



The Rangeland Center

ANNUAL REPORT

2018

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EXECUTIVE SUMMARY

The following summarizes the work of the Rangeland Center and partners for 2018, organized by Center goals. Each activity is linked to the pertinent section of the report, should readers be interested in detailed information.

Priority Projects Listed by Goal

These high-priority projects include those that the Rangeland Center staff participated in significantly. We describe each activity's purpose, expected outcomes, strategic plan focus area, activities, staff effort, leveraged funds, and partners.

Goal: Engage partners and stakeholders to jointly provide leadership for discovery of new knowledge and create science-based solutions for rangelands.

Activities conducted in 2018 that address this goal:

- **Outcomes-Based Land Management:** Activities conducted in 2018 engaged our partners and furthered the discussion, understanding, and implementation of OBLM in Idaho.
- **Idaho Grouse and Grazing Project:** Continued research examined the effect of spring grazing by cattle on the nesting success of sage-grouse.
- **Rinker Rock Creek Ranch:** This 21st-century outreach, education, and research center in the heart of Idaho with a collaborative group of diverse partners.



Idaho rangeland under stormy skies.

Goal: Provide objective and relevant rangeland information for individuals, organizations and communities.

Activities conducted in 2018 that address this goal:

- **Journal of Rangeland Applications:** Reinvigoration of this journal by Rangeland Center staff led to the submission of an article about social and economic analysis in grazing management plans for use by land management agencies.
- **Global Rangelands Partnership:** Participation in partnership meetings and proposal development led to a grant award of \$616,587.
- **Communications Plan:** First draft was completed and issued to Rangeland Center members and the Partner Advisory Council for review.
- **Marketing/Branding:** The Rangeland Center unveiled new branding materials that conform to U of I branding standards.
- **Online Presence:** Events, activities, and research projects were maintained on the Rangeland Center website and on social media channels.



University of Idaho students gain field experience by collecting monitoring data.

Goal: Offer learning opportunities for land stewardship.

Activities conducted in 2018 that address this goal:

- Updates
 - Three project summaries
- Webinars
 - Two hosted webinars
- Events
 - Rangeland Center hosted two signature events, the May Retreat and the Fall Forum
 - Center staff hosted booths at two public outreach events
 - Center staff contributed to Sagebrush Saturdays and the Livestock Symposium
- Interns
 - Paid interns were supported throughout the calendar year.



A rangeland user watching over a herd of cattle.

Rangeland Center Staff Activities

The following are research and outreach projects in which Rangeland Center staff were involved in these research and outreach projects in 2018, but not to the same extent as priority projects. Categories of involvement include coordination support, funding support, and promotion support.

Coordination support: This is the highest level of support the Center provides for projects. Staff assist projects in various ways including grant writing, project coordination, research, funding travel, and/or outreach.

- Eight projects managed
- Leveraged funds total ~\$1.43M
- Project teams involve twenty-three unique partners

Funding Support: The Center is able to provide funding to projects and, in addition, manages endowments. Staff are generally not heavily involved in these projects, though many projects do go on to receive Promotion Support.

- Eleven projects funded
- Total funds dispersed ~\$25,000

Promotion Support: Researchers and extension faculty look to the Rangeland Center to help broadcast results or help connect with stakeholders/partners. Project Promotion occurs when we celebrate or promote a project. Staff are generally not heavily involved in the initiation or results portions of the project, and only participate by promoting it on our website or social media pages.

- Eight projects promoted



Sagebrush Saturday participants listen to a guest speaker at Rinker Rock Creek Ranch.

2018 University of Idaho Rangeland Center Annual Report

INTRODUCTION

This year, the University of Idaho Rangeland Center (RC) added capacity both in terms of size and accomplishments. A greater presence in southern Idaho became a reality with the College of Natural Resources (CNR) procuring a suite of offices in Boise to house the RC, the State Range Extension Specialist, and other CNR faculty and staff. In February, a full-time communication specialist, Lindsay Lodis, joined Eric Winford (Associate Director) and Karen Launchbaugh (Director) as RC staff. Lindsay immediately made her mark on the quality and quantity of the RC's communications. RC membership increased to 39, with the addition of new extension faculty: Nikki Dalton (Bannock County), Joseph Sagers (Clark and Jefferson Counties) and Jacob Rickman (Oneida County).

