



2018 ANNUAL REPORT



IMPACT SUMMARY

63

Students involved

38

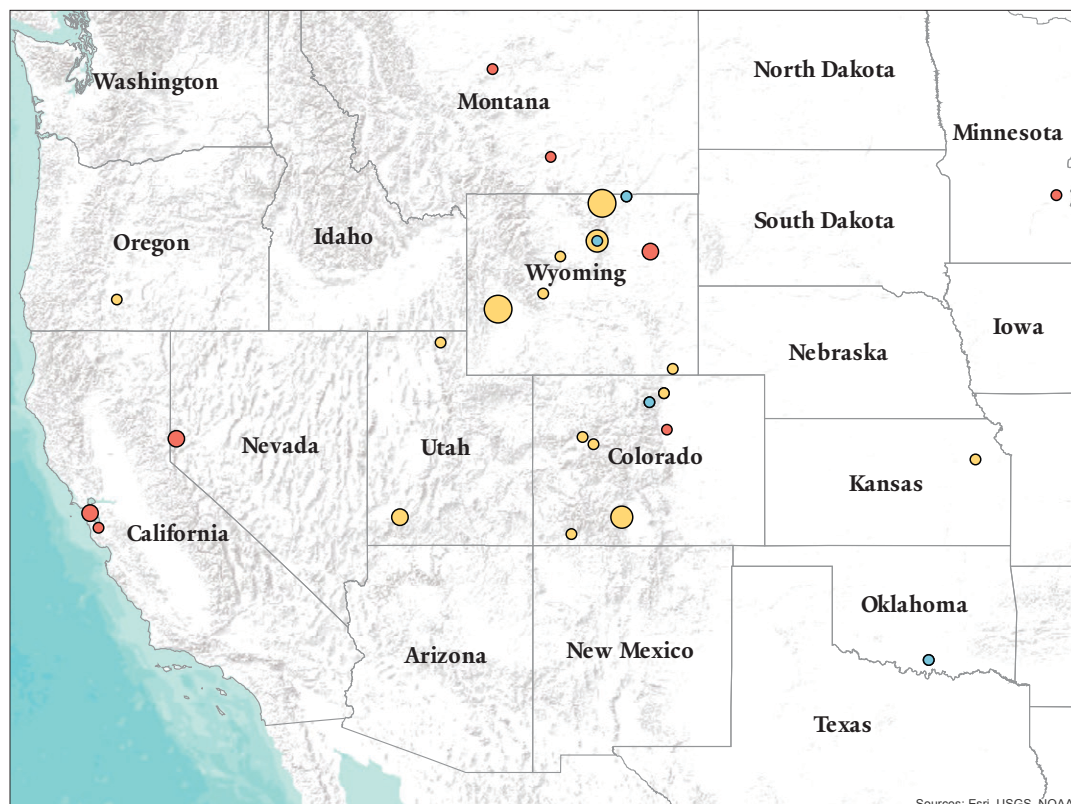
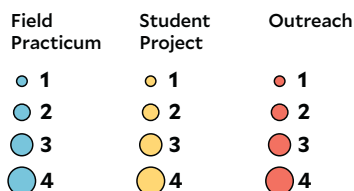
Partners engaged

14

Stewardship and conservation deliverables completed

IMPACT AREA

We provide students with opportunities to develop the skills needed to be leaders in land stewardship and conservation. Students participate in field practicums and work closely with western partners and our staff to complete applied research and management projects. Students and staff share their findings widely through outreach at national conferences and events.



OUR MISSION

Fostering land stewardship and conservation in the American West through teaching, research, outreach, and leadership.

Back in 2013, Raymond Plank, an energy innovator and champion of the American West, helped to establish the Ucross High Plains Stewardship Initiative at Yale. Raymond was passionate about stewarding the lands of the West and finding practical solutions to the threats they face. His vision was to bring Yale students to the High Plains so that they could lend technical expertise to land stewards but also learn from the deep experience of the ranchers and land managers who have worked these lands for generations.

Sadly, this past year we lost Raymond, who died in November.

Though I am relatively new to Yale, I knew Raymond well from my days in Wyoming. He was a well-traveled and incredibly accomplished fellow. A native of Minneapolis, he served a distinguished career as an Air Force pilot during World War II before returning to graduate from Yale in 1946. He was an entrepreneur who began Apache Corporation in Houston. He started sophisticated investment strategies, was a generous and savvy philanthropist, an avid fisherman, and a dedicated reader. With all of his sophisticated interests, accomplishments, and travels, he chose to settle in the High Plains of Wyoming, looking west from the settlement of Ucross (population 25) to the Bighorn Mountains.

There, in his humble home, with wildlife wandering through the yard, he and I would have wonderful conversations about the importance of working landscapes, about conservation, about water and energy, about politics and books and the role of universities today. He was an iconoclast — if we agreed too much to make it interesting for him, he would find a way to disagree with us both and enliven the conversation. I sent him a science book about High Plains grasslands that I had edited and published, and he read the whole thing; I in turn read his whole book, “A Small Difference,” and required all of my undergraduates one year to read it. He loved the English language and was incensed by a Yale Alumni Magazine article that he thought promoted relaxing the language to accommodate informal texting vocabulary into our formal communications. Raymond had a wonderful sense of humor — he once sent me a framed picture of “his” B-24, with an artistic addition that left me wondering if I could ever hang it on the wall. His eyes twinkled, he kidded in a lovely “on the square” way, and he was as intellectually alive at 95 as anyone I have ever known. I miss him, and I wish I had known him much longer than the decade or so that I did.

Raymond generously supported incredible initiatives to improve the world, and wisely invested his philanthropy to maximize his personal impact on things he cared deeply about: education for girls in the Mideast, bringing the arts and sciences together, higher education, and private land stewardship in the High Plains. We are so honored to carry his legacy forward through our work, the hundreds of students who have benefited by gaining practical experience in the High Plains, and the tools our staff and students have brought to land managers.

In Raymond’s honor, we present our 2018 accomplishments.



A handwritten signature in black ink that reads "Indy Burke".

Indy Burke, *Carl W. Knobloch, Jr. Dean*

PROGRAM HIGHLIGHTS

Land Management Field Practicum

Yale students worked alongside University of Wyoming and Sheridan College students to complete a two-week, Wyoming-based field practicum. Students gained skills in natural resource management, ranch management, and collaborative decision-making. After five days of field and research training, the team collected data to assess vegetation and wildlife response to the 2017 Tidwell wildfire. Students then authored a report that will be used by nine western partners to inform future land management decisions surrounding this 95,000-acre burn in Northeast Wyoming.



Prescribed Fire and Landowner Engagement

Students spent three days with Noble Research Institute staff in Ardmore, Oklahoma implementing prescribed burns on rangelands and learning techniques for engaging with private landowners. In addition to learning why, when, and how to conduct prescribed burns, students worked closely with livestock producers and wildlife managers to understand the importance of stewardship on private lands and management practices used to achieve land management goals.



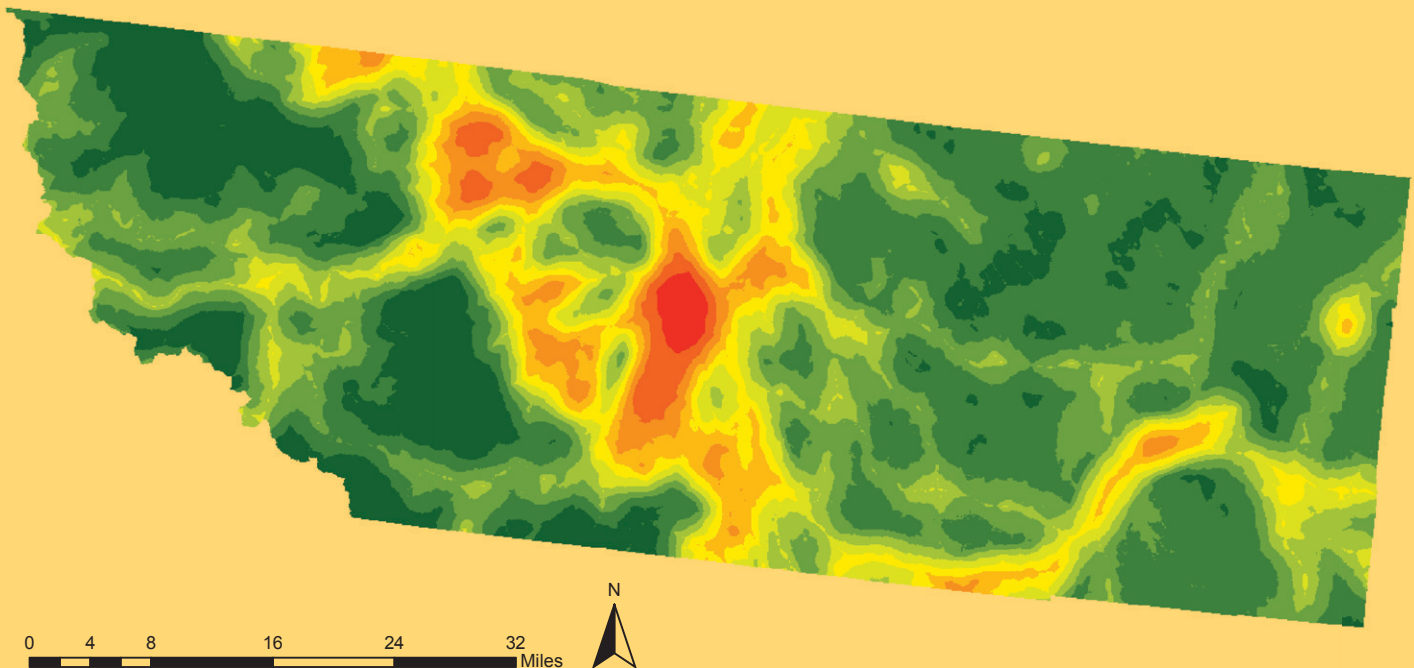
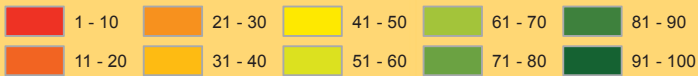
Prioritizing Conservation Area for Sheridan Community Land Trust

Charlotte Stanley, Lauren Stoneburner, Michael Storace, and Sophie Tyack worked in partnership with the Sheridan Community Land Trust (SCLT) in Wyoming to develop a conservation planning mapping tool to guide future efforts to conserve private lands.

They also analyzed opportunities to protect habitat connectivity for important ecological areas like the Bighorn Mountains, Powder River and Tongue River basins. The map below illustrates habitat connectivity, with highly connected areas ranking higher.

“We enjoyed working with the Yale students,” said Brad Bauer, Executive Director of SCLT. “Their competency and enthusiasm made for a great project.”

Landscape Connectivity in Sheridan County, WY



Conservation Plan for Rio Grande Headwaters Land Trust (RiGHT)

Brendan Boepple created and implemented a stakeholder input process that guided development of a new conservation plan for RiGHT, a land trust in Colorado's San Luis valley. Brendan conducted over 30 interviews with natural resource managers and community members to understand natural resource issues and opportunities for implementing a future conservation plan in the valley. Major themes included addressing aquifer sustainability and ensuring riparian health. Suggestions also included support for new and beginning farmers, health of cottonwood galleries, and the need for more impact in the community. Collectively, these responses were incorporated into RiGHT's new conservation plan.

Benthic Macroinvertebrate Study of Canyon Creek

Joshua Perez-Cruet surveyed benthic macroinvertebrate communities in Canyon Creek at Tensleep Preserve, Wyoming, a strikingly diverse natural area managed by The Nature Conservancy (TNC). In partnership with TNC and the Yale Peabody Museum of Natural History, Joshua collected



baseline data and specimens to analyze the effects of two limestone sink systems and a human diversion on these communities. Findings will guide management decisions for Canyon Creek and expand the specimen collection for future research at the Peabody Museum and Tensleep Preserve.

Quick Carbon

This project kicked off in 2016 when Ph.D. candidate Dan Kane participated in our summer fellowship program. Dan collected field data to develop an accessible system for measuring soil carbon. Support for this research increased in 2018 with the addition of partner collaborations and Yale students' participation. Four Yale College engineering students designed and built a soil extractor and a portable soil dryer to speed up field data collection. Field technicians then tested the system across >200,000 acres of western rangeland under the leadership of Jaclyn Kachelmeyer, a Yale F&ES student. This research initiative has successfully raised separate funding to develop the technologies and measure soil carbon across ranches in California and other locations. Substantial grant money has been raised to test and apply the tools under the direction of Professor Mark Bradford, doctoral candidate Dan Kane, and Charlie Bettigole. Read more online: quickcarbon.org



"My current role with The Nature Conservancy in northeast Wyoming is a direct result of my participation in the Western Resources Fellowship during my time at F&ES. It was my summer fellowship with TNC Wyoming that allowed me to better learn about the organization, develop new professional skills, and build relationships with staff. Ultimately, after my fellowship ended, they approached me about a job opening and the rest is history! I love what I do as Northeast Wyoming Program Director and I am certain I would never have been able to take such a big professional leap up after graduation if it had not been for the relationships I built during my summer as a Fellow."

- CARLI KIERSTEAD '18

ADDITIONAL PROJECTS

Read more about these projects at highplainsstewardship.com

- Mapping Trumpeter Swan Habitat in Wyoming
- Understanding Socio-economic Change and Implications for the Future of the Bridger-Teton National Forest
- Vegetation Response after Fire in the Bridger-Teton National Forest
- Engaging Youth and Underserved Communities in Land Management and Project Review Processes for the Bridger-Teton National Forest
- Increasing Adoption of Grasslands Avoided Conversion Carbon Projects
- Organizing and Implementing the Western Speaker Series
- Reconciling Landownership and Sage-Grouse Management Designation Data
- A Literature Review of Sudden Aspen Decline
- Ecosystem Services for a Privately-Owned Ranch
- Methods for Non-Native Trout Removal in Rocky Mountain Streams
- Agricultural Solutions for Climate Change
- Estimating Utah Prairie Dog Survival Using Camera-trap Data
- Perceptions of Native Trout in the Mountain West
- Social, Economic, and Environmental Impacts of Rock Climbing in Tensleep, WY
- Mapping Golden Eagle Movements in Utah

FRANKLIN ECCHER