

# MacMillan Private Lands Stewardship Program

2022 PROGRAM UPDATE



A PUBLICATION OF THE

WHITNEY MACMILLAN PRIVATE  
LANDS STEWARDSHIP PROGRAM





Dear friends,

All of us at the MacMillan Private Lands Stewardship Program are excited to share this report with you – our partners, supporters, collaborators, and colleagues who collectively make our work possible! The following pages provide updates on student engagement, research projects, and outreach efforts led by members of the MacMillan Private Lands Stewardship Program, or students and postdoctoral fellows working closely with the group.

In reading through the project profiles, I was struck by how much the Program has grown over the past several years. When I started as the MacMillan Professor of Practice roughly 4 years ago, the “Program” was just me and limited to my own capacity. The Program has now expanded to include 7 additional members, with 2 graduate students set to begin this academic year – bringing the group’s size to 10! The MacMillan Program now hosts a wide range of skills relevant to the stewardship of private lands in Wyoming and the West – including expertise in economics, law and policy, land conservation, wildlife ecology and management, behavioral science, water management, stream restoration, geographic information systems, and more. The growth of the Program reflects the dedication, hard work, resourcefulness, and tenacity of its core members who have built trusted and collaborative relationships that are foundational to our work throughout the region. It is also a reflection of the impact of Whitney and Betty MacMillan’s catalytic investment which established a generous endowment to launch the program – an investment that is being leveraged many times over to expand our important work!

In reflecting on the progress of the MacMillan Program, I am also reminded of the resiliency of the group’s members and our partners. The last 2+ years brought disruptions and hardships unimaginable when the Program launched in 2018. Despite the many challenges, the work continued with research and outreach projects adapting to online formats and a generosity of empathy and patience for everyone dealing with quarantines, loss of childcare, and more. I am especially grateful for all the support I received, which helped me get through those difficult days.

Although I am certain there are more challenges ahead, I am optimistic and excited for the coming year – and beyond – as many activities are returning to “normal.” In many ways I feel as though the MacMillan Program is just beginning to hit its stride with the inception of several exciting projects, which are highlighted in the report. I look forward to getting back out in Wyoming and throughout the West to reconnect with landowners and other partners in person. We are all very excited to continue building on this momentum.

With gratitude,

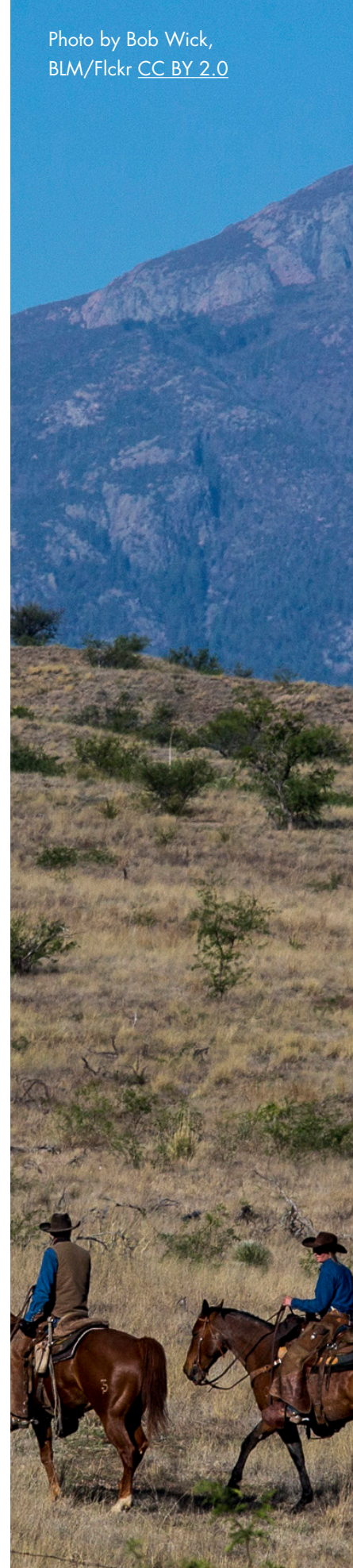
Drew Bennett

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Cover photo by Michael Gjellum





# Huge thanks to our partners, collaborators, and supporters that make this work possible!





# Philosophy and Approach

Research is most valuable when it informs decisions. It is more likely to be used if those who can use the research play a role in shaping the questions, are part of the process, and understand the implications. The research and outreach of the MacMillan Program is focused on generating knowledge and information that is usable for making decisions related to conserving and managing natural resources. We do this by facilitating collaborations and expertise from across the natural and social sciences and applied fields like finance and law. Through these collaborations, end users play a role in identifying research needs and are often engaged throughout the research process so that results are relevant to their situations.



### DECISION ORIENTED

Working with partners to identify knowledge gaps and apply new information



### INTERDISCIPLINARY

Integrating diverse perspectives, skillsets, and insights to address complex environmental challenges



### ENGAGED

Building relationships to increase credibility, transparency, and relevance



Photo by Michael Gjellum



# Meet the Team

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## **DR. HILARY BYERLY FLINT**, USDA-NIFA Postdoctoral Fellow

Hilary is a behavioral economist leading a project on conservation program design for private lands in migration corridors. Hilary studies how people manage and value the natural environment, especially providing public benefits, like biodiversity and risk mitigation, from private lands. She uses insights from the behavioral sciences to design more effective environmental programs and policies. Most recently, she worked with an interdisciplinary team of researchers and practitioners to study how homeowners manage wildfire risk in the American West. She has a PhD in Natural Resources from the University of Vermont, a MS in Applied Economics and Management from Cornell University, and a BA in Environmental Studies & International Affairs from the University of Colorado, Boulder. In her free time, she is happiest outside, especially skiing with her favorite people, enjoying a lukewarm beer on a mountain summit, and walking along the river with her family and dog, Wilma.



## **DR. WAI YAN SIU**, Postdoctoral Fellow

Wai Yan is an applied economist who leads several projects focusing on natural resource and environmental economics, as well as sustainable development in the face of global change, in order to inform evidence-based policymaking on pressing issues. Currently, she recovers Wyoming's statewide herd-level shadow prices for elk and mule deer. In this study, natural capital accounts are being developed to help bridge the gap between economic statistics and the environment and put natural assets on the national balance sheet. This adds to our existing national economic accounts and provides information that supplements traditional economic measures. We have a better understanding of the relationship between economic growth and the state of nature as result of this research. In her spare time, she enjoys traveling and experiencing different cultures, going on culinary tours, or practicing yoga at a local studio.



## **TRAVIS BRAMMER**, Conservation Fellow

Travis graduated from the Haub School's and UW Law School's joint JD/MA program in Spring 2022 and is staying on for a yearlong Fellowship supported by the Alumbra Innovations Foundation. During his JD/MA studies, he completed a thesis exploring the potential for conservation payments to help bridge the generation gap in ranching. Currently, he is working on several projects concerning private lands conservation and stewardship, including a review of emerging tools in the Greater Yellowstone Ecosystem. Travis grew up working on his family's farm and ranch in Sterling, Colorado. He came to the University of Wyoming to study finance and environment and natural resources as an undergraduate. Before returning to law school, he was the Stewardship Coordinator and interim Conservation Director for the Wyoming Stock Growers Land Trust.



**GRACE CARR**, Research & Outreach Coordinator

Grace is an alumna of the Haub School and graduated from the University of Wyoming in 2020 with a BS in biology and a BS in environmental system science with a concurrent major in environment and natural resources. A Wyoming native, Grace deepened her understanding of multi-use recreation on public lands working for a cattle ranch in northern Wyoming throughout her undergraduate years. After graduating, Grace worked with the Wyoming Game and Fish Department's Access Yes Program to promote hunter and angler public access to private lands using landowner agreements. Currently, she contributes to faculty research projects using her background in state agency work and ranching. In the fall of 2022, Grace will begin her MS in Environment, Natural Resources & Society.



**IRIS KURZ**, Undergraduate Research Assistant

Iris is an undergraduate student in Environmental Science in the Haub School of Environment and Natural Resources, hoping to eventually pursue a career in environmental law. She is originally from Dallas, TX; but has been loving her time in the mountains so far. Iris has a deep interest in the intersection of environmentalism and the social sciences and is excited to see how the MacMillan Private Lands Program will be able to inform her studies in those fields.



**LUCAS THORSNESS**, Graduate Research Assistant

Lucas developed a love for wide open spaces and natural ecosystems growing up in the plains and mountains of southeastern Wyoming. He landed at Montana State University where he got a degree in environmental studies with a minor in GIS, followed by a graduate certificate in GIS from the University of Wyoming. After time spent working in wildland conservation and restoration, a stint with a land trust on Colorado's Front Range led him to a passion for private land conservation. Lucas works with the MacMillan Private Lands Program conducting analyses of water resources in the west, engaging with stakeholders, and contributing to research reports, publications, and grants. In his free time, Lucas enjoys cycling, hiking, and skiing in the beautiful public lands around Laramie.



**TESSA WITTMAN**, Research Scientist

Tessa earned her BSc at the University of Wyoming with double majors in wildlife biology, and environment and natural resources with minors in honors, sustainability, and reclamation and restoration ecology. She has worked on endangered species recovery with Wyoming toads, post-wildfire ungulate habitat restoration, community-based ecosystem restoration, and interdisciplinary research on the human dimensions of sagebrush ecosystem management. Her current research is assessing outcomes from programs mitigating acute livestock-wildlife conflict on public lands in the American West. She seeks inclusive, community-driven solutions for conserving and restoring landscapes. When she is not doing science, she is exploring public lands, fishing, and hiking.

# Incoming Members

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## **KATIE DOYLE**, Incoming Graduate Research Assistant

Katie graduated from Texas Tech University in 2018 with a BS in Natural Resources Management; Wildlife Biology concentration. From there she made the move from her home in Texas to Montana, where she worked as a Teacher and Naturalist in Glacier National Park and the Flathead National Forest. She was immediately hooked on the West and spent her first fall and winter up north working for Montana Fish, Wildlife and Parks sampling hunter harvested and roadkill deer for Chronic Wasting Disease. Katie continued similar work around the country working as a Wildlife Technician for Texas Parks and Wildlife and a Conservation Officer for Idaho Fish and Game. Katie is currently working as a bighorn sheep researcher in the Sun Valley in western Montana and is looking forward to beginning her graduate studies in Environment, Natural Resources, and Society in the Spring of 2023.



## **MAX LEWIS**, Incoming Graduate Research Assistant

Max graduated from St. Lawrence University in 2016 with a BA in environmental studies and economics. Native to Maine, Max quickly found his way West after finishing his undergraduate degree. A position with the United States Forest Service brought him to southeast Alaska where he became interested in the impacts of land management on fisheries, and aquatic ecosystems. Max's work in Alaska was followed by a year spent working with Trout Unlimited in Missoula, Montana where he completed fisheries and stream ecology research that contributed to ecological restoration projects on private lands. In 2018 Max moved to Jackson, Wyoming where he has lived since. During his time in Jackson, he has studied native trout and the habitats that they rely on while working for the Wyoming Game and Fish Department, and Friends of the Teton River. In the fall of 2022, Max will begin his MS in Environment, Natural Resources & Society and will focus his research on water conservation on private property.

# In Memoriam

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Whitney MacMillan was a founding member of the Ruckelshaus Institute's advisory board, beginning in 1994. As the chairman and CEO of Cargill, Inc., and the operator of a cow-calf ranch in Montana, he brought extensive business acumen to our board. Motivated by a desire to keep agricultural operations economically viable and environmentally sustainable, in 2018 he founded the MacMillan Private Lands Stewardship Program to advance research and outreach to help sustain private lands. Mr. MacMillan passed away in Vero Beach, Florida, in March 2020. We are grateful for his dedicated leadership and are committed to carrying forward his legacy through the work of the MacMillan Program.



# Supported Internship Experiences

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**MADELEINE SATO**, Policy Intern with the Western Landowners Alliance (WLA)

While interning with WLA, Madeline worked on several projects of importance to private lands in the West. Two of the biggest projects she worked on involved the America’s Conservation Enhancement (ACE) Act and Waters of the United States (WOTUS). The ACE Act is a comprehensive package of bills that was passed with bipartisan support and makes significant investments in wildlife conservation. Specifically, she was tasked with working on solutions to wildlife conflict in the ACE Act. As wildlife—like grizzly bears and wolves—are reintroduced or expand their ranges across the West, there have been conflicts between these species with humans and livestock. The ACE Act provides funds for states and Tribal nations to compensate ranchers and other producers for livestock losses they experience as a result of depredation from federally protected species.

WLA is also expanding into water issues and understanding WOTUS is critical. WOTUS has undergone significant changes in the past few Presidential administrations with the Supreme Court to hear a case in the next year. A durable definition of “waters of the United States” is essential to ensuring clean and safe water in all communities. As an intern, Madeleine wrote a memo detailing the meaning and historical context of WOTUS, the current implementation of WOTUS, and how landowners and relevant organizations have reacted to the changing landscape of WOTUS.



**KIMBER LOGAN**, Stewardship Intern with the MacMillan Program and the Wyoming Stock Growers Land Trust (WSGLT)

Kimber interned with Dr. Bennett in the Spring and Summer of 2021, coupled with an internship monitoring conservation easements for the WSGLT. During her internship, she gained deep knowledge about conservation easements and associated academic concepts. While interning with WSGLT, she consecutively worked for Dr. Bennett gathering information about water rights associated with conservation easement deeds. In particular, she analyzed if / how water rights were included in conservation easements.



**JORDAN CARLSON**, Working Wild Intern, Western Landowners Alliance (WLA)

Jordan served as the Working Wild Series Intern where he interviewed individuals and built stories for the Humans of the Working Wild series. He also participated in meetings committee meetings for the Conflict Reduction Consortium, a collaborative effort to reduce human-wildlife conflict. The internship also exposed him to different organizations and stakeholders in the industry. This experience will help him in his future through the connections he made in the industry and knowledge he gained about how these groups work and what they accomplish. He is grateful for the opportunity to advance his career goals through this internship.

# Featured Research Projects

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## INCENTIVIZING WORKING LANDS CONSERVATION THROUGH EVIDENCE-BASED PROGRAM DESIGN

Well-managed working lands in Wyoming and across the West provide environmental benefits to society, including habitat for migratory big game species, like elk, pronghorn, and deer. Recent scientific and policy developments in Wyoming have spotlighted how the long-distance migratory routes of these species overlap considerably with working lands. As a result, landowners in these migratory corridors face increased pressure to support wildlife and wildlife movement for the benefit of society, often at private cost.

Working lands conservation programs, such as those offered by the U.S. Department of Agriculture, typically seek to reduce the costs of conservation to farmers and ranchers, typically through financial incentives or other market mechanisms. The Conservation Reserve Program, for example, pays farmers to compensate for the revenue forgone when land is temporarily removed from cultivation. Yet, research on these programs finds a range of reasons for landowner participation, with financial benefits being only one. Meanwhile, a growing body of research from behavioral science demonstrates how our behaviors—including enrolling in programs—are influenced by non-financial factors, such as the status quo, complexity, and social norms.

This research project focuses on the design and delivery of conservation incentive programs for private working lands in big game migration corridors. We are exploring the barriers that inhibit program participation using existing data and semi-structured interviews with landowners, scholars, government staff, and non-governmental organizations. These interviews will also provide insight into how program delivery might be adjusted to increase landowner participation in conservation programs. Ultimately, we hope that results from this project will inform the design of effective conservation incentive programs that support the economic viability of private working lands while achieving environmental goals in the western United States.

**Project Lead:** Hilary Byerly Flint

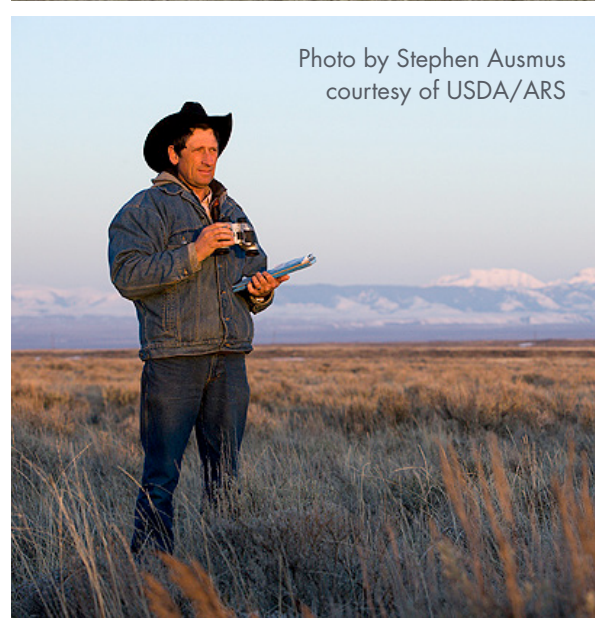
**Key Collaborators:** Arthur D. Middleton, *University of California, Berkeley*

**Funding Partner:** U.S. Department of Agriculture AFRI Postdoctoral Fellowship

Photo by Samuel Western



Photo by Stephen Ausmus  
courtesy of USDA/ARS





## SUPPORTING LANDOWNER ACCESS TO RANGELAND CARBON MARKETS

Globally, rangelands play an important role in the carbon cycle and conserving them can help address climate change. The general idea is simple, by preventing the conversion of rangelands to other uses, such as row crops or houses, the carbon in rangeland soil stays in the soil and does not contribute to global carbon emissions. According to some estimates, more than 20% of global carbon is stored in rangelands.

There is a process to confirm how much carbon is stored in rangeland soils and ensure that the carbon remains stored there permanently. The confirmation process allows rangeland owners to generate carbon credits from their land. Those carbon credits can then be sold to companies interested in voluntarily offsetting their carbon emissions. Landowners are compensated for ensuring that all stored carbon remains in the soil. This means of compensation may help increase the financial viability of agricultural operations.

The carbon crediting project was initiated in collaboration with the Partnership of Rangeland Trusts (PORT). PORT is a partnership of statewide land trusts with a mission to conserve working agricultural lands across eleven western states. PORT is interested in carbon credit markets because of the potential to support rangeland conservation and the potential to create new revenue streams for its partner landowners.

Currently, the price of carbon credits is low compared to other conservation solutions that rangeland owners may be interested in pursuing. This low price, coupled with an onerous process to confirm credits, means that many landowners in PORT-represented states are priced out of the market. PORT was interested in a way that they could help more landowners access the carbon market.

This project analyzed the potential benefits of aggregating several carbon projects with multiple landowners to create economies of scale and open the market to landowners who would otherwise would not have financially viable projects.



We found that if carbon credit projects are bundled at an appropriate scale, landowners benefit from decreased upfront costs and may receive greater payments.

We shared our findings with PORT in the form of an internal policy memo which PORT land trusts will use when considering implementing carbon credit projects. Further, with the permission of PORT, the project led to two other published deliverables. First, we were able to contribute to a *Western Confluence* story regarding the opportunity and challenges carbon markets represent for landowners. We also published a summary of our findings from the PORT memo in the peer reviewed journal, *Rangelands*.

This project was driven by on-the-ground and partner-specified research needs. PORT member land trusts hold almost a quarter of all conserved private land in the U.S., however, PORT has a lean staff and is not capable of conducting an in-depth research project on behalf of its members. By partnering with an organization like PORT, the MacMillan Program can contribute to on-the-ground needs while helping push important and timely conversations forward.

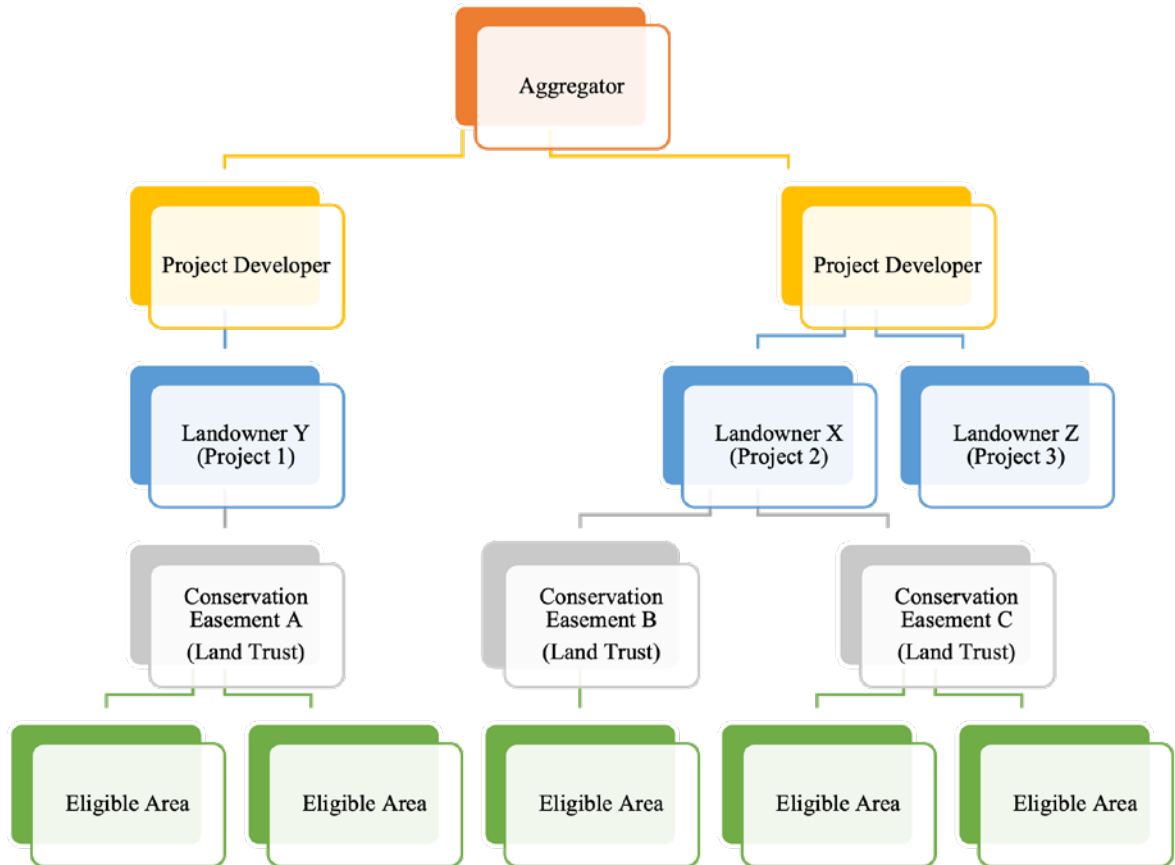
To learn more about rangeland carbon projects, see “Free-Range Carbon” by Birch Malotky: <https://westernconfluence.org/free-range-carbon-2/>

Read our publication, [Arriving at a natural solution: Bundling credits to access rangeland carbon markets.](#)

**Project Lead:** Travis Brammer

**Key Partner:** Partnership of Rangeland Trusts

*Figure 1. Example of the parties and hierarchy of a hypothetical aggregated project.*





# COWS OR CONDOS? WHAT HAPPENS TO LIVESTOCK OPERATIONS AND PRIVATE LANDS FOLLOWING WAIVERS OF GRAZING PERMITS ON PUBLIC LANDS?

Conflicts between wildlife and livestock can impede coexistence on the landscape, compromising both livestock operations and conservation goals. Disease transmission from domestic to bighorn sheep and depredation of livestock by large carnivores are two major sources of conflict on public lands. One strategy to address wildlife and livestock conflicts on public lands is to compensate permit holders for voluntarily waiving their grazing permits without preference back to the land management agency.

Federal public lands grazing also has a direct nexus with private lands in the West. Federal regulations require most permittees to own or control sufficient private land, known as a base property, to sustain their livestock for the portion of the year when grazing is not occurring on public lands. Given the extensive private land associated with public land grazing allotments, concerns have been expressed among scholars and ranchers that livestock operations could be negatively financially impacted by restrictions on public land grazing, resulting in subdivision, development, or other conversions of privately owned rangelands. This argument is often expressed as a choice between “Cows or Condos.” We conducted interviews, a survey, and records searches of 51 permittees who have accepted compensation to waive their public lands grazing permit to assess the validity behind the “Cows or Condos” argument. We specifically answered two questions:

1) Are permit waivers associated with the subdivision, development, or land-use conversion on associated private lands?

We found 10 permittees sold or transferred a property or portion of property integral to the livestock operation after accepting compensation for waiving their grazing permit. Of those properties, five are protected under some sort of conservation status, which included conservation easements that protect the property from development in perpetuity and the sale of the property to a non-profit conservation organization that manages the property for conservation goals. While we documented minor changes to some properties, those changes generally involved development of infrastructure integral to operational changes on properties still used for livestock production, zoned for agriculture, and / or still owned by the original permittee. Some producers have increased crop production such as hay or corn on their original deeded lands or on newly acquired or leased lands. We did not find any cases of residential development or subdivision (Fig. 1).

2) What are the motivations and outcomes for participating ranchers?

Nearly every producer was dealing with some kind of conflict that compromised the viability of their allotment, from predation, increased recreation or subdivision around their allotment, management decisions regarding disease transmission or vegetation monitoring, or a change in the agency managing the land. Many permittees felt they had no choice but to waive their permit, but many also felt they received payment for something they were likely to lose without compensation. Some permittees are thriving following the waiver, and some are struggling. In general, the permit waiver is not compromising producers’ ability to continue livestock production, and the compensation is appreciated.







# NATURAL WEALTH ACCOUNTING

Wyoming has long been home to iconic species that are socially, culturally, and economically significant to the state. Every year, thousands of hunters from all over the country come to Wyoming to hunt; however, the value of these iconic species has yet to be established. In the case of poaching, the court may use any available information to impose a reasonable restitution penalty. Currently, the restitution price is \$6,000 for a poached elk and \$4,000 for a poached deer.



Using the current natural capital valuation technique, we recover the value of elk and mule deer at the herd level and demonstrate that there is a substantial difference in their value at the local level. Because many management decisions are made locally, it is important to recover the value of elk and mule deer at the herd unit level. The inclusion of wildlife vehicle collisions in our model emphasizes the importance of local valuation because different herd units experience varying levels of impact from wildlife vehicle collisions. During our study period, one herd may have as few as four collisions, while another herd may have over a thousand collisions.

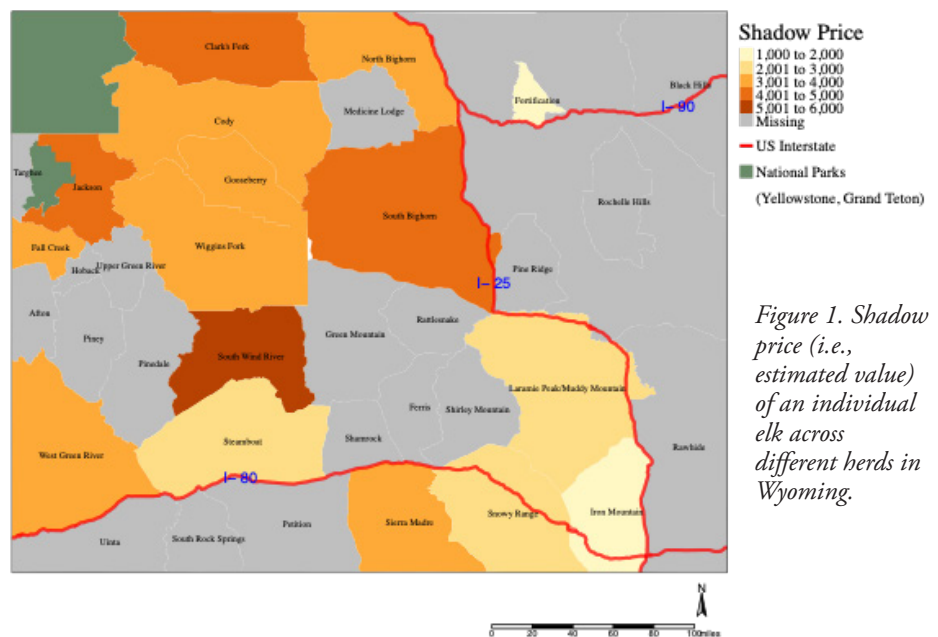
There are several consequences after a wildlife vehicle collision. First, it reduces the population of wildlife, which results in fewer hunting licenses being issued to hunters because the number of licenses issued is dependent on the population of the herd. Second, when fewer hunting licenses are issued, the state generates less revenue from hunting licenses. Third, a wildlife vehicle collision is economically costly considering vehicle repair cost, medical cost, carcass removal cost, and other factors.

In this study, we recover the per-elk (Figure 1.) and per-mule deer “shadow price”, and the results are threefold. First, it can serve as a guide for policymakers when allocating resources to specific herds, promoting efficient natural capital investment. Second, in the case of poaching, it establishes a lower bound for restitution pricing. Third, it serves as a financial account for the state of Wyoming, collectively storing wealth estimated at \$311 million for elk and \$343 million for mule deer as productive natural assets for the state.

**Project Leads:** Wai Yan Siu and Jacob Hochard

**Key Collaborators:** Bailey Kirkland, *UW Economics*, and Ranjit Bawa

**Funding Partner:** Knobloch Family Foundation and Alumbra Innovations Foundation



*Figure 1. Shadow price (i.e., estimated value) of an individual elk across different herds in Wyoming.*

# FUNDING TRANSBOUNDARY WILDLIFE CONSERVATION AROUND NATIONAL PARKS

National parks play an important role in conserving biodiversity, yet many parks are too small to protect animals that have large ranges (e.g., bears and wolves) or seasonally migrate (e.g., deer, elk, and pronghorn). Beyond park boundaries these “wide-ranging” species face habitat loss and fragmentation, vehicle collisions, and reduced tolerance among landowners who incur costs from wildlife on their property. Such threats affect the ability of wildlife to move across the landscape and reduce their populations. Yet the presence of this wildlife in national parks generates considerable value to visitors and society. This tension, which is growing in the Greater Yellowstone Ecosystem and shared by protected areas globally, provides the opportunity to explore how those who benefit from wildlife conservation (i.e., park visitors) might contribute towards conservation and conflict reduction beyond the areas in which wildlife is enjoyed.

In Summer 2022, we conducted public intercept surveys of visitors to Yellowstone and Grand Teton National Parks to learn about their preferences for transboundary wildlife conservation in the Greater Yellowstone Ecosystem. Visitors were asked to report details about their trip to the parks, the importance of wildlife viewing to their visitation, and views related to the existence of wide-ranging wildlife and how the hypothetical loss of such species would affect future visitation. Survey results will be used to estimate the value of wildlife and wildlife viewing to park visitors and visitors’ willingness to pay to prevent the loss of wide-ranging wildlife by addressing factors that reduce their populations outside park boundaries. Results from this project will support decision making around large-landscape conservation in the Greater Yellowstone Ecosystem and beyond.

**Project Lead:** Hilary Byerly Flint

**Key Collaborators:** Aaron J. Enriquez, *University of Alaska, Anchorage*, Arthur D. Middleton, *University of California, Berkeley*

**Funding Partners:** University of Wyoming via the UW-National Park Service Small Grants Program and the Greater Yellowstone Coalition.

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Photo by Michael Gjellum



# Featured Outreach and Engagement Projects

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## HISTORIC FLYWAYS

Every year, over one million sandhill cranes (*Grus canadensis*) embark on a great migration, flying the same pathways and using the same stopover habitats they have had for the last 10,000 years. At the stopover habitats, cranes congregate in the spring and fall to feed and gather enough nutrition to continue their migration. During this migration, sandhill cranes will cross multiple state lines and landownership types at multiple stopover sites. The landscape of the stopover habitat has changed vastly since the mid-19th century, transforming from grasslands to agricultural hubs. Waste grain left behind by farmers proves vital to this species' diet as they adapt to the evolving ecosystem. However, according to the Colorado Crane Conservation Coalition, there has been a significant drop in grain production across the western United States. This creates concerns that if grain production continues to decrease, these historic flyways may disappear as migratory patterns are impacted by the changing landscape. This would result in a troubling loss of biodiversity in Wyoming and states in the flyway.

The project, Historic Flyways, had three overarching objectives to (1) To follow and document the sandhill crane migration and highlight critical stopover and breeding habitats of the Rocky Mountain population in Colorado, New Mexico, and Wyoming. (2) To use visual and digital media to form a scientific communication campaign that bolsters and supports agricultural sustainability and species conservation. (3) Use best-journalistic practices to communicate how biodiversity is maintained and preserved to both STEM and non-STEM audiences. To meet these goals, the project engaged communities from Wyoming to New Mexico with educational and visual communication materials about how biodiversity is created and conserved – including by agricultural land stewards that support crane conservation.

Over the course of the project digital mediums were a main source of outreach. These mediums included a website and social media which connected with over 1,200 people. Additionally, the project was presented to leaders and directors of crane festivals along the migration path. Outreach will continue through 2022-23 at three in person and one virtual crane festivals. The presentations will include an interactive website display as well as award winning images that highlight the beauty and grandeur of the Greater sandhill crane migration.

**Project Lead:** Michael Gjellum

**Funding Partner:** UW Biodiversity Institute



Photo by Michael Gjellum

## 2022 CONSERVATION FINANCE BOOT CAMP

In collaboration with the Conservation Finance Network and the Center for Collaborative Conservation at Colorado State University, Drew Bennett helped organize and facilitate the 2022 Conservation Finance Boot Camp. The Boot Camp brought together 35 mid-career professionals for a week-long intensive training to develop the knowledge necessary to use innovative and effective financing strategies to advance conservation efforts.



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## PARTNERING WITH THE INTERMOUNTAIN WEST JOINT VENTURE ON SCIENCE COMMUNICATION

Starting in 2021, the MacMillan Program began a partnership with the Intermountain West Joint Venture (IWJV) to help share its emerging science on bird conservation and associated decision-support tools with private land conservation groups around the region. The MacMillan Program worked with IWJV to convene and facilitate several conversations between IWJV staff and staff from land trusts in the region. The purpose of the conversations was to inform land trust staff about IWJV's decision-support tools and allow land trust staff to ask questions about how science can be used to support land trust decision-making. The conversations led to an improved connection between IWJV, and the region's land trusts.

Building on the connections that IWJV and the MacMillan Program made with the region's land trusts, the MacMillan program continues to work with IWJV to help improve implementation of private land conservation and stewardship programs.



# PRODUCER PERSPECTIVES

The MacMillan Program launched a new short publication series to tell the stories of land stewards in their own words. The series currently includes 3 publications with several more to be released in the coming year.

**PRODUCER PERSPECTIVE:**  
**Agreement Flexibility Allows Young Rancher to Benefit from Conservation Easement Sale**  
 BY KATE RASHOUSEN



**ABOUT BRYANT AND KORI**  
 Bryant and Kori Jones own the Willow Basin Ranch, north of Casper, WY. Established in 2014, Willow Basin specializes in commercial black Angus and registered Black Horizontal cattle. Bryant, in partnership with The Nature Conservancy, finalized a conservation easement on his ranch in 2020.

This factor that eased Bryant's concerns was learning that TNC offers every easement to each individual ranch. Knowing he would have input on the final deal, Bryant felt more secure in his decision on entering easement agreements, especially those that involved long working ranches. After carefully going through the easement, he was sure that the easement would interfere with his day-to-day operations or long-term management. "Ranch is what's going to change anything for us. We put in a few building easements and included our best land. That's enough development for this place." Bryant added that working with an organization that truly respects the current generation has been invaluable for adding or taking out some that he required to have.

The main challenge Bryant faced was working with TNC's individualized easement. Bryant wanted for the

**PRODUCER PERSPECTIVE:**  
**Keeping Wolves Away with Interns and In-herding**  
 BY KATE RASHOUSEN



**ABOUT GLENN AND CAROL**  
 Glenn and Carol Elzinga own the Kalmeging Ranch in Miles, Idaho along with their seven daughters and one son. The Elzingas have over 20 years of experience rearing their herd close to consumers.

When the Kalmeging Ranch began consuming cow-calf pairs in their BLM and Forest Service leased parcels of May, Idaho, they needed to figure out how to manage the impact of their cattle on the landscape and keep wolves from taking a toll on their bottom line. Melissa Elzinga and her sister, Glenn, founder of Kalmeging, learned how to keep the horses present enough to keep the wolves away. They often helped with their wolf issue for the first and easiest to handle parcel first. In 2015, Glenn launched a new approach to the challenge that faced on the same mission by having a range riding program.

Addressing Range Riders, consisting of one cow herd and a handful of horses, had the goal of summer grazing to the best part of Kalmeging's BLM land and working their way up over time. From horse operations, being a rancher, Glenn often is a "no building," which help create an herd good all day and prevent horses to keep on the landscape, especially riparian areas. The riding gets the cattle to a desirable choice only give you enough to keep the herd from grazing and prevent disturbance with wolves. They move the cow camp about every two weeks to lower the impact on the landscape.

Melissa is Glenn's oldest of seven daughters and a cow herd for their summer cow camp. Along with managing the cattle and grass, she manages the cow camp of Kalmeging interns and makes their best to be a good match. Because as a natural companion to Kalmeging's

Aside from protecting riparian areas and managing the herd to improve the condition of the range, what we're also trying to do is keep our cattle full and fed and help them gain weight while they're up there. It's a lot of keeping cattle in a pretty tight bunch and sitting there, watching them eat the entire day.

**PRODUCER PERSPECTIVE:**  
**Direct Marketing Lessons from Glenn Elzinga**  
 BY KATE RASHOUSEN



**ABOUT GLENN AND CAROL**  
 Glenn and Carol Elzinga own the Kalmeging Ranch in Miles, Idaho along with their seven daughters and one son. The Elzingas have over 20 years of experience rearing their herd close to consumers.

Forward thinking land stewards, like Allen-Loupell and Wendell Berry, and begin raising were from non-traditionally raising beef. Glenn and Carol started raising in 2010 and the beef business career started a profit over sales. The Elzinga had several beef production because Kalmeging's value based identity and differentiated products in a crowded market.

Addressing such an often cited on the place or sense of farm after certified organic operations, the Elzingas, with the help of their seven daughters, one son, and herd range riders, never profiting through Kalmeging's organic range using a management style day after as "no building." The range riders keep the Kalmeging grazing on high quality range, and manage well available as well as create more grazing and change to riparian areas.

Customer care being a key priority for Kalmeging's organic beef business, the Elzingas present

In 2015, Glenn and Carol Elzinga began their direct-to-consumer business by selling organically raised beef to local stores, consumers, and farmers markets. Glenn admits these markets were not financially profitable but were an ideal learning experience that would pay off later when the couple began selling beef products online. "Being in farmers markets helped me understand our value proposition but also what direct products are and helped me conceptualize how they wanted the product presented," Glenn said. The Elzingas learned their value demand for organic, grass-fed beef would be consistently compensated and their selling healthily wasn't going to pay for itself.

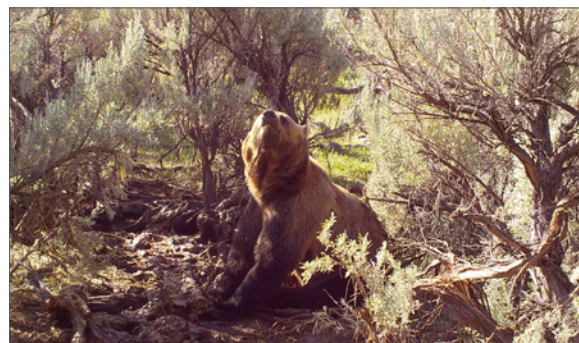
Addressing consumers, even after the Elzingas' sixth month of the Miles, Idaho, gained momentum in early 2020, but the couple needed to differentiate their products from the rest of the beef market. In the new store, Glenn began offering new basic season by beef to

"Selling in farmers markets helped me understand not only my customers but also what their interests are and helped me conceptualize how they wanted the product presented."

Read the series: <http://www.uwyo.edu/haub/ruckelshaus-institute/private-lands-stewardship/producer-perspectives/index.html>

## THE WORKING LANDS AND WILDLIFE PROJECT

The Working Lands and Wildlife Project is a collaboration with the Holbrook Team to document the diversity of wildlife living on private lands in the American West through basic and applied research, science communication, and partnerships with landowners and other stakeholders. A core goal of the project is to build trusted relationships with landowners and land managers built around a shared and collaborative understanding of the landscape.



**Key Collaborators:** Joe Holbrook and Carlee Koehler, U of Nebraska-Lincoln

**Watch videos from the project:** <https://vimeo.com/user129528736>

**Follow the project on Instagram:** <https://www.instagram.com/workinglandswildlife/?hl=en>

# Other Projects in Progress

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## ANALYSIS OF STATE AND LOCAL LANDSCAPE CONNECTIVITY POLICIES

Several states and local governments have implemented policies to protect migration corridors and maintain landscape connectivity, and additional jurisdictions are expected to follow their lead. Through this project, the research team is analyzing the policy mechanisms incorporated and the relevant sectors the policies target. The team's aim is to identify best practices and lessons learned from the states and local governments which have already implemented connectivity policies and share these insights to support further policy development and implementation.

**Lead:** Travis Brammer

**Key Collaborators:** Sharon Buccino, UW Law, Temple Stoellinger, and Zach Wurtz bach, Center for Large Landscape Conservation

**Funding Partner:** William and Flora Hewlett Foundation

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## AGRICULTURAL WATER USER PERSPECTIVES ON WATER CONSERVATION IN THE COLORADO RIVER BASIN

Water users in the Colorado River Basin face significant challenges in water supply due to long-term drought conditions and increasing demand from multiple types of uses that span the seven states in the Basin. Given current supply constraints and requirements under the 1922 Colorado River Compact, water management in the Basin is under intense negotiations among the diverse stakeholders in an attempt to manage the impacts of water shortages. Agricultural water users are key stakeholders in the Basin that use a substantial portion of the water, often hold senior water rights, and rely on water as a critical component of their operations. Due to their critical role in managing water, their perspectives are critical to developing solutions that gain their support. This project aims to understand agricultural water users' concerns and management preferences to inform ongoing policy processes through interviews, focus groups, and a representative survey.

**Key Collaborators:** Weston Eaton, Lucas Thorsness, Kristi Hansen, UW Agricultural & Applied Economics, Hilary Byerly Flint, and Elizabeth Koebele, University of Nevada-Reno

**Key Partner:** Western Landowners Alliance

**Funding Partner:** Walton Family Foundation

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## WILDLIFE AND RECREATION ON PILOT HILL

Launched in 2020, the *Understanding Interactions of Recreation and Wildlife on Pilot Hill* project continues to collect and analyze data game camera and trail counter data. There are now 44 cameras on Pilot Hill and 22 cameras on



surrounding private lands serving as control locations. Through the analysis of these images, we intend to measure how the increase in recreation on Pilot Hill affects wildlife's use of the property. Trail counters in the Pilot Hill Recreation Area are helping us understand trail usage levels on the property. As more trails are constructed, we will put up more trail counters and eventually will relate this usage to potential changes in wildlife documented by the cameras.

We intend on collecting data for the next couple of years, thus we have not begun the full analysis. However, research assistants have been able to notice patterns of movement and animal populations at different camera locations and have created an extensive list of wildlife present on the property, the main ones being elk, pronghorn, mule deer, bear, moose, mountain lions, and bobcats.

**Student Lead:** Jordan Kobliska

**Collaborators:** Michael Gjellum, Ema Kurbos-Cooper, and Joe Holbrook

**Key Partner:** Pilot Hill, Inc



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## SUPPORTING THE EAST YELLOWSTONE COLLABORATIVE WORKING GROUP

The MacMillan Program supports a collaborative group of landowners and practitioners working in the areas to the east of Yellowstone National Park. This collaborative group is thinking of ways to improve conservation implementation in the region, as well as how to develop new conservation tools. The MacMillan Program supports the effort by highlighting existing conservation tools that practitioners can use on private lands in the region as well as opportunities to develop innovative and emerging tools.

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## PRIORITIZING WATER RESOURCES IN CONSERVATION EASEMENTS

This project investigates how to effectively incorporate water rights into the Jackson Hole Land Trust's (JHLT) conservation easement planning framework in the Upper Green River Basin. Ultimately, this work will provide JHLT with a new lens to help assess the importance of a property's water rights as they work to prioritize their conservation efforts in the Basin. The importance of water rights across the basin will be determined using spatial analysis techniques and data from relevant state agencies and non-profit organizations. The idea is that by understanding factors such as a water right's priority date or resiliency in times of drought across a landscape, it becomes possible to prioritize conservation efforts to maintain important agricultural lands and wetland habitat into the future. Being able to visualize these patterns will make JHLT's conservation easement planning process more robust so that they can continue to protect the Upper Green River Basin's most important lands.

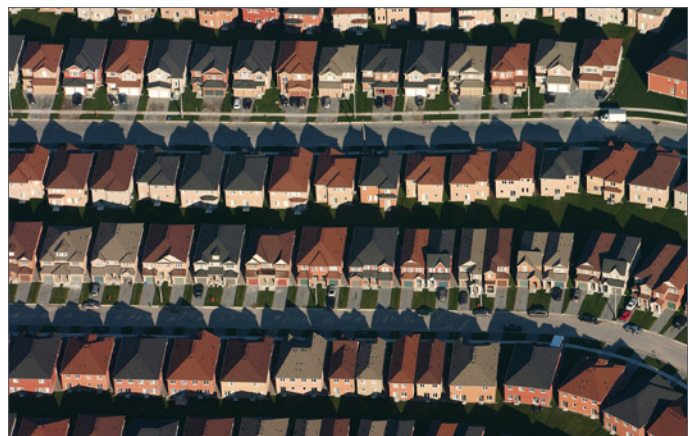
**Project Lead:** Lucas Thorsness

**Key Partner:** Jackson Hole Land Trust

**Funding Partner:** Alumbra Innovations Foundation

## MODELING RESIDENTIAL DEVELOPMENT RISK TO GUIDE CONSERVATION EFFORTS

Knowing where to allocate easements in the face of residential development can be critical for conservation. Using a machine learning technique and georeferenced, high-dimensional data, we predict land parcels in Wyoming that are most likely to be developed. This sheds light on where conservation efforts should be focused to address the greatest land conversion threats. We aim to develop a modeling technique that is easily replicated and used as a long-term conservation easement tool. We are currently comparing models and identifying the most predictive factors, as well as simplifying the model so that it can be easily updated and replicated and provide a valuable tool for conservation planning.



**MacMillan Program Lead:** Wai Yan Siu

**Key Collaborators:** Amy Nagler, UW Agricultural & Applied Economics, and Ben Rashford, UW Agricultural & Applied Economics

**Key Partner:** The Nature Conservancy – Wyoming Chapter

## In the Media

**Drew Bennett was featured or quoted in several news outlets about private land conservation and ranch sustainability.**

“How to Save the Prairie, Acre by Acre”, *Washington Post Magazine*: <https://www.washingtonpost.com/magazine/2021/11/30/kansas-shrinking-prairie/>

“Expanding Efforts to Keep ‘Cows Over Condos’ are Protecting Land Across the West”, *Washington Post*: [https://www.washingtonpost.com/national/expanding-efforts-to-keep-cows-over-condos-are-protecting-land-across-the-west/2020/04/10/96ec2f80-79c6-11ea-9bee-c5bf9d2e3288\\_story.html](https://www.washingtonpost.com/national/expanding-efforts-to-keep-cows-over-condos-are-protecting-land-across-the-west/2020/04/10/96ec2f80-79c6-11ea-9bee-c5bf9d2e3288_story.html)

“Incentivizing the Environment”, *Hereford World*: <https://issuu.com/buyhereford/docs/august-2022-hw/28>

Travis Brammer and Drew Bennett were featured in the *Western Confluence* story, “Free-Range Carbon”: <https://westernconfluence.org/free-range-carbon-2/>



# Publications by Members of the Group\*

*\*Members' names bolded*

- Andersen, M. L., **Bennett, D. E.**, & Holbrook, J. D. (2021). Burrow webs: Clawing the surface of interactions with burrows excavated by American badgers. *Ecology and Evolution*, (Vol.11, No. 11559–11568). <https://doi.org/10.1002/ece3.7962>
- Balmford, A., Bradbury, R. B., Bauer, J. M., Broad, S., Burgess, G., Burgman, M., **Byerly, H.**,... Nielsen, K. S. (2021). Making more effective use of human behavioural science in conservation interventions. *Biological Conservation*, (Vol.261), <https://doi.org/10.1016/j.biocon.2021.109256>
- Bennett, D. E.**, Knapp, C.N., Knight, R.L., Glenn, E. (2021). The evolution of rangeland trusts network as a catalyst for community-based conservation in the American West. *Conservation Science and Practice*. (Vol. 3, No. 1, pp. E257). <https://doi.org/10.1111/csp2.257>
- Bennett, D. E.**, & Suhr Pierce, J.A. (2021). Human Dimensions of Sagebrush. In *Sagebrush Conservation Strategy – Challenges to Sagebrush Conservation*. USGS. <https://doi.org/10.3133/ofr20201125>
- Bennett, D.E.**, and **T. Wittman**. 2022. Cows vs. Condos: Cows or Condos: Rancher and Land-Use Outcomes Following Compensated Federal Grazing Permit Waivers. University of Wyoming, Laramie, WY: Ruckelshaus Institute of Environment and Natural Resources. [https://www.uwyo.edu/haub/ruckelshaus-institute/publications/\\_files/cvc-report.pdf](https://www.uwyo.edu/haub/ruckelshaus-institute/publications/_files/cvc-report.pdf)
- Brammer, T.** 2022. Using Land and Water Conservation Fund money to protect western migration corridors. *Wyoming Law Review* (Vol. 22: No. 1, Article 3). <https://scholarship.law.uwyo.edu/wlr/vol22/iss1/3>
- Brammer, T. A.**, & **Bennett, D. E.** (2022). Arriving at a natural solution: Bundling credits to access rangeland carbon markets. *Rangelands*.<https://doi.org/10.1016/j.rala.2022.04.001>
- Byerly Flint H.**, Cada P., Champ P., Gomez J., Margoles, D., Meldrum J., Brenkert-Smith H. (In press). “You vs. Us: Framing adaptation behavior in terms of private or social benefits.” *Climatic Change*.
- Byerly Flint H.**, Champ P., Meldrum J., Brenkert-Smith H. (In press). “Wildfire imagery reduces risk information-seeking among homeowners as property wildfire risk increases.” *Communications Earth & Environment*.
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- Byerly Flint, H.**, Hammond Wagner, C., & Watson, K. (2022). Changes and Disparities in Nature Access During the COVID-19 Pandemic. *Frontiers in Sustainable Cities*. <https://doi.org/10.3389/frsc.2022.709982>
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- Meldrum, J.R., Brenkert-Smith, H., Champ, P.A. **Byerly, H.** et al. (2021) Would you like to know more? The effect of personalized wildfire risk information and social comparisons on information-seeking behavior in the wildland–urban interface. *Nat Hazards*. (Vol. 106, No. 3, pp. 2139-2161). <https://doi.org/10.1007/s11069-021-04534-x>
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- Wittman, T.M.**, and **Bennett, D.E.** (2021). A synthesis of research on the human dimensions of sagebrush ecosystem management. *Rangeland Ecology & Management* (Vol. 78, pp. 155-164). <https://doi.org/10.1016/j.rama.2021.07.001>



A PUBLICATION OF THE  
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