Discussion about the RC's role and how it can achieve its mission of creating knowledge and fostering understanding for the stewardship and management of rangelands included how the RC will be involved at UI's Rinker Rock Creek Ranch, how we can better engage with UI Extension, and our role in advancing Outcome Based Land Management.

In this report, we describe our activities for calendar year 2018. Some activities are described in greater detail, while others are bulleted lists. The level of detail reflects the level of involvement of RC staff to projects. We provide this information to facilitate the Annual Review of our work and to prepare the forthcoming 2019 Annual Operating Plan.

RESPONSE TO 2017 PAC ANNUAL REVIEW

In their 2017 Annual Review, the RC's Partners Advisory Council (PAC) made several recommendations on future activities and reporting approaches. Below is a summary of the recommendations and our response:

PAC Recommendation	RC Response
Develop prioritized annual plan	We developed our first annual operating plan in spring 2018, describing priority projects, staff activities, and a summary of how the RC engages in rangeland research and outreach.
Allocate resources to understand, study, and apply outcome-based management	We conducted several activities related to this topic. More information is below, under Priority Projects.
Increase incentives and motivation for interdisciplinary research; provide more support for developing interdisciplinary teams.	The RC supported interdisciplinary research with direct funding of research, staff support for grant writing, and by offering insight and guidance to faculty.
Improved RC communications that are centralized, timely and targeted, including communications on upcoming events and key milestones.	Since the communications specialist was hired, monthly communications to faculty, PAC, and UI administrators have occurred, as well as web-site updates and an increased social media presence.
Improved accounting of activities the RC is engaged in and how these activities benefit rangeland stakeholders.	A detailed description of our activities is provided below, with connections to the RC goals and key focus areas laid out in our strategic plan.

2018 ACTIVITY SUMMARY

Priority Projects

The items below reflect high-priority projects for the RC in which staff participated significantly. The 2018 Annual Operating Plan identified projects within each goal of the RC, as described in our strategic plan, and set desired accomplishments. We describe each activity's purpose, expected outcomes, strategic plan focus area, activities, staff effort, leveraged funds, and partners.

Goal: Engage partners and stakeholders to jointly provide leadership for discovery of new knowledge and create science-based solutions for rangelands.

- **Outcomes-Based Land Management**

- **Purpose:** To engage partners and facilitate activities that further the discussion, understanding, and implementation of outcomes-based land management (OBLM) in Idaho.
- **Expected Outcomes:** Increase stakeholder understanding of new and various approaches for public and private land grazing, improving rangeland health, and the complex socio-ecological ties between communities and the rangeland ecosystems.
- **Strategic Plan Focus Area:** All
- **Activities:**
 - Karen and others participated in the development of the Idaho Rangeland Conservation Partnership (ICRP), resulting in a \$227,000 grant from the Intermountain West Joint Venture. ICRP will establish a learning network devoted to sharing ideas and understanding throughout Idaho with state, federal, and private partners.
 - Karen wrote a concept paper describing principles of OBLM with co-authors Tim Murphy, Lou Lunte, and Hanes Holeman.
 - Karen, Dennis Becker and Lou Lunte presented a webinar in March describing principles of OBLM.
 - Karen presented foundational elements of OBLM at three sessions at the national meeting of the Society for Range Management.
 - Eric provided insight and guidance to the CNR Policy Analysis Group's (Dennis Becker and Katie Wollstein) ongoing analysis of policy options related to OBLM.
 - Eric and Karen held multiple meetings and field trips at Rinker Rock Creek Ranch (RRCR) to develop ideas and build a team to experiment with OBLM in a grazing permit renewal process.
 - Eric developed a framework for accounting social, economic, and ecological outcomes at RRCR.
 - