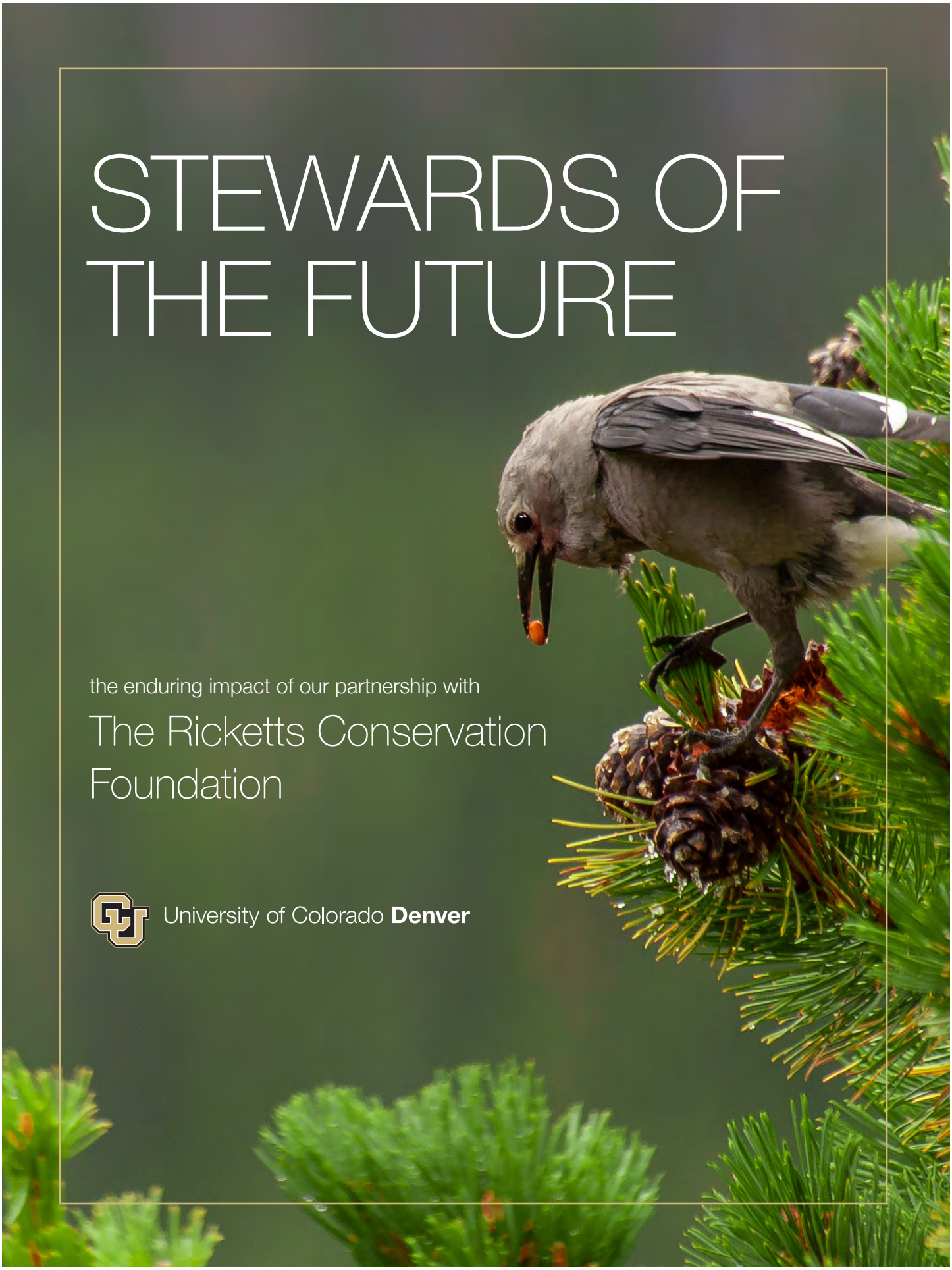
STEWARDS OF THE FUTURE



the enduring impact of our partnership with

The Ricketts Conservation Foundation

University of Colorado **Denver**

THANK YOU

The future of conservation research depends on cultivating dedicated scientists who bring fresh ideas and rigorous training to urgent ecological challenges.

Dear Joe,

Thank you for your visionary commitment to conservation research. The Ricketts Conservation Foundation's support of our ongoing work on the Clark's nutcracker and whitebark pine has informed restoration strategies and fostered greater awareness of the urgent need to protect these key species. Additionally, your generosity has brought together researchers, students, and conservationists, ensuring that this important work continues and that future generations will have the opportunity to learn from and experience these vital ecosystems firsthand.

Beyond research, your support has enriched the academic experiences of University of Colorado Denver students, providing them with hands-on opportunities to contribute to vital conservation efforts. These experiences are instrumental in shaping the next generation of scientists, conservationists, and policymakers—ensuring that they have the skills, knowledge, and passion to carry this work forward. I am proud of the paths we have helped create for them, and wanted to share some of their stories with you.

The pages that follow are just a few examples of the legacy you are helping to create in environmental stewardship—a legacy that countless others will uphold and benefit from well into the future.

With gratitude,

Diana F. Tomback, PhD
Professor of Integrative Biology

The Nutcracker Project

The Nutcracker Project is a long-term research and monitoring collaboration among the University of Colorado Denver, Yellowstone National Park, and the Ricketts Conservation Foundation. Launched in 2019, the project investigates the relationship between Clark's nutcracker and the threatened whitebark pine—a keystone species vital to high-elevation ecosystems in the western U.S. and Canada. The Clark's nutcracker is the primary seed disperser for whitebark pine and thus essential to whitebark pine's future in the region.

Currently, all threats to whitebark pine are at work in the Greater Yellowstone Area. Yellowstone National Park resource managers are concerned that the decline in whitebark pine will lead to declines in nutcracker populations, a downward spiral in the bird-pine interaction, and, ultimately, a loss in functional whitebark pine communities.

Led by Dr. Diana Tomback, the project tracks nutcracker abundance, habitat use, and movement patterns using field observations and GPS tagging. Early findings highlight the critical role of whitebark pine communities in supporting nutcracker populations and underscore the need for continued conservation efforts. The project is helping to inform recovery strategies and develop a long-term monitoring protocol to detect nutcracker population trends over time.

Stewards of the Future

Support from the Ricketts Conservation Foundation profoundly impacts not only the immediate need for science-based research to inform sound environmental stewardship, but also the trajectories of those who will carry this impact forward. Drawn from diverse backgrounds, these are young scientists who share a common passion for and commitment to wildlife conservation as a human imperative and an enduring value. Their work in Yellowstone National Park will create a ripple effect, not only on conservation activity within the park but on species and lands much further afield as they progress in their careers. Their stories are just three examples of the many lives that will be influenced by the foundation's vision and generosity.

TOM MCLAREN

Next Generation Conservation

As a graduate student, Tom McLaren helped initiate the Nutcracker Project. Now a biologist at Klamath Bird Observatory in Oregon, his research will have a long-term impact.

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KARINA LI

Crucial Connectivity

A master's student and graduate research assistant, Karina Li continues monitoring activity in Yellowstone and is intrigued by the highly interconnected nature of ecosystems.

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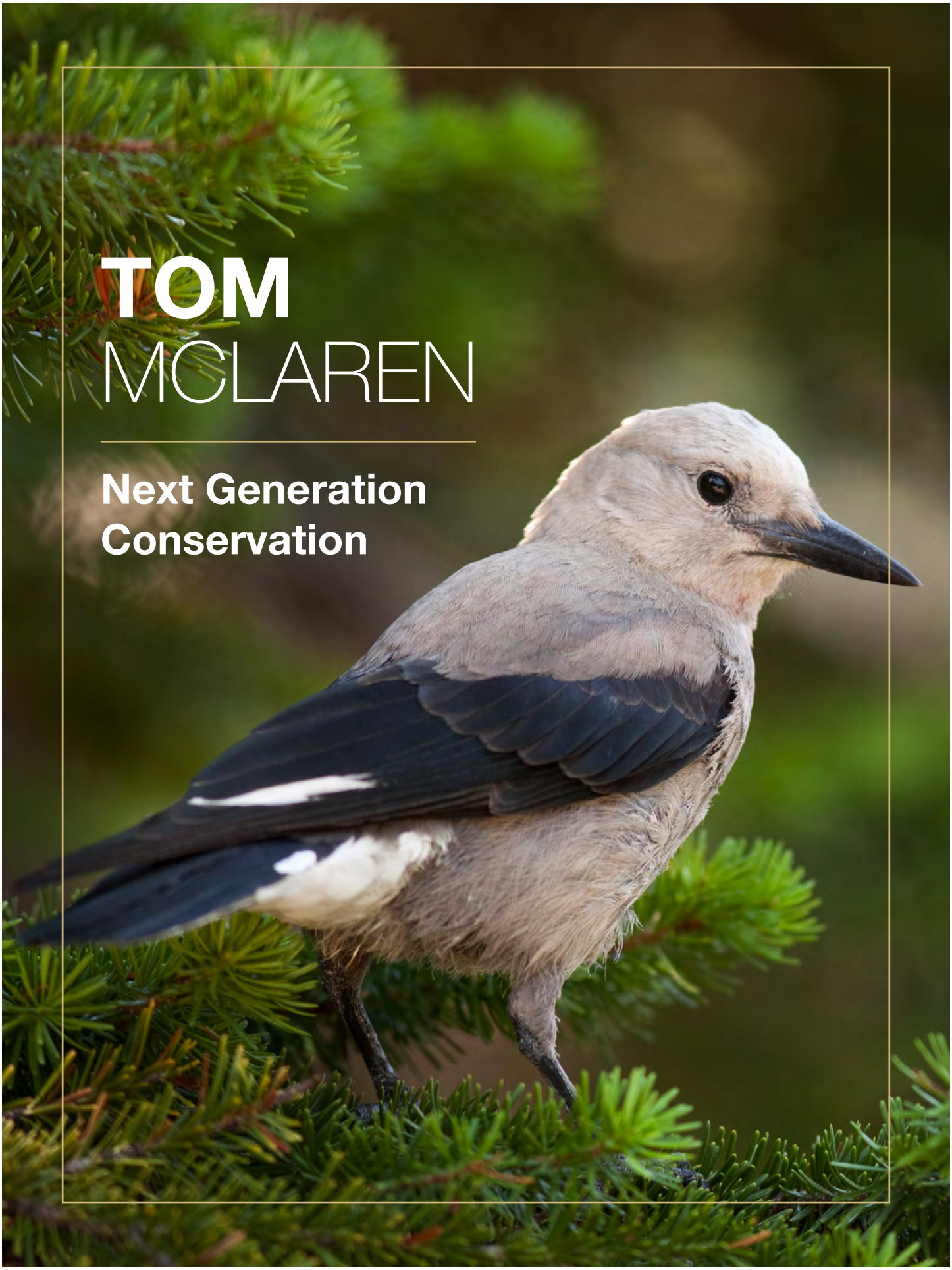
ALI ALGHAMDI

Pursuing Ecological Balance

Focused on the delicate balance between animals and trees, PhD student Ali Alghamdi from Saudi Arabia stands to influence conservation halfway around the globe.

Page 14


TOM
MCLAREN
Next Generation
Conservation

Tom McLaren worked with Diana Tomback from 2019–2022 as a graduate student and helped her initiate The Nutcracker Project in Yellowstone National Park.

Tom McLaren's journey into conservation research is a testament to how passion, mentorship, and strategic support can shape a career that contributes to the future of ecological preservation. In his role as a biologist at Klamath Bird Observatory in Ashland, Oregon, Tom leads a program monitoring songbirds across the Pacific Northwest, providing essential information to the National Forest Service, National Park Service, and Bureau of Land Management on species populations and habitat health. "A lot of that goes toward helping them make management decisions around conserving land or species, especially species of conservation concern, like Clark's nutcracker," Tom explains.

The idea of birds collecting and caching seeds all over the landscape and coming back to these cache sites months later and remembering exactly where they were was just amazing.

But Tom's path into this field began far from Oregon—in central Texas, where nature documentaries inspired in him a curiosity about wildlife. That curiosity led him to Montana State University and eventually into seasonal fieldwork across the western U.S., where he became involved in conservation projects that focused on the relationship between whitebark pine and Clark's nutcracker. This type of mutualistic interaction, in which the species rely on each other, intrigued him.

Right People, Right Place, Right Time

As he thought about furthering his career trajectory, Tom decided to pursue a graduate degree, which ultimately led him to Diana Tomback and CU Denver. "I think Diana was a natural person to reach out to, having become interested in this whole system and the interaction between whitebark pines and Clark's nutcrackers," Tom recalls. "This idea of birds collecting and caching seeds all over the landscape and coming back to these cache sites months later and remembering exactly where they were was just amazing."

Studying and working with Diana proved pivotal to Tom's future. He happened to connect with Diana just as she was starting her partnership with the Ricketts Conservation Foundation. "When I came on as a grad student with Diana, I started off with this project to help implement a monitoring program in Yellowstone National Park," Tom recalls. He and Diana set up a series of study sites throughout the park to gather baseline knowledge about the habitats associated with Clark's nutcrackers. "We had this question," he explains. "Are they only using whitebark pine in Yellowstone or are there other components to the landscape they utilize that might make conservation more complicated or that we can use to be more effective in our future conservation efforts?"

Invaluable Resources and Connections

This partnership with the Ricketts Conservation Foundation ultimately proved invaluable to Tom. The foundation not only supported his research in Yellowstone but also provided critical connections within the conservation community that helped him advance his career. As he was looking beyond graduation, Tom was considering a professional path toward bird ecology and the work of bird observatories. “Diana actually put me in contact with folks from Ricketts Conservation Foundation—some really dedicated ornithologists who could help provide some insight into whether that was really the right fit for me or whether it was going to be something I was going to want to stick with over the long term,” Tom explains.

Just as important, Diana guided Tom in honing the professional skills that continue to anchor his work. “A lot of my work revolves around writing reports and permits and managing data in the same ways I learned when I was with Diana,” Tom notes. “The reporting and technical writing—that’s all based on skills that Diana helped me craft. Those are skills I rely on a lot in my work that I definitely didn’t have before coming into grad school.”

Today, Tom is putting his skills to work in helping to tackle some of the most pressing conservation questions in the Pacific Northwest. Chief among them is the impact of increasingly intense wildfires on bird populations. “A big question out here in the Pacific Northwest is what impact do wildfires have on landbirds and how do we manage to reduce any negative impact of wildfires, especially with the knowledge that a lot of these fires are growing in intensity, growing in size?” Tom says. “How do birds relate to wildfire disturbance? How long does it take for them to return to these areas afterward? Do they return? Do we see different bird communities coming in after these wildfires? This is something we are engaged in right now with our partners,” he explains.

Looking Beyond the Horizon

While representative of a new generation of scientists himself, Tom is already thinking about the value of his work to those who follow in his footsteps. Fascinated by the idea of population trends over time, Tom maintains that a fundamental component of building that body of knowledge is having long-term data sets. “That’s our currency—just this wealth of data,” he explains. “Helping collect that data provides a record where there wouldn’t be otherwise. Maybe 20 years down the line someone is able to use our data that we’ve made available and produce even more impactful science than what we can do right now or what we’re thinking of right now.”

Tom McLaren’s story illustrates how conservation research thrives on collaboration, mentorship, and sustained support. The Ricketts Conservation Foundation’s investment, coupled with Diana’s guidance, not only advanced research in Yellowstone National Park but also prepared Tom to carry forward the work of conservation science. Looking beyond the horizon, Tom’s scientific contributions exemplify how support for young researchers can help safeguard the natural world for future generations.

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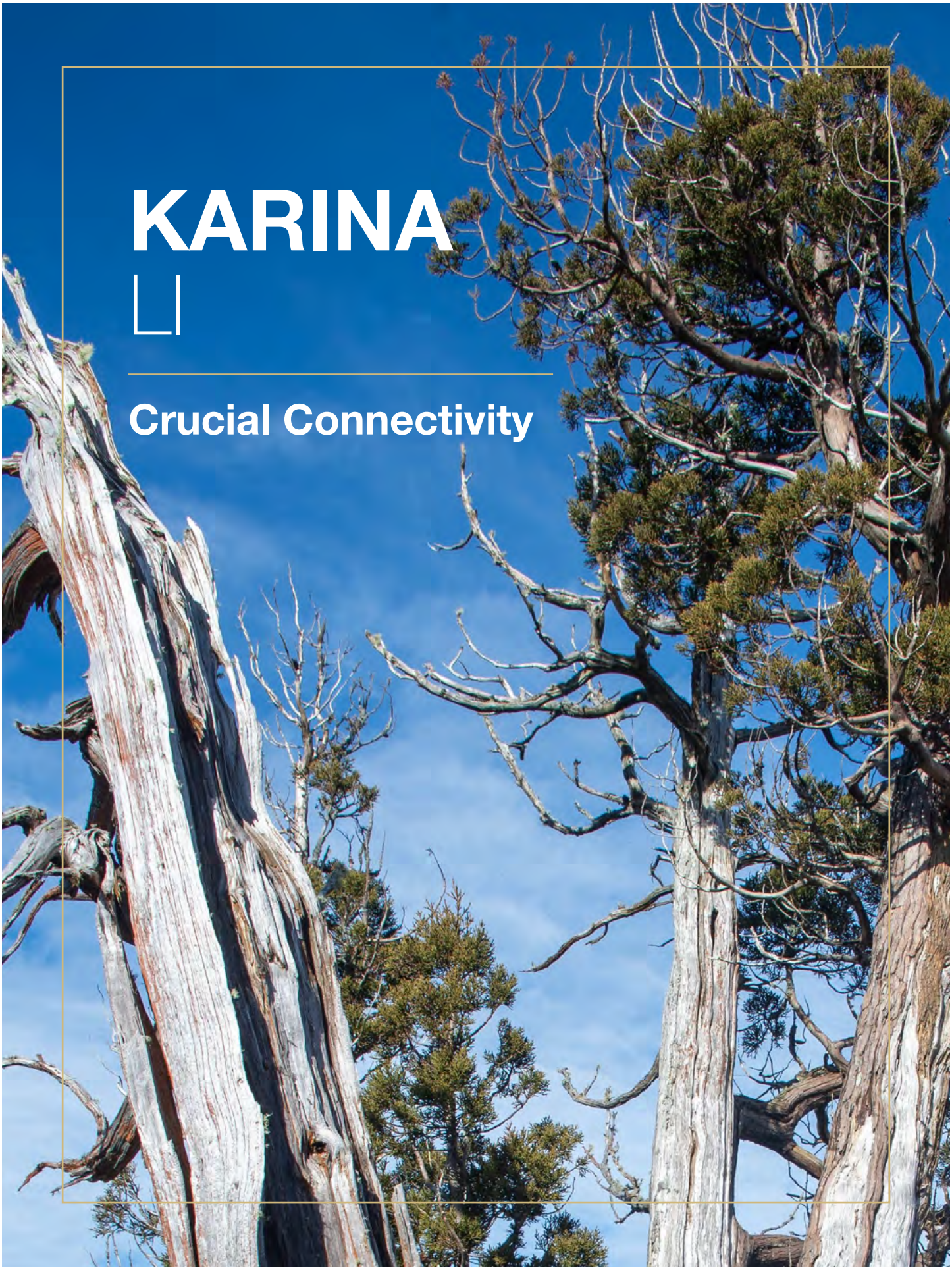
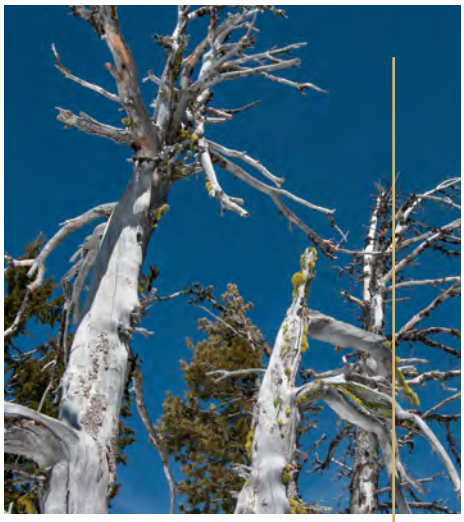

KARINA
LI
Crucial Connectivity

Karina Li is a master's student and graduate research assistant who continues the monitoring activity initiated in 2019 in Yellowstone National Park.

Karina Li's path into the conservation field essentially began when she was a child growing up in Southern California. It was there that fire-affected landscapes, drought, and bark beetle infestations deepened her appreciation for the highly interconnected nature of ecosystems. "This is work I envisioned myself doing since I was a little girl. I've always loved animals, and being outdoors. I think it's something I've always wanted to dedicate my life towards," she says. As a wildlife technician for the U.S. Forest Service and National Park Service, Karina did much of her field work in the Greater Yellowstone Ecosystem. "I just love it there. It's really special," she says fondly. In those roles, Karina dedicated her time to collecting data, though without fully understanding the broader implications of how the data were ultimately used. Becoming aware of the Clark's nutcracker and whitebark pine system ultimately expanded her horizons.



Obviously I want to be efficient and frugal... but the fact is I can ask. It's not common in this field to have a budget that is actually realistic for what you're trying to accomplish.

"I actually heard the story from another master's student during a presentation he was giving for a conservation agency in the Crown of the Continent ecosystem, just outside Glacier National Park" she explains. "He did a really good job telling the story of Clark's nutcracker and whitebark pine—how important the pine is in terms of ecosystem services—and I was just really captivated by the system itself and the study species."

Strong Roots, Evolving Research

Karina is now continuing the work in Yellowstone that Tom McLaren started six years ago with Diana Tomback. Her research spans two interconnected projects. One involves long-term monitoring of Clark's nutcracker populations across different forest types. Eventually, the park will take over monitoring of the species, but first we want to ensure we understand nutcrackers' habitat use. "We know they have this strong relationship with whitebark pine and other large-seeded pines but there is a possibility they are frequently using a habitat like spruce fir and nobody knows," she explains. "Our goal was to spend some time in different forest types and make sure we're not missing anything important in terms of their biology that would be relevant to monitoring."

The other project tracks the movements of the Clark's nutcracker using satellite transmitters to better understand their nomadic behavior and how it might respond to ecosystem changes. "The concern is if whitebark pine were to decline in the future and these birds were to lose their food source, would they just leave the area permanently or is there a possibility that because of their nomadic tendencies, they would return once whitebark pine stands were restored?" she wonders. Karina has been working with Diana and Walter Wehtje, Director of Ricketts Conservation Foundation, to capture nutcrackers and mount satellite tag backpacks. They are still using sites originally scouted by Diana and Tom for trapping as well as new sites.

A Productive Partnership

Support from the Ricketts Conservation Foundation, in fact, has been pivotal to Karina's work. The foundation fully funds her position as well as the materials she uses, and her housing in and transportation to and from Yellowstone. She also appreciates being able to focus on rigorous fieldwork and data collection across multiple seasons without the usual financial constraints. "Obviously I want to be efficient and frugal and not ask for things I don't need," she says. "But the fact is I can ask. It's not common in this field to have a budget that is actually realistic for what you're trying to accomplish."

Working with Diana has been another instrumental factor in shaping Karina's approach to conservation. "She's just really inspiring," Karina says. "She has always encouraged me to grow the base of my knowledge and not be afraid to explore related topics." Diana's interdisciplinary mindset has helped Karina embrace the complexity of ecological systems, from forest regeneration to disease dynamics. Diana has also inspired Karina to become active in the conservation community. "This work has important applications, which is exciting, but it means there is responsibility in terms of getting this information out there and making it

relevant to conservation and management," Karina notes. "I kind of followed her lead a little bit, and I help run a webinar series for the Whitebark Pine Ecosystem Foundation, which she helped found. It's been really exciting just to be engaged in the community of people who are interested in conserving five needle pines."

Roadmap for the Future

Looking ahead, Karina sees her work as a blueprint for future conservation efforts, calling attention to the idea of things being connected, supporting a management plan, and bringing appropriate agencies on board. "I think this could be a really interesting roadmap for other tree species that are probably going to be listed in the future," she says. "In essence the work goes beyond whitebark pine and Clark's nutcracker. In some ways it's kind of a case study in what you do when a tree gets listed, especially one so reliant on another species for seed dispersal." Karina's long-term goal is to return to federal service, contributing to the development of cohesive management plans for threatened ecosystems.

The complicated nature of this work and its relationship to society as a whole further fuels Karina's firm commitment to it. "I think it's extremely important work that gets overlooked by society often because it's complex; and we don't do well necessarily with indirect benefits," she explains. "Economic benefit is something a lot of people can kind of understand, but trying to understand 'How does this tree affect my life? How is it that resources I use, like water, are affected by a bird up in the mountains?' These are just challenging concepts to relay to people, but it doesn't change the fact that it's happening, and it deserves attention."

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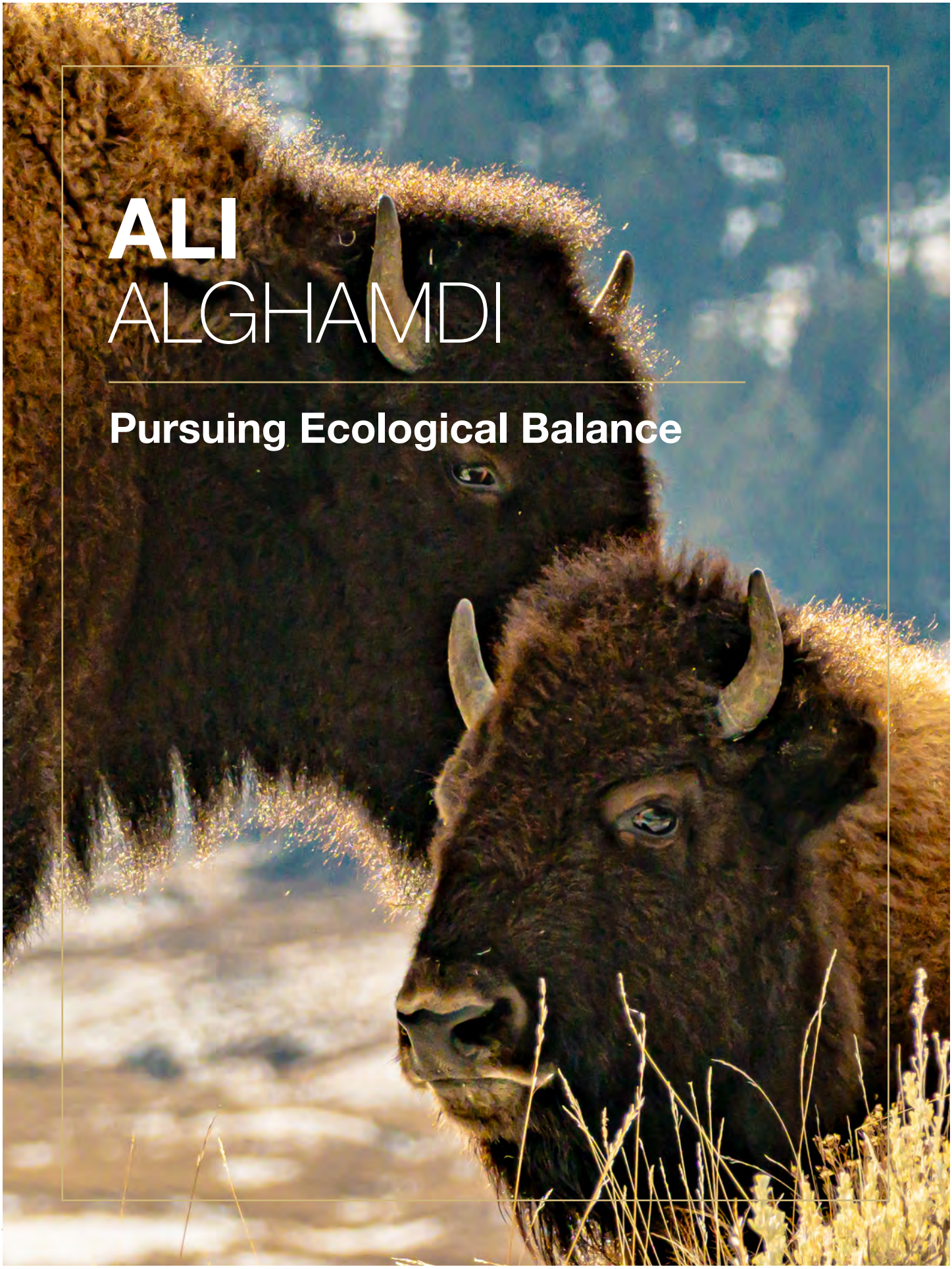

ALI ALGHAMDI

Pursuing Ecological Balance

Ali Alghamdi is a PhD student from Saudi Arabia who is working with Diana Tomback on two interrelated research projects in Yellowstone National Park.

Ali Alghamdi is conducting research in Yellowstone National Park that will ultimately bridge continents and ecosystems. His work—focused on the delicate balance between animals and trees—has deep roots in his upbringing in the mountain forest of southwest Saudi Arabia and his long-term vision for land restoration back home. Ali is currently working on two projects in Yellowstone. The first investigates whether whitebark pine can regenerate naturally following treefall and openings caused by mountain pine beetles. His research aims to understand whether whitebark pine can regenerate naturally after disturbances, helping clarify when species are likely to recover on their own without human intervention.

The second project delves into the impact of bison on limber pine trees. “One of the trees we had identified last year for study we saw this summer had already died,” Ali explains. Bison, he notes, often rub their horns against the trees, causing significant damage. His team collected hair samples from damaged trees, discovering that 60% of the samples were from bison, while others came from black bears, elk, and deer. Limber pines may not be the only species of tree at risk to increasing animal populations, so Ali is planning to provide recommendations to Yellowstone’s management based on his findings. This intersection of animal behavior and plant ecology is a recurring theme in Ali’s work. “I’m most interested in seeing the balance, the relationship between organisms,” he says.

From Curiosity to Career

Ali’s fascination with this dynamic began early, sparked by a childhood question to his father about different species of acacia trees on their family’s ranch. In middle school, this meant reading about and researching various plant species close to home. His horizons expanded further in his teens. “When I was in high school, my uncle was studying for a PhD in ecology. I did some field work with him and got interested in that.” Ali explains. “So, I got my baccalaureate in biology—environmental plant science.” He went on to earn a master’s degree focused on acacia restoration and seed germination techniques in Saudi Arabia.

I am always talking about Diana as an advisor, as a sister, as a mom for my work. She is close to me—in my education and in my life.

With a scholarship from the Saudi government in hand, Ali moved to the U.S. in 2019 to pursue his PhD, and in 2023 he started working with Diana Tomback, who has become an influential figure to him. “I am always talking about Diana as an advisor, as a sister, as a mom for my work. She is close to me—in my education and in my life,” he says of her. The support Diana has received from the Ricketts Conservation Foundation also fuels Ali’s fieldwork. “I can say it’s everything—the housing, the equipment,” he says. “Last year in the middle of my fieldwork I needed a car, and Diana was able to get me a car to finish my work in the field.”

Bridging Two Worlds

Working in Yellowstone National Park has also been a dream come true for Ali. “I heard about Yellowstone before I came to the United States. It’s an amazing place,” he says. Now, Ali is applying the lessons from Yellowstone to his homeland. “In Saudi Arabia, camels interact with the acacia trees,” he explains. “They’ve made some management plans to protect that species from camels… to allow the natural regeneration of the seedlings in that area.” His goal is to bring back not just knowledge, but practical restoration techniques to improve land management in the Arabian Peninsula.

Ultimately, Ali’s research is about more than trees and animals—it’s about balance. He cites the fact that more animals require more food sources, but these sources often serve other vital functions, as the whitebark pine does in providing stability to soil in shaping high elevation habitats. “There is conflict between these things,” he explains. “If there is a continuing increase in the number of bison in the Park, that will affect the trees and other grazing species there.” His vision is to find harmony between conservation goals and ecological realities, both in Yellowstone and halfway across the globe in the diverse habitats of Saudi Arabia.

The threats of invasive species, warming climate, and human use demand flexible approaches. The Summit highlights how partnerships and science-based decisions can sustain Yellowstone's ecological legacy.

Saving Yellowstone Conservation Summit

Both Diana Tomback and Karina Li spoke about their work at the Saving Yellowstone Conservation Summit, held at Jackson Fort Ranch in August 2025. For three days, participants at the summit explored complex conservation issues, from wildlife migration and habitat loss to private land development and climate change.

In her remarks, Diana noted the urgency of adaptive management, "The threats of invasive species, warming climate, and human use demand flexible approaches. The Summit highlights how partnerships and science-based decisions can sustain Yellowstone's ecological legacy." Diana also addressed the importance of reversing declines in whitebark pine and Clark's nutcrackers in greater Yellowstone to preserve the balance of the ecosystem. Karina Li also shared insights from the ongoing research she is continuing in this area.

Faculty from University of Wyoming, Montana State University, University of Montana, and University of Idaho also offered perspectives rooted in ecology, community engagement, and long-term stewardship. Their presentations spanned a number of species,reminding attendees that every organism plays a part in Yellowstone's ecological web.

The event showcased what's possible when public institutions, private landowners, and local communities come together around a common cause. For CU Denver, the summit also echoed the university's core values: an obligation to public service, community impact, and education that works for all.

THANK YOU!

The University of Colorado Denver is grateful for the Ricketts Conservation Foundation's partnership. If you have questions or would like additional information, please contact:

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