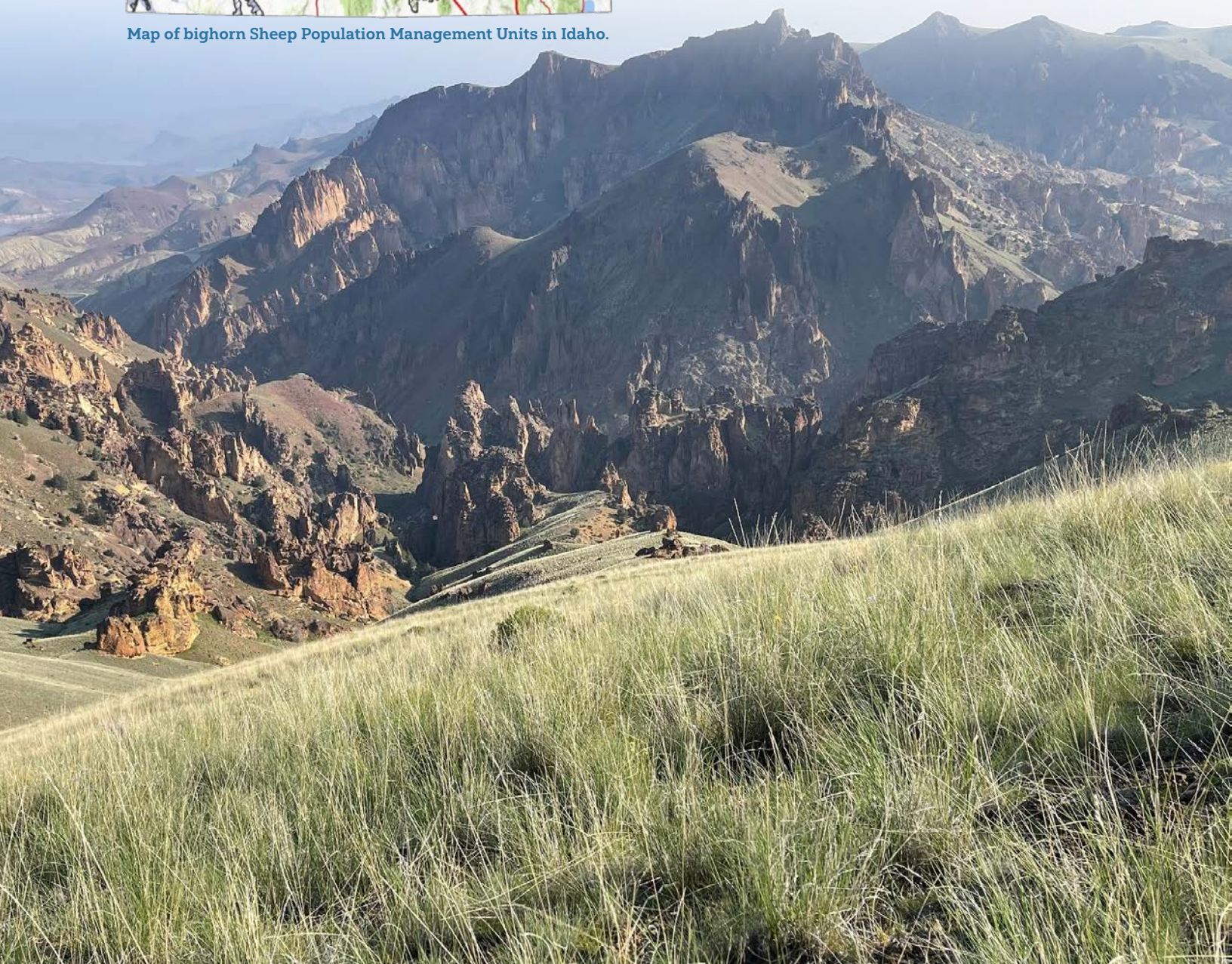


Map of bighorn Sheep Population Management Units in Idaho.

Population	Number Captured	Date
Owyhee Front	12	December 2022
Jacks Creek	27	December 2022
Jim Sage	15	December 2022
North Hells Canyon	38	December 2022
South Beaverhead	16	March 2023
Lower Panther Main Salmon	60	March 2023
Lower Salmon	34	March 2023
South Hells Canyon	13	March 2023
Total	215	

Total number of bighorn sheep captured in 9 Population Management Units during December 2022-March 2023.

Below: View of Idaho's Owyhee Front.





Walter Chuck pictured with his California bighorn ram taken in Oregon during the 2012 season.

COURTESY WALTER CHUCK

gether beautiful imagery, a heartfelt narrative, and a deep look at the issues facing California bighorns in the I.O.N. region.

A video titled *Going Big*, shared on YouTube and other social platforms, has reached beyond sheep hunting circles.

"We've found that a video is a powerful tool, and we're excited to be able to share the issues facing bighorns with the public and the work done to make a difference. Outreach is an essential part of I.O.N., and embracing video and social media is vital," London said.

Investing In Hunting's Future

Walter Chuck took the second-largest California bighorn in North America in 2012.

A longtime member of the Oregon Wild Sheep Foundation, he is now president of the group and said the experience inspired him to do even more for conservation.

"Taking a ram is a special experience, and my hunt had a profound impact on me and made me want to do more to help these incredible animals," Chuck said.

That included partnering with a taxidermist

"Make no mistake, hunter-conservationists are the heartbeat of wild sheep management. The success of the I.O.N. Partnership will give hunters, even in coming generations, new opportunities that we hope inspire them to stand for sheep across Idaho, Oregon, Nevada, and beyond."

Walter Chuck, OR WSF President

who made replicas of his ram's horns.

"We sold them to raise money for sheep conservation and made more than \$14,000. It was a fun way to raise funds and do something positive for sheep," Chuck said.

He said looking back at sheep numbers in the area a decade ago compared to now shows much work ahead. And it's the love of wild sheep and hunting that continues to fuel his desire for others to have experiences like his.

"The I.O.N. Partnership is important for the conservation of the California

bighorns of the region and for future hunting opportunities. With the effort and cooperation put into this, there can be a bright future for sheep here and more opportunities for sheep hunters to live their dreams."

Wild Sheep Foundation President & CEO Gray N. Thornton said this type of high-level, concentrated teamwork will help secure the future of sheep in the region and inspire coming generations of hunters to get involved.

"Make no mistake, hunter-conservationists are the heartbeat of wild sheep management. The success of the I.O.N. Partnership will give hunters, even in coming generations, new opportunities that we hope inspire them to stand for sheep across Idaho, Oregon, Nevada, and beyond."

Wild places are, by their very nature, challenging. What draws people to venture beyond the pavement is not only the beauty but the test of facing and overcoming obstacles to see what is out there.

For hunters, the ultimate prize here is a mature California bighorn ram. And with the I.O.N. Partnership forging ahead with focus, collaboration, and passion, the future is looking brighter for California bighorns and those who dream of pursuing them.



The crew with the Working Dogs for Conservation waited in the wings to have sheep fecal samples brought to them for testing so the dogs' presence wouldn't stress the captured bighorns.

3-WAY DIAGNOSTICS

Nebraska's Bighorns Benefit From Collaring, New Testing Methods

C&A Partners: Iowa FNAWS, Alaska WSF, Arizona Desert Bighorn Sheep Society, California WSF, Idaho WSF, Midwest Chapter WSF, Montana WSF, New Mexico WSF, Oregon WSF, Texas Bighorn Society, Utah WSF, Washington WSF & Wild Sheep Society of BC

Funding Partners: Gilchrist Foundation; Grizzly Outdoor Corps

The rugged buttes, mesas, and canyons in Nebraska's Panhandle dramatically contrast with the plains and sandhills of most of the state.

Along with mule deer, prairie rattlesnakes, and coyotes here, live Rocky Mountain bighorns.

This population of around 300 lives on the eastern fringe of their range and is the subject of a FY 2022-23 \$50,000 Grant-In-Aid from the Wild Sheep Foundation (WSF). To help support this project, Iowa FNAWS provided \$50,000, while the above-listed dozen WSF Chapters & Affiliates contributed another \$60,000 in a great "crowd-funding" demonstration of collaboration for wild sheep conservation. The objective was to catch, test, and collar sheep for potential translocation to other suitable habitats in the Cornhusker State and to compare disease detection methods.

"Bighorns in Nebraska are like herds found everywhere else. They have been through a lot with disease and other problems, but they are still here, and there is potential to expand their range within the state," said Todd Nordeen, Big Game Disease and Research Program Manager with the Nebraska Game and Parks Commission (NGPC).

In February 2023, NGPC officials captured 36 bighorns in the Wildcat Hills area.

Using a 3-way diagnostic comparison of disease detection involving the Washington Animal Disease Diagnostic Lab in Pullman, WA, on the campus of WSU, Biomeme Field PCR, and Working Dogs for Conservation's (WD4C) trained canines, the goal was to find ways to quicken the disease detection process on captures.

Of particular interest is WD4C.

WSF has contributed \$105,618 since 2021 to support its testing efforts and has facilitated testing samples from federal, state, and tribal agencies.

"We've been working hard to train these dogs to detect Movi, and it was exciting to be part of the Nebraska capture," said WD4C field specialist Michelle Lovara.

Lovara and her team set the dogs up in an area

several hundred yards from the main site so the sheep wouldn't stress at the presence of dogs.

"There were varying results among the testing methods, but we're still working on it and will be attending other captures shortly," she said.

Lovara said Movi was detected, and officials decided to collar and release on site instead of moving the sheep.

"Getting an idea of what's going on early can save stress on the sheep we're working with and save a lot of time on what is very labor-intensive jobs," she said.

Studying disease and its origins, however, is not limited to testing but also involves monitoring herd movements.

"Collaring is such an important part of management, and we are so grateful to WSF and WSF chapters and affiliates for helping us over the years on projects like this. Knowing which herds are interacting and how far their range is important for any species, especially bighorns, considering the huge role of disease," Nordeen said.

Most of Nebraska's sheep stay within the state's boundaries, but some venture out.

"Occasionally, a rogue ram will wander into Wyoming, but we expect that to happen. After all, sheep don't recognize our borders," Nordeen said.

He said the impact of WSF Grant-In-Aid funding in Nebraska is that researchers are gaining more information on the state's small herd and are finding new ways to tackle the disease.

"We have some challenges here, but the WSF Grant-In-Aid and their willingness to support new methods and technology is a win for Nebraska's bighorns and wild sheep throughout North America."

According to Nordeen, new testing options like the dogs and Biomeme are a big positive.



INSET: Three 500-gallon water hauling trailers will be put into use until the 30,000 gallon water catchment is built.

BACKGROUND: Callie Hartson Cavalcant of the Arizona Game and Fish Department holds one of 30 desert bighorn sheep transplanted to the East Harcuvar Mountains in November 2022.

INCREASE & EXPAND

Hunter-Conservationists Unite For Harcuvar Desert Bighorns

C&A Partners: Arizona Desert Bighorn Sheep Society

Funding Partners: Bass Pro Shops/Cabela's Outdoor Fund, WSF Midwest Chapter

Hunting desert bighorn sheep is an epic challenge. Their wary nature, combined with inhabiting extremely challenging terrain, is respected among sheep hunters. Add to that limited hunting opportunities, and you have a highly prized game animal.

Conservation work done in Arizona's Harcuvar Mountains and aided by Wild Sheep Foundation (WSF) Grant-In-Aid funding has the potential to make a difference in desert sheep abundance and future tag availability.

The population estimate in the Harcuvar Mountains is fewer than 200 desert bighorns. In November 2022, 30 were transplanted there.

A FY 2023 WSF Grant-In-Aid commitment guaranteed \$50,000 to purchase 30 GPS radio collars to monitor the sheep's post-release movements, habitat use, and survival and to purchase a 500-gallon heavy water hauling trailer.

WSF obtained \$25,000 from WSF Midwest and \$20,000 from Bass Pro Shops and Cabela's Outdoor Fund in partner funding for this multi-faceted project.

Based on two years of game camera monitoring of the region's previous wild sheep population, it was determined the area's bighorns use three temporary water tanks.

"All of the data gathered from the trail cameras and collaring is interesting, and it's helping us make informed decisions for the sheep," said Eric Hunt of the Arizona Desert Bighorn Sheep Society.

A fascinating observation involves preferred water source locations.

"The research shows these sheep prefer tanks on south-facing slopes near the top. The south side tends to have a little more open space, making the bighorns more comfortable approaching the water source."

Hunt said future work will include building a 30,000-gallon water catchment.

"We've seen the sheep from the last transplant will use the water we put out with the temporary tanks. The big one will stop the constant, expensive, and challenging water hauling, and it can be filled

from a nearby road."

The area has also seen long-term predator management.

Hunt said that under the auspices of the Arizona Fish & Game Department (AZGFD) Adaptive Mountain Lion Management Plan, seven years of work have already occurred in the Harcuvar Mountains, raising the likelihood of a successful bighorn transplant effort.

According to WSF's Vice President of Conservation Kevin Hurley, AZGFD projects the East Harcuvar Mountains could hold 400 plus desert bighorn sheep.

That's double the current population.

"Lack of reliable water is always a management concern for desert bighorn sheep in Arizona and other arid locations. Of course, large carnivores like mountain lions can certainly have an impact as well. And, like so many other places where wild sheep are challenged, respiratory bacteria and other pathogens often cause die-offs in Arizona desert bighorn sheep," Hurley said.

Hurley noted the project has many positive attributes that counter those challenges and gives hope for a big conservation success story.

"There is real potential and opportunity for growth of a healthy desert bighorn sheep population in the Harcuvar Mountains," he said.

AZGFD officials said the territorial legislature protected desert bighorns in 1893 due to the massive loss every western state experienced. They were not a legal game in Arizona until 1953 when officials determined the "limited hunting of desert bighorn rams might be the only way to save these animals."

They offered the first tags that year, and now hunter-conservationists have united again to increase desert bighorn numbers and expand hunting opportunities.



Scan to watch a
6-minute video
about the Tri-State
Partnership.

Beyond Borders
A Silverline Films
Production



INSET: Officials and volunteers captured more than 350 bighorns and released them after biological samples for testing and collaring efforts were completed.

BACKGROUND: To keep an animal's temperature at a safe level, helicopter crews will sometimes dip the sheep in a river or lake before delivering them to the testing area.

TRI-STATE TRIUMPH

WSF Supports Massive Bighorn Conservation Project In Washington, Oregon and Idaho

C&A Partners: Idaho WSF, Oregon WSF, Washington WSF

Funding Partners: Bass Pro Shops/Cabela's Outdoor Fund, Pope and Young Club, Creag Foundation

The Tri-State region of Washington, Oregon, and Idaho has a rich history of producing massive bighorn rams. But one doesn't have to dig far back in the records to see incredible specimens.

In 2021, Gary Guerrieri took the new Washington State record 202 4/8 B&C monster in Asotin County. Mike Kinney took the newly certified world record 191 5/8 California bighorn (SCI) in 2022 in John Day Canyon.

Under the banner of the Tri-State Project, these states have made deep commitments to sheep conservation that is yielding results, and the Wild Sheep Foundation (WSF) has aided their efforts with a Grant-In-Aid commitment.

"The Wild Sheep Foundation committed \$177,000 in FY 2022-23 toward this Tri-State project, with Bass Pro Shops/Cabela's Outdoor Fund (\$30,000), the Pope & Young Club (\$20,000), and the Creag Foundation (\$2,500) contributing approximately 30 percent of this \$177,000 total," said WSF Vice President of Conservation Kevin Hurley.

The aim is to improve the health of bighorn sheep populations through a collaborative project among the three states, two tribes, the U.S. Forest Service, the Bureau of Land Management, and NGOs.

Ongoing research explores underlying factors that may affect Movi persistence/management and post-die-off efforts to restore bighorn numbers following outbreaks.

"Test and remove has proven a valuable tool in restoring health to bighorn sheep herds. At the beginning of this work years ago, there were areas with 15-20 percent lamb survival, and now they're up in the 60 to 70 percent range. Focusing on the disease issue is a big part of that," said Glen Landrus, WSF Board Chair and Past President of Washington WSF.

Between September 2022 and March 2023, officials captured more than 350 bighorns and sampled/collared, then released them on-site at more than a dozen capture locations spread across the three states, using a combination of ground darting, drop net, and helicopter net-gun.

"This is a big effort, and WSF's Grant-In-Aid

funding has allowed us to move forward with work that will help strengthen our bighorn populations and eventually allow more hunters to get tags to realize their dream of hunting a bighorn," Landrus said.

Bill London of the Idaho WSF echoed his sentiments and said the long-term cooperation and research is painting a clearer picture of what needs to happen to move forward for the sake of sheep and sheep hunters.

"With big-horns, there are always unknowns, but we are beginning to see some effective ways to deal with disease and other issues we're facing collectively and individually among the states."

The record rams taken in recent years show much potential but struggles still exist.

The objective moving forward is to improve herd health at Lookout Mountain, Oregon; Lower Salmon River, Idaho; Lostine, Oregon; and Yakima Canyon, Washington.

At the same time, these actions will protect healthy populations in the Hells Canyon area from the spread of Movi from bighorn sheep in currently infected populations.

WSF is committed to impacting Washington, Oregon, and Idaho for the future of bighorn sheep and hunters who dream of pursuing them.

"Test and remove has proven a valuable tool in restoring health to bighorn sheep herds. At the beginning of this work years ago, there were areas with 15-20 percent lamb survival, and now they're up in the 60 to 70 percent range. Focusing on the disease issue is a big part of that."

Glen Landrus, WSF Board Chair and Past President of Washington WSF



Federal and state agency personnel, along with volunteers from the Fraternity of the Desert Bighorn and the Wild Sheep Foundation move a tank into position on the Desert National Wildlife Refuge in southern Nevada.

IMPACT SUMMARIES



Fraser River BC Surveillance, Recovery, and Management

British Columbia's Fraser River Bighorn Sheep Disease Mitigation Program is the province's first test-and-remove showing promising results clearing Movi from Canada's largest California bighorn sheep population.

In February-March 2023, officials conducted a helicopter net-gun capture of 75 bighorns between Kelly Creek and Big Bar Creek. These efforts included capturing the entire migratory band of Marble Range sheep.

Four bighorns were determined to be infected. One was sick at the time of capture and died on its own in the days following capture. Three were relocated later and lethally removed.

WSF funding paid for helicopter net-gun captures outside Kamloops and in Echo Valley and lamb surveys flown in the Chasm, Clinton, and Lillooet areas and along the Fraser River.

Grant-In-Aid Funding: \$100,000

Partners: Wild Sheep Society of British Columbia & WSF Life Member Gregg Eriksmoen bequest

Hart Mountain Oregon Bighorn Recovery

In 1992, 400 sheep lived in Oregon's Hart Mountain National Antelope Refuge/ By 2017, they had declined to 150, and by 2020 it was down to 48 animals.

The chief culprit is mountain lions, which are highly abundant in the area, according to the Hart Mountain Bighorn Sheep Management Plan & Environmental Impact Study.

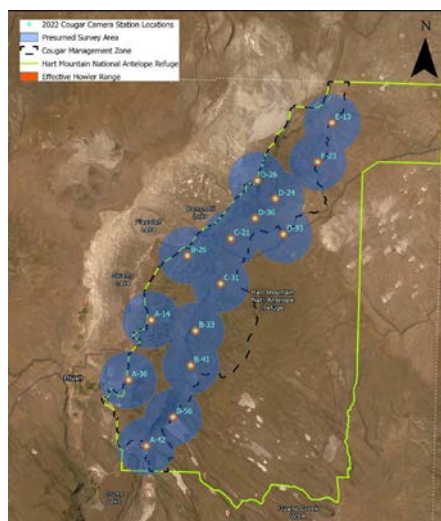
Wildlife officials have integrated a management approach focusing on short-term predator control (mountain lions) and long-term habitat management involving juniper control and added water sources.

Wild Sheep Foundation and partner funding have paid for a portion of the USDA/APHIS/Wildlife Service cougar removal efforts within a pre-defined bighorn sheep focal area.

In addition, WSF funds paid for juniper/limber pine removal from 212 acres of critical seasonal bighorn habitat.

Grant-In-Aid Funding: \$100,000

Partners: Pope & Young Club; Oregon Wildlife Foundation, Oregon Wild Sheep Foundation



Peace Region British Columbia Ungulate Enhancement

Stone's sheep live in some of the most remote, rugged, and harsh environments in North America.

Winter can be brutal, especially with predators like wolves that can get an edge on sheep in heavy snow cover. With numerous issues facing Stone's sheep, the Wild Sheep Foundation wanted to enhance their management with focused predator control efforts.

WSF has provided fuel reimbursement and trapping incentives for predator control in this winter range to specifically help reduce predation on Stone's sheep in Region 7.

Grant-In-Aid Funding: \$100,000

Partner: Northern Guide Association



Transmission Film Editing

The award-winning documentary "Transmission" has impacted audiences at select events nationwide.

Showing all sides of test and remove and positive ways to make a difference for wild sheep, the film has touched everyone from wildlife biologists to mountain hunters and legislators.

The Wild Sheep Foundation has committed funding to edit and modify "Transmission" from filmmaker Jesse Bone's original nearly hour-long vision to a 15-minute high-impact condensed version.

The goal is to make it suitable for sharing with local, state, provincial, and federal legislators to educate them on the disease issue between domestic stock and bighorn sheep and pathways forward to mitigate transmission.

Grant-In-Aid Funding: \$7,600

Partner: Wild Sheep Society of British Columbia



Desert Sheep Collaring on the Desert National Wildlife Refuge in Nevada

Due to poor body condition and depressed numbers of desert BHS, the U.S. Fish and Wildlife Service, Nevada Department of Wildlife, and Fraternity of the Desert Bighorn decided to not capture/collar desert bighorn on Desert National Wildlife Refuge.

Approved WSF funds (\$19,500) were re-directed to underwrite helicopter costs associated with late January 2023 construction of a new guzzler.

Grant-In-Aid Funding: \$19,500

Partners: Fraternity of the Desert Bighorn and Bass Pro Shops/Cabela's Outdoor Fund

Prescribed Burns for Wild Sheep Enhancement in NE British Columbia

Prescribed burning is a powerful management tool for enhancing wildlife habitat. It benefits wild sheep by increasing the nutritional value of vegetation and opening cover for safe travel in predator-rich areas.

The Wild Sheep Foundation (WSF) is helping fund prescribed burns in a proven winter and lambing area. The annual treatment will impact 1,200-2,500 acres of crucial habitat during spring.

WSF and partner funding have helped purchase materials needed for aerial ignition, helicopter fuel, flights to survey habitat and lamb recruitment as well as wildlife consulting fees.

Grant-In-Aid Funding: \$250,087



Partners: Wild Sheep Society of British Columbia and Bass Pro Shops/Cabela's Outdoor Fund



Post burn use captured on May 5, 2023.



Chronic Carriers and Bighorn Population Density in Wyoming

Chronic carriers of Movi constitute a significant problem for bighorn sheep populations as they can spread the pathogen for years, impacting multiple herds.

Wild Sheep Foundation funding has covered contract costs for bighorn captures, including collaring 70 ewes across three study areas.

This funding has impacted a long-term project across the Jackson, Whiskey, and Upper Shoshone bighorn sheep herds in Northwest Wyoming. The objective is to better understand seasonal changes in nutritional condition, reproduction, survival of young, presence of respiratory pathogens, immunocompetence, forage quality, and micronutrients.

Grant-In-Aid Funding: \$40,000

Partner: Wyoming Wild Sheep Foundation



Water Distribution and Delivery in Sierra El Alamo

The extremely arid environment of Mexico's Sierra El Alamo is home to a growing herd of desert bighorn sheep. Most water comes from drinkers and water catchments in this area that is home to a ground-breaking conservation program for desert bighorn sheep.

Wild Sheep Foundation (WSF) funding has expanded the ongoing gravity water distribution and delivery system project to benefit desert bighorns on Sierra El Alamo and neighboring properties where herds are expanding.

At Sierra El Alamo funds have increased the reach of watering systems across a wide area, where water availability is the top factor impacting herd expansions.

Grant-In-Aid Funding: \$30,000

Partner: Dallas Safari Club Foundation

OTHER PROJECTS FUNDED IN FY 2022-2023



Landscape-scale Water Projects on BLM-managed Public Lands — New Mexico

Partners: Bass Pro Shops/Cabela's Outdoor Fund, Pope & Young Club

Grant-in-Aid Funding: \$106,000

Feral Horse Gathering — Wind River Reservation

Partners: Wyoming WSF, WSF Midwest Chapter

Grant-in-Aid Funding: \$50,000

Trap, Test, Transplant Desert Bighorns from Al Campo to Sierra El Alamo — Sonora, Mexico

Partners: Texas Bighorn Society

Grant-in-Aid Funding: \$40,000

Ungulate Enhancement — Yukon Territory

Partners: Yukon Outfitters Association

Grant-in-Aid Funding: \$25,000

Movi Sampling Kits for Hunters — Yukon Territory

Partners: Yukon Wild Sheep Foundation

Grant-in-Aid Funding: \$6,095

MULTI-YEAR PROJECTS

From Fiscal Year 2016-2017 through Fiscal Year 2022-2023

	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020
PROVIDING HORN PLUGS TO STATE & PROVINCIAL GAME AGENCIES				
ROCKY CRATE CHAIR FOR WILD SHEEP DISEASE RESEARCH – WSU				
FRASER RIVER, BC, CALIFORNIA BIGHORN TEST & REMOVE				
BIGHORN SHEEP RESTORATION IN THE NEBRASKA PANHANDLE				
PRESCRIBED BURNS FOR STONE'S SHEEP IN NORTHEASTERN BC				
TRI-STATE MOVI TEST & REMOVE – ID, OR, WA				
SIERRA EL ALAMO TRAP, TEST, TRANSPLANT – SONORA, MEXICO				
SIERRA EL ALAMO WATER DEVELOPMENT – SONORA, MEXICO				
CHRONIC CARRIERS AND BIGHORN POPULATION DENSITY/NUTRITION				
DOMA MOUNTAIN/JADE BOULDER ROAD STONE'S SHEEP – BC				
LITTLE BELT MOUNTAINS BIGHORN SHEEP RESTORATION – MT				
FIELD DETECTION CANINE DISEASE SURVEILLANCE – WD4C				
CACI PATHOGEN SURVEILLANCE/ DISEASE SAMPLING – CENTRAL ASIA				
WAFWA WSWG DISEASE MANAGEMENT VENTURE				
MOVI AOUDAD TO DESERT BIGHORN RESEARCH – TAMU, TEXAS				
RISK OF CONTACT (RoC) MODELING				



9-2020	FY 2020-2021	FY 2021-2022	FY 2022-2023	TOTAL FUNDING (USD)
				\$71,888
				\$268,347
				\$180,000
				\$80,000
				\$307,087
				\$251,000
				\$92,500
				\$85,000
				\$84,000
				\$150,000
				\$91,460
				\$76,868
				\$55,000
				\$53,000
				\$48,396
				\$25,000



COURTESY SILVERLINE FILMS - TRI STATE PROJECT



WILD SHEEP FOUNDATION

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