NORTHERN ROCKIES CONSERVATION COOPERATIVE

Conservation for the Common Good

– Since 1987 –

2021 YEAR IN REVIEW

DEAR FRIENDS,

Information gains authority through trust—trust in each other, trust in our institutions, and trust in the validity of democracy. In an era of social media, endless news updates, and a proliferation of information sources, our daily understanding of what's happening around us is formed by the information we consume. What's more, your social context shapes the way you interpret information—and, conversely, information itself can be used to shape social context. In the midst of a global pandemic, increasing climate insecurity, accelerating biodiversity loss, escalating human demands on natural and community resources, and social injustice and inequality, it has never been more obvious and urgent to have reliable knowledge and to create better social and decision processes.

In this issue, the focus is on reliable knowledge and its role in achieving the common good. The keynote article is a two-part interview with NRCC contributors: Susan Clark, Tani Hubbard, Kristin Legg, Allyson Mathis, Mike Tercek, Patty Valentine-Darby and Richard Wallace. These panelists discuss how well-grounded, contextual science, communicated in new ways, and part of inclusive, integrative efforts can help solve conservation problems. Including non-dominant voices, moving beyond narrow research approaches, and building trust with everyone involved, are a few of the changes these contributors emphasized as critically necessary.

NRCC continues to seek projects and project leaders that can meet this moment. We introduce three new Research Associates, Nancy Bockino, Teresa Lorenz, and Patty Valentine-Darby; three interns, Lindsay Coe, Eileen O'Connor, and Marisa Wesker; and one visiting researcher, Lauren Sadowski—all of whom have made significant contributions to NRCC's success this year.

Earlier this year, NRCC hosted the eighth biennial and first virtual Jackson Hole Wildlife Symposium. Adapting to the times, we built an online platform to host the symposium and this content is still available for viewing. We encourage all readers to visit our site, watch the keynote videos, read project updates from around the Greater Yellowstone region, and learn more about this year's conservation award recipients.

We are also proud to announce the publication of two new NRCC sponsored books, *Yellowstone's Survival: A Call to Action for a New Conservation Story* by Susan Clark, and *The Artist's Field Guide to Yellowstone: A Natural History by Greater Yellowstone's Artists and Writers* edited by Katie Shepherd Christiansen. Congratulations to Kate and Susan for many years of commitment to these projects!

Visiting Researcher Lauren Sadowski writes a timely piece on the public perception of Grizzly 399 and how the public thinks this celebrity bear should be managed. Using 399 as a window into the larger topic of human-wildlife conflict, Lauren spent the summer interviewing more than thirty people, reviewing many written pieces, and assembling a comprehensive analysis of the different narratives of human-wildlife conflict in Jackson Hole. With this ongoing project, Lauren seeks to enlarge the conversation about carnivores in the GYE—and find a more pragmatic and responsible way to manage people's expectations and behaviors towards wildlife.

As always, this work couldn't happen without the support of many individuals and partnering organizations. We are grateful for all who collaborate both directly with us, and to everyone working to further human-wildlife coexistence in the GYE and around the globe. As we look forward to 2022, NRCC will continue to share new perspectives, provide a home to innovative conservation leaders, and foster projects that tackle critical issues. Stay in touch as we work together towards these goals.

Best regards,

Peyton Griffin

Ben Williamson

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BY THE NUMBERS

40 ACTIVE PROJECTS

52 RESEARCH ASSOCIATES

78 INTERNS / STUDENT RESEARCHERS

66 PARTNERING ORGANIZATIONS

12 STATES AND **14** COUNTRIES
LOCATIONS OF PROJECTS IN LAST FIVE YEARS

25 AVERAGE NUMBER OF EMPLOYEES ON PAYROLL LAST FIVE YEARS

$590,366 AVERAGE ANNUAL INCOME IN LAST FIVE YEARS

50 TOTAL NUMBER OF WORKSHOPS & CONFERENCES

92% PERCENT SPENT ANNUALLY ON PROGRAM

34 YEARS OF LONGEST-RUNNING PROJECT
(Michael Whitfield's Bald Eagle study)

64 PROJECTS SUPPORTED IN THE LAST FIVE YEARS

NRCC Welcomes New Research Associates

NRCC is pleased to welcome Nancy Bockino, Teresa Lorenz, and Patricia Valentine-Darby as Research Associates. Nancy, Teresa, and Patricia bring valuable conservation leadership, research, policy and communication skills to NRCC.

RESEARCH ASSOCIATES

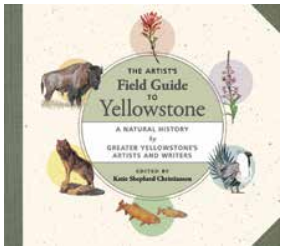
NANCY BOCKINO is a field ecologist who has studied birds, lynx, fox, wolves and whitebark pine since the early 1990's. Her current work focuses on whitebark pine conservation in partnership with Grand Teton National Park. The program includes the conservation of seed trees using beetle deterrent pheromones, contributions of seed and pollen to a genetic restoration program, and extensive monitoring of whitebark stands. Nancy holds an M.S. in Botany from the University of Wyoming and a B.S. in Wildlife Resources from the University of Idaho. Nancy is also an Exum mountain guide and a professional avalanche instructor and can be found in the Tetons nearly every day of the year.

TERESA LORENZ is an ecologist and natural resource professional, currently conducting research on Clark's Nutcracker birds and whitebark pine with NRCC RA Taza Schaming. She recently completed a post-doc with the U.S. Forest Service Pacific Northwest Research Station, where she researched cavity nesting birds and worked with the threatened Marbled Murrelet. In 2014, Teresa received a Ph.D. in Natural Resources from the University of Idaho. Her dissertation research focused on cavity nesting birds in post-fire landscapes. Teresa also holds an M.S. in Ecology from Utah State University. She is based in Naches, Washington.

PATRICIA VALENTINE-DARBY is a science communicator for the NPS and writer-editor with the Natural Resource Condition Assessment Program and the Chihuahuan Desert Network Inventory and Monitoring Program. Patty has worked on science communication products and technical reports for the NPS for more than a decade. She has also worked as a biologist for government agencies, universities, and a nonprofit for the benefit of wildlife, wetlands, and upland habitats. Patty holds a Master's in Environmental Management from Duke University and a B.S. in marine biology from the University of North Carolina.

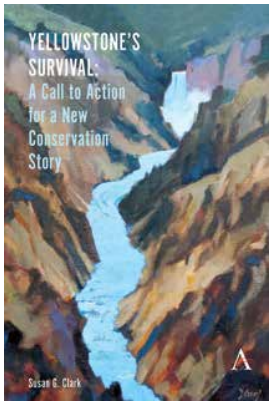
NEW BOOKS FROM NRCC

This year saw the release of two new books from the NRCC community. Adding to the canon of the Greater Yellowstone Ecosystem, these books tell a new story and illustrate what it will take to ensure this unique region's future.



In ***Yellowstone's Survival: A Call to Action for a New Conservation Story***, NRCC's co-founder Dr. Susan G. Clark provides a blueprint for action, leadership, and farsighted thinking to plan for a rapidly changing world. The bedrock of this book is a look at the people and institutions that make up the human system in the GYE.

NRCC's Artist-in-Residence, Katie Shepherd Christiansen, and colleagues demonstrate the capacity for art to access human values, meaning-making, and beauty associated with natural landscapes. ***The Artist's Field Guide to Yellowstone: A Natural History by Greater Yellowstone's Artists and Writers***, dives into the natural history of the GYE through the stories and images of many talented regional writers and artists.



2021 Jackson Hole Wildlife Symposium

This past spring, NRCC launched its eighth biennial and first virtual Jackson Hole Wildlife Symposium. Traditionally held every other year, the event brings together scientists, managers, and the public to learn about current wildlife research and conservation efforts. Given the COVID pandemic, this year's symposium consisted of an online speaker series, articles, and conservation awards.

The event was launched on May 26th, 2021, when over 100 viewers tuned in to watch opening remarks, presentations of awards, and participate in three breakout room discussions: working lands and carnivores (presented by Hannah Jaicks), culture of recreation (presented by Jesse Bryant), and climate change and amphibians (presented by Debra Patla and Andrew Ray).

The online content is hosted on a new page on the NRCC website: nrccooperative.org/virtual-2021-jhws. This year's keynote speeches are made up of six interviews with Douglas Smith, Rebecca Watters, Jason Baldes, Katie Shepardson Christiansen, Franz Camenzind, and Gary Tabor. In the videos, the speakers discuss the complex challenge of living within an intact ecosystem with growing human demands. Next is a series of fourteen research and project updates in science, management, conservation, education, and policy from across the region.

New to this year's symposium, we held the first Human-Wildlife Coexistence Photography contest, conceived of by NRCC intern Marisa Wesker, where the public was asked to submit images that capture the interconnected lives of humans and animals. This year's winner is "Stay in Your Lane" by Kate Ochsman (featured on the cover of this publication).

We presented two outstanding service awards, the Craighead Conservation Award to Yellowstone National Park's Senior Wildlife Biologist, Douglas W. Smith, and the Raynes Citizen Conservation Award to Tim E. Griffith, one of Jackson Hole's finest volunteers and naturalists. Additionally, we were deeply honored to present a Lifetime Achievement Award to the late Joselin Matkins, former Executive Director of the Teton Regional Land Trust. Lastly, we dedicated a page of contributions to the life of Bert Raynes, a place where his close friends shared tributes to Bert and his legacy. Thank you to the Meg and Bert Raynes Wildlife Fund for your support, and to all who attended the live event or viewed the online symposium.

2021 NRCC Interns and Visiting Researcher

NRCC hosted three interns and one visiting researcher this year. Lindsay Coe filmed and produced a short film for our website. Eileen O'Connor helped improve NRCC's digital platforms. Marisa Wesker assisted in organizing the 2021 Jackson Hole Wildlife Symposium. Lauren Sadowski conducted a research project on Griz 399 and human-wildlife conflict in the GYE. Thank you to Lindsay, Eileen, Marisa, and Lauren for bringing their unique talents to NRCC and improving our outreach and inquiry into local wildlife issues.

INTERN LINDSAY COE is a photographer and filmmaker with an educational background in cultural anthropology and journalism. She is passionate about merging aesthetically beautiful visuals with powerful stories and strives to create 'visual anthropology' through her work. She is conscious of her responsibility as a storyteller and strives to ethically create important, accessible conversations to make a positive social impact. Over the summer of 2021, she created a film piece for NRCC to illustrate who we are and what is our "why". Lindsay is a MFA candidate at Montana State University for Science and Natural History Filmmaking.

INTERN EILEEN O'CONNOR was the 2021 Fall Americorps service-member through the Teton Science Schools. She worked with NRCC Research Associates to update the Projects webpage and helped run the social media platforms. Eileen is interested in environmental stewardship, sustainable development and the relationships between the environment and people, especially how communities are impacted by climate change. Eileen graduated from the University of Vermont with a degree in Environmental Studies concentrating in conservation and ecology. Eileen previously served as a Peace Corps Volunteer in Cambodia. In her free time, Eileen enjoys hiking, reading, baking, and backpacking with her friends and family.

INTERN MARISA WESKER was the 2021 Spring Americorps service-member through Teton Science Schools. Marisa worked with NRCC to help plan and execute the 2021 Virtual Jackson Hole Wildlife Symposium and created the first annual Human-Wildlife Coexistence Photography Contest. Her interests, while broad, intersected with NRCC's priorities of conservation from all perspectives: ecological, political, social, economic, and personal. Marisa holds a dual degree in Political Science & French from Tulane University in New Orleans, Louisiana. She lives in Western Massachusetts and spends her free time hiking in the rain, poorly playing the guitar, and petting strangers' dogs.

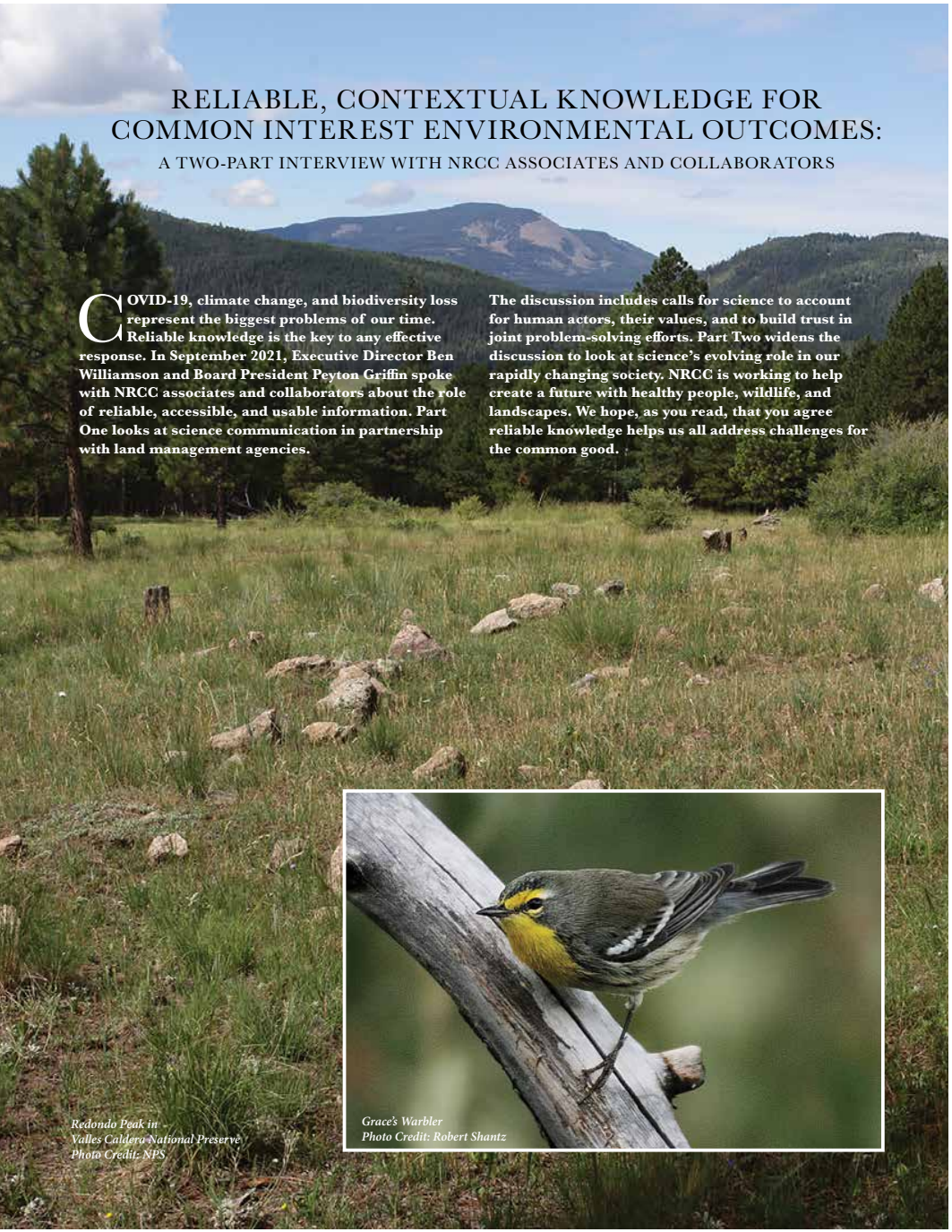
VISITING RESERCHER LAUREN SADOWSKI is a Master of Environmental Management candidate at the Yale School of the Environment, where she is focused on integrating the social and ecological sciences in conservation and wildlife management. She has experience working with charismatic megafauna and local communities in Botswana. She was a Visiting Researcher at NRCC from June to August 2021 and conducted interviews in Jackson Hole to learn more about human and grizzly bear relations. Lauren holds a B.S. in Environmental Studies and Wildlife Biology from the University of Vermont. She loves to ski and has been instructing for the past decade.

RELIABLE, CONTEXTUAL KNOWLEDGE FOR COMMON INTEREST ENVIRONMENTAL OUTCOMES:

A TWO-PART INTERVIEW WITH NRCC ASSOCIATES AND COLLABORATORS

COVID-19, climate change, and biodiversity loss represent the biggest problems of our time. Reliable knowledge is the key to any effective response. In September 2021, Executive Director Ben Williamson and Board President Peyton Griffin spoke with NRCC associates and collaborators about the role of reliable, accessible, and usable information. Part One looks at science communication in partnership with land management agencies.

The discussion includes calls for science to account for human actors, their values, and to build trust in joint problem-solving efforts. Part Two widens the discussion to look at science's evolving role in our rapidly changing society. NRCC is working to help create a future with healthy people, wildlife, and landscapes. We hope, as you read, that you agree reliable knowledge helps us all address challenges for the common good.



Redondo Peak in Valles Caldera National Preserve
Photo Credit: NPS

Grace's Warbler
Photo Credit: Robert Shantz

PART ONE

WITH TANI HUBBARD, KRISTIN LEGG, ALLYSON MATHIS, MIKE TERCEK, AND PATTY VALENTINE-DARBY

Ben: Given COVID and the ecological crisis, the need for accurate information is urgent and in everyone's interest. To start off, what is science communication?

Tani: Science communication is often informing the public, but we're increasingly talking about how to involve the public and build trust. Information should be accessible for a broad audience.

Allyson: If I can build on that, it's also getting people to care and understand why the information is relevant. You have to get the audience to understand why this is relevant, and what the 'so what' is.

Patty: I completely agree with Allyson. Most of my work is focused on taking information that can be quite technical and translating it to be relatable for people.

Ben: And what is the larger goal of science communication?

Tani: Sometimes it's about creating enjoyment and sparking interest, and other times we attempt to affect behavior change and opinions. Whether it's COVID or climate change, it's a challenge to communicate the fact that science is sometimes uncertain. People are hungry for 100% accurate information, but there is no 100% in science. This is what the public struggles with. It should be our goal to not just share findings but the process too.

Allyson: I think that ties into the lack of good scientific literacy within our public. Science is a body of knowledge. But, so much of what is important to us as a society, whether that be COVID, climate change or preserving National Parks, comes down to a set of values. Science cannot answer every question.

Mike: That's interesting. When I was in graduate school, I was trained to think that science can only present facts and it cannot address values, and you should never get into values if you want to stay credible. Now scientists are telling us to tone down our lifestyles, consume less resources, and wear a mask. It makes you wonder about how much people are judging science by how much it impacts their lives. Take climate change, the only solution is to consume less resources, and so the science is making an implicit value statement. People don't like to be told what to do, so it's easier to look at science messages as more politically motivated these days.

Tani: The other piece of this is trust in science. Sometimes in science we say we discovered something that Indigenous people in that area have known for centuries. Or we go into areas with a lot of ranching and farming, and we announce something about the ecosystem that the farmers already knew. We need to acknowledge many forms of knowledge and involve the public in the process.

Ben: That's a great segue. How do you decide who your audience is and why?

Kristin: It depends on what we want to deliver and to whom. We might create a technical piece that goes to the science audience, but we're also trying to distill and make it meaningful to managers so they can integrate science into decision making. We also create pieces for the public, like a good social media post that encourages interest in soil, water, plants, animals, and so forth.

Allyson: A big consideration when thinking about the audience is the difference between an expert and a novice. So you use different language for different audiences. For example, using a whole bunch of jargon won't make sense to the public. Jargon can be a roadblock.

Tani: But it's also important to define words or concepts. For example, the word riparian is something the public should understand. I like to define words that I think are important for everyone to learn and adopt.

Ben: I just read a report on how effective the recent IPCC report was at communicating the takeaways. The report found that words like 'mitigation' or 'adaptation' are not well understood. But, in fact, we need people to understand those words given the climate future we're facing. So I agree it can be a chance to expand the conceptual understanding of the public. We've now talked about some of the higher goals of science communication. Can you give us some concrete examples of the current work you're doing through NRCC?

Patty: I work with various parks by focusing on a specific resource and writing web articles on the current condition of that resource. Right now, I'm working on a report from Valles Caldera National Preserve about seven focal resources, including the New Mexico meadow jumping mouse and songbirds. I'm also working on another focused on landscape connectivity.

Tani: I'm working on replacing some of the usual reporting that goes to NPS managers with online material that's more condensed, visual, and interactive. I've recently worked on an article series that communicates water flow and quality of the Snake River near Flagg Ranch and the Lamar River in Yellowstone National Park.

Allyson: For a recent project, I borrowed from my geology background and made a Geodiversity Atlas for the Southern Plains parks. I also just made a set of bird checklists and helped develop a vegetation management plan. Additionally, I develop case studies on how parks can use collaborative approaches to meet the complex challenges facing the National Parks Services (NPS).

Mike: I run ClimateAnalyzer.org, a climate model that summarizes historical data to offer 'nowcasts' and forecasts of conditions like stream flow and fire risk, which can help land managers predict things like how many acres are expected to burn in Yellowstone over a season or predicting streamflow in Great Sand Dunes National Park.

Ben: To you Kristin, you run an I&M network, how do you encourage communication within your network?

Kristin: We have a team of scientists at the Greater Yellowstone Network who make meaningful outputs through articles, reports, and journal publications. We also recently brought in a student intern through NRCC to make fun and dynamic video pieces. It takes a team to do this, and there's a lot of back and forth. Deliberation leads our messages to a better place and grows trust in science. But with social media, we're in a new world. No matter what you do, people may take what they want out of your product to broadcast their own message. We need to be aware of this constantly and test our materials to know how they are being interpreted and how they can be improved.

Ben: Most of us here know that western science is just one type of knowledge. How do you seek to communicate other values and ways of knowing?

Tani: We spend a lot of time making sure our materials are accessible to people with disabilities. But we haven't spent as much time ensuring things have cultural context. There's so much we can do that's quite simple, like looking at our maps and making sure they're not doing harm. We can be more inclusive when we're telling narrative stories about the history of a place and include the people who live or have lived there. Usually we highlight landscapes or species, but we don't put the people in the story. I hope that the things I do will connect people to the land they live on and empower them to take actions.

Allyson: Science is a way of knowing, understanding, and learning, but there are other values and meanings associated with places. You could understand everything about the hydrology of the Grand Canyon, but if you don't value protecting the Grand Canyon and the ecosystem, then that scientific knowledge won't do much to preserve those places. The challenge is, that often, the deepest meanings people may have with parks cannot be addressed by science, and that's okay. Science is part of a larger whole.

Peyton: I often feel like science communicators are put in awkward positions, where you either have to be a spokesperson for science or you have to be an advocate for a position. This is difficult in science, where so much uncertainty exists. How do you navigate the uncertainty in a way that's helpful and opens possibilities for better outcomes for the common good?

Mike: I try to quantify the uncertainty when I can by giving probabilities with any statement. But in other cases, if there's an uncertain conclusion with large ramifications, I won't publish that, and instead say we need more research to narrow down the result.

Patty: I remind readers that there are still questions that remain and explain those questions. Hopefully we'll be able to answer those in the future. I also try to point out the good news, even if it's just a small thing researchers found. I want the readers to see the connection with the larger whole and see the importance of that species in a park. For instance, some people might know what a Grace's Warbler is and can relate to it and can see the value and get excited about the larger park.

Allyson: I think it's important to explain the evolving way that science works—that it builds on itself and eventually we get more information. Overall, more people are talking about science communication. It didn't used to be this way. It used to be in its own corner. But now in various fields, there are big efforts to communicate science. There are lots of people approaching this challenge, and that gives me great hope for the future.

Ben: I hope that as science communication grows, it does so in the sense that you all described. It's a challenge, and I applaud each of you for doing it with vigor and an acknowledgement of the new and evolving reality we all share. Thank you for participating in this conversation.

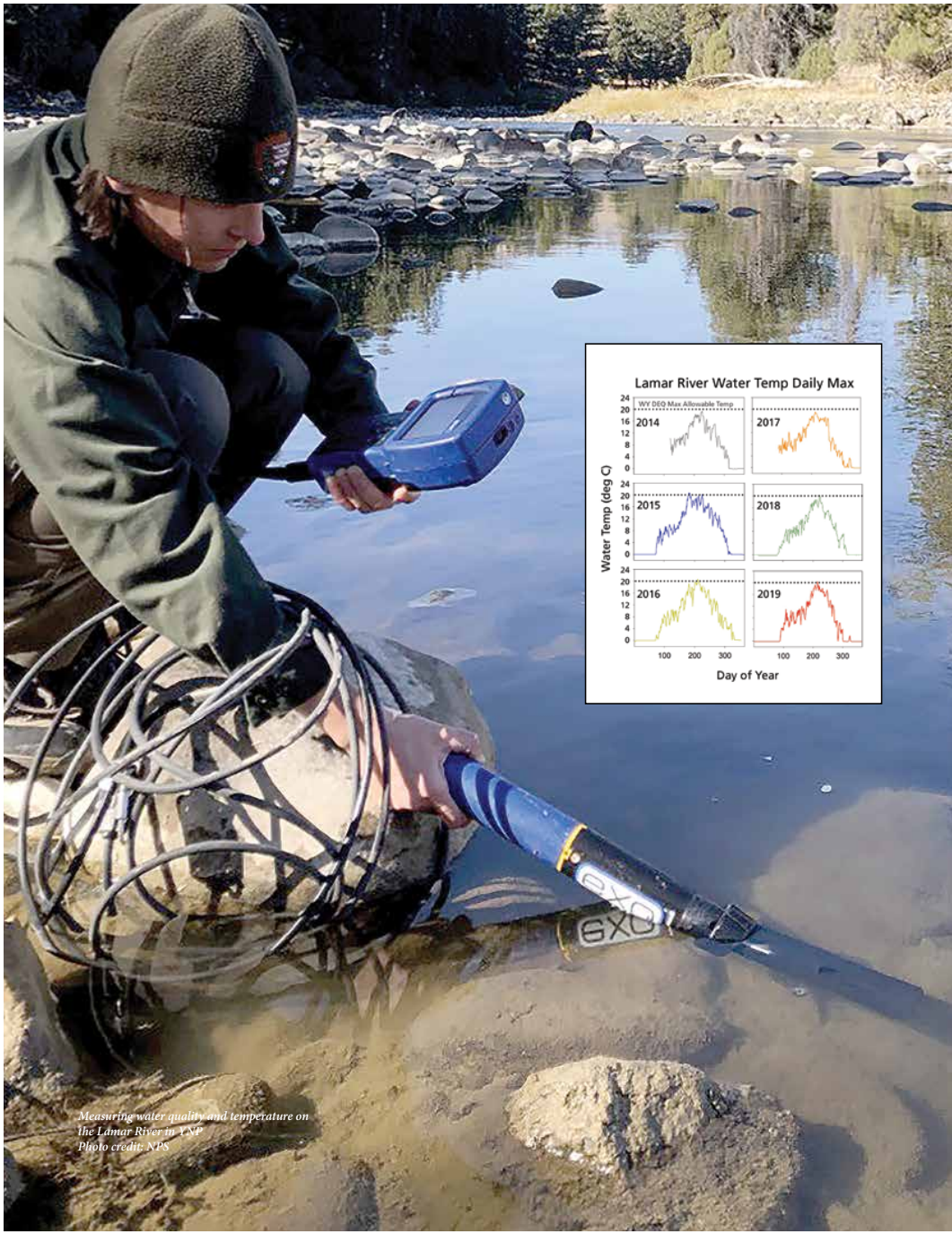
Tani Hubbard is a NRCC Research Associate and science communicator for the Chihuahuan Desert, Greater Yellowstone, Heartland, and Northern Great Plains Inventory and Monitoring (I&M) Networks. Tani lives in Vail, AZ.

Kristin Legg is the Program Manager and Ecologist for the Greater Yellowstone I&M Network. Kristin lives in Bozeman, MT.

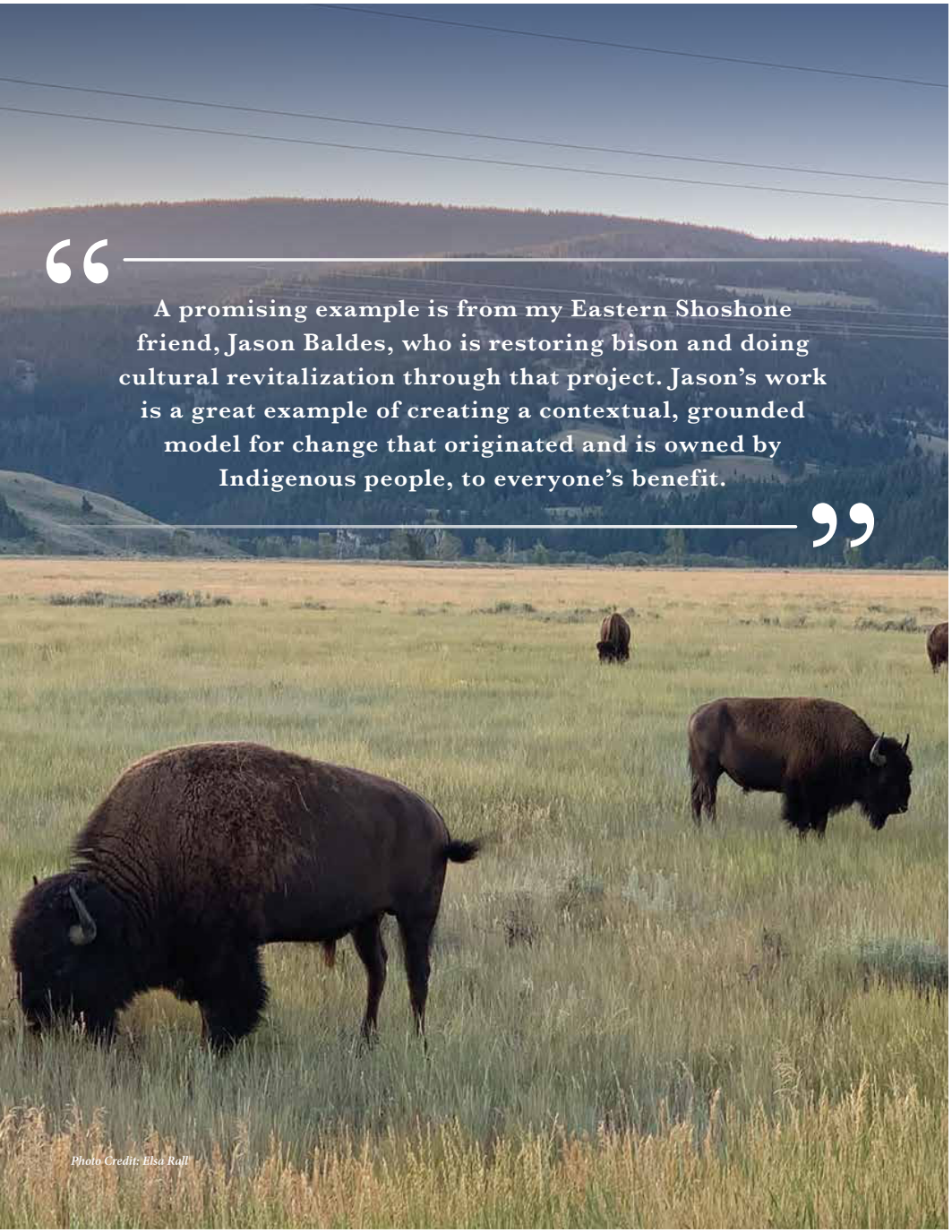
Allyson Mathis is a NRCC Research Associate and science communicator for the Chihuahuan Desert and Southern Plains I&M Networks. Allyson lives in Moab, UT.

Mike Tercek is a NRCC Research Associate and climate scientist and founder of Walking Shadow Ecology. Mike lives in Gardiner, MT.

Patty Valentine-Darby is a NRCC Research Associate and science communicator for the Natural Resource Condition Assessment Program and the Chihuahuan Desert I&M Network. Patty lives in Pensacola, FL.



Measuring water quality and temperature on the Lamar River in YNP. Photo credit: NPS



> A promising example is from my Eastern Shoshone friend, Jason Baldes, who is restoring bison and doing cultural revitalization through that project. Jason's work is a great example of creating a contextual, grounded model for change that originated and is owned by Indigenous people, to everyone's benefit.

Photo Credit: Elsa Rall

PART TWO

WITH SUSAN CLARK AND RICHARD WALLACE

Ben: We know that science is essential to understanding how the world works and we also know that science by itself is not nearly enough to solve conservation problems when diverse people are involved. So what is "missing" in how we see traditional science and how can we see science as a broader idea and source of positive change, given our society's many challenges?

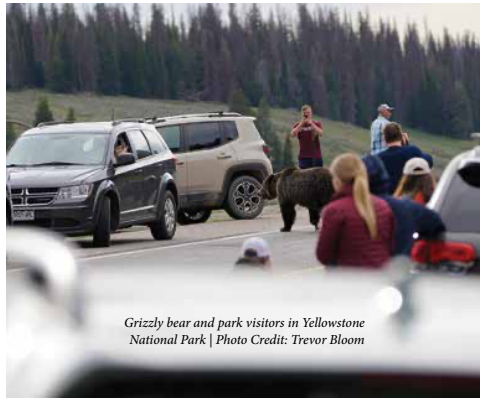
Susan: I'll start by emphasizing that we live in a different context for the role of science than how we understood and used science in the recent past. The world is much more complex now. To be sure, science is relevant to our understanding of the world and of ourselves. There is never enough science on hand. But at the end of the day, the problems we face are not scientific. The problem is learning how to live with each other and in nature in ways that allow all of us to flourish. Science can help, but this challenge is a pragmatic one.

Richard: I'm nine months in as the editor-in-chief of *Frontiers in Ecology and the Environment*, a global journal of the Ecology Society of America. Since I've started this job, I've spent very little time thinking about "science communication" in the traditional sense. This is because the traditional idea of science communication feeds a linear understanding of the role of science in the decision process. Anyone doing science needs to do more than communicate their view of science. They need to think contextually and communicate integratively about the relationship of their science to the problem at hand for the common good.

Susan: Good point. For decades, all of us at NRCC have been doing traditional science and, along the way, incorporating diverse knowledge from a broad range of experiences to provide tailored, useful information for management and policy. We're reframing science as an integrative input into complex social and environmental settings. Science is not a simple "science to policy" process with the "right" decision popping out somehow.

Ben: I agree, NRCC's role is about broadening what we think of as reliable knowledge in the environmental field and how best to apply it.

Richard: The problem is the grounding of science in a "positivistic" view, to use a technical term. Like Susan, I agree that conservation problem-solving requires certain foundational information, including ecology and biology. But the profound failure of traditional positivism is thinking that if you start with disciplinary science, it will lead you to certainty in addressing problems that have consequences for species, ecosystems, and



Grizzly bear and park visitors in Yellowstone National Park | Photo Credit: Trevor Bloom

humans. When you follow the science like this, it won't lead you anywhere except to the scientific answers that you are trying to get to. We want sound science in the linear sense—and we've known how to do that in a conservation context for a hundred years. But we at NRCC know that we can do that for the next hundred years and it won't lead anywhere except to the continued proliferation of peer-reviewed journal articles.

Ben: What I'm hearing is that working contextually means orienting scientific inquiries to the problems in their actual form. Staying on contextuality as a theme, can you expand on this?

Susan: Being contextual means paying attention to what's happening around you and the problem at hand. It also means finding ways to work across people's differences and remaining forward-looking. Too often, scientists today are used as political weapons on one side of the argument or the other. As I see it, we need people, scientists included, who build bridges across differences and address both technical problems and conflict. We have people at NRCC, like Matt Barnes, Steve Primm and others, who make significant efforts to interact with people on the ground, learn how each side of the issue is framed and find shared interests in solving a problem. That approach is a lot of work, but it's the work that is needed today.

Richard: Another way to say that is: being contextual is about asking not only the 'how' and 'when' and 'what', but the 'why.'And then, pursuing the why wherever it takes you and adapting your work so that it's practically related to the why.

Peyton: It's clear that we need to transcend traditional science as a narrowing, tunneling method if we are to deal with our most pressing problems today. We know that any political process will fall apart if it only relies on narrow science. So who has standing in the manager role, or more broadly, who is the one who decides how to solve a problem?

Susan: A question I ask my co-workers and students is, what is it that managers imagine they manage? Managers think they're managing wildlife, forests, and so forth (things), but in fact, they manage people in complex situations that require action and behavioral change. Most managers are part of a big organizational and policy system, but sometimes they can't see the systems, built-in traps, and the full picture in which they're embedded.

Richard: In my doctoral work, I studied the social factors that influence decision making in agencies with names like the "Marine Mammal Management Division" or the "Office of Protected Species Management." Like Susan just described, managers are trained to study things and then manage those things. The lesson here is that programs are designed to institutionalize the idea of narrow science and believe that somehow scientific knowledge will be applied to management for good effect. However, there are alternatives, including reflective practice. In my work, I found that most managers were never asked to reflect on the influences on decision making. They were never asked to think contextually or integratively. Their job was to apply science to management decisions in a linear fashion, as if that would address all the complexities of decision making. That's positivism right there, and it doesn't achieve conservation goals.

Susan: We've created a narrative about ourselves and nature—and our management and policy systems—and we can become locked inside of that story line. Being contextual also means being able to see patterns in narratives and systems. Once you have a pattern-recognition device such as integrative science, you see that we recycle our approaches over and over and we continue to materialize and objectify nature. That's the wrong formula if we're ever going to reach sustainability. We can get by with engineering responses for a while, and temporary crises might be avoided, but after a while, you're always left with the same problems you have now—too many people pursuing limited space, wildlife, and landscapes.

Ben: Another harmful effect of this type of recycled response to problems is that there is a loss of trust within the public when problems are attended to in limited technical ways and yet persist year after year.

Susan: Any type of engagement with a problem is an opportunity to build trust and treat people respectfully across their differences. Even if there isn't an agreement, we need to see these opportunities for growth and movement toward actual problem solving with lasting outcomes.

Peyton: You both have talked about approaches that contain mutual respect and build trust. Can you give an example from your work or others that imbues decision making with a grounding that we really are 'all in the same boat together'?

Susan: We've seen the rise of Traditional Ecological Knowledge, the knowledge system for Native peoples, in many contemporary environmental contexts. But what we're really seeing with the rise of TEK is a demand from Indigenous folks for respect, recognition, and a better relationship between Euro-American and Indigenous cultures, something we've done a very poor job at for the past several hundred years. A promising example is from my Eastern Shoshone friend, Jason Baldes, who is restoring bison and doing cultural revitalization through that project. Jason's work is a great example of creating a contextual, grounded model for change that originated and is owned by Indigenous people, to everyone's benefit.

Richard: Indigenous and Black ecologists have asked for substantive changes to the decision process in science communication for many years. When I started at Frontiers, as a white middle-aged Editor-in-Chief with a majority white editorial board, I was asked, given the historical boundaries in publishing, is the journal willing to change the decision process so that Traditional Ecological Knowledge or the life experience of a Black ecologist can become a relevant part of the story of science? As a result, I am doing the necessary restructuring so that disproportionately challenged voices are supported in ways that are meaningful to them. I'm committed to making these changes. And I was prepared for this role because I've long seen science as integrative. The end goal is not just promotion of science or the elevation of unrepresented voices. The end goal is the elevation of underrepresented voices to contribute to the conservation of the species and ecosystems on which we rely. That's their goal too. This type of integration is possible, but you have to get past the blinders first.

Ben: To reach a conclusion for this conversation, I can see that both of you are calling for a rethinking of how we frame and address environmental problems. Can you offer any ideas for ways forward?

Richard: Again, this is not about communicating science, it's about finding the common interest. We need scientists not only to use science but to work toward creating the social process that we desire, and that's the work we're trying to do at NRCC.

Susan: The way to do this work is by engaging with real people and real situations, and in the places that you really care about. In my career as an educator and applied change agent, as I see it, the way forward is to be realistic, contextual, and use integrative science in the broadest sense to aid society and nature.

Ben: Well Susan and Rich, thank you for an insightful conversation and of your vision for how science can be integrated into a much larger whole where better outcomes for wildlife, ecosystems, and people are the explicit purpose of any inquiry. This view of science is prescient and what NRCC will continue to encourage.

Debra Patla, NRCC Research Associate, surveying for amphibians | Photo Credit: Lindsay Coe

photo Credit: Lindsay Coe

Susan G. Clark is a Professor of Wildlife Ecology and Policy Sciences at the Yale School of the Environment. She co-founded NRCC in 1987 and is an emeritus Board Member. Susan splits her time between Guilford, CT and Jackson, WY.

photo Credit: R.J. Tarver

Richard L. Wallace is the Editor-in-Chief at *Frontiers in Ecology and the Environment*, an ecology and environmental science journal from the Ecological Society of America. He's the Educator-in-Residence and a Board Member for NRCC. Richard lives in Lexington, VA.

WHAT TO DO WHEN PEOPLE'S PERCEPTIONS OF GRIZZLY 399 CONFLICT WITH ONE ANOTHER?

BY LAUREN SADOWSKI, NRCC VISITING RESEARCHER

Whether you are a resident or visitor of Jackson, you are probably well aware of the world-renowned Grizzly Bear 399 and her four cubs. Grizzly 399 (named for being the 399th bear tagged by researchers) has millions of fans worldwide who follow her own Facebook, Instagram, and Twitter accounts and flock to Jackson Hole to catch a glimpse of her. She is undoubtedly an extraordinary grizzly of 26 years and is currently in her second year of raising four cubs. Over her lifetime she has reared a total of 16 cubs and grand cubs, and as her progeny grows, so does her celebrity status.

What does this celebrity status mean for Grizzly 399 and her cubs? Is it her seemingly extraordinary "motherly" or ecological success (despite other bears also sharing similar rearing statistics), or does Grizzly 399 mean something more to us? Does she symbolize the relationship with nature that we hope to have? How do our differing views of Grizzly 399 play a role in wildlife management decisions and influence actions taken toward bears and people? How should or can differences be resolved, by who, and by what means?

As a Visiting Researcher for NRCC this summer, and through my continuing work, I want to understand why Grizzly 399 is so famous and how people's actions and perceptions towards this animal affect wildlife management decisions (and thus grizzly bear conservation). From June to August 2021, I interviewed many people, including animal advocates, state and federal agency employees, hunters, ranchers, environmental organizations, and community members. I wanted to learn how Grizzly 399 is perceived, as well as how respondents expect bears (and people) to be managed in Jackson Hole. Are their expectations being met? Why or why not? What if anything should be done to find common

Grizzly Bear 399 and her four cubs | Photo Credit: Bryce Powell

Grizzly Bear Blondie, another celebrity bear | Photo Credit: Bryce Powell

ground? My work can provide insight into why human-bear cases such as illegal feeding, hazing, removing, or delisting grizzlies can result in contentious debates. Most importantly, it can help us find common interest outcomes. By understanding what people identify with and value, we can better understand how to manage people's behavior and expectation so we can keep grizzly bears in healthy numbers, well distributed across the Greater Yellowstone Ecosystem.

What I learned from my work is that most people talk about Grizzly 399 in a way that affirms their "moral narrative" around this animal–what is right, why, and in a larger sense about nature and human responsibility. In other words, I found that people think of themselves as "doing the right thing" for "the right reasons" when it comes to their beliefs and actions toward Grizzly 399, whether that's taking photographs to raise species awareness or ranching in coexistence to keep Wyoming landscapes healthy and full of wildlife. Yet people typically hold different notions of what is right and how to achieve it, as is the case for Grizzly 399 and her offspring.

My work might help us carry out a broader conversation as we go forward about how individuals and groups can learn to work across different starting positions to reach pragmatic policy and management actions. In order to do so, we must look beyond our present narratives to ask bigger, deeper, and more profound questions about what living with these large bears requires of us. We need to be clear on matters, such as "are roadside bears good for the longevity and health of the species?", "what are the moral, ecological, and social considerations of celebritizing animals?", and many more real questions. With these questions in mind, hopefully, we can have the integrative conversation about how we interact with wildlife, our own behavior and responsibility, and what management of people's actions and expectations requires. This is the road to genuine coexistence we all say we want.

2020 FINANCIAL REPORT

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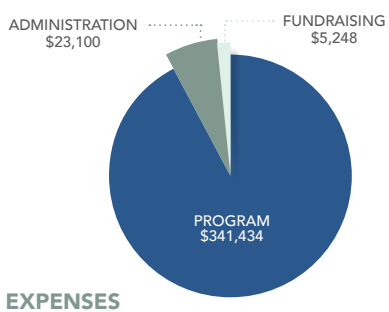
Our revenue comes from a wide variety of sources including foundations, government agencies, and individuals.

In 2020, 92% of all expenditures directly supported conservation projects.



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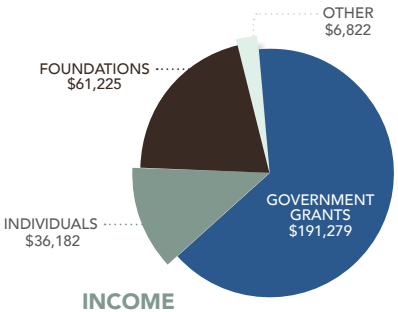

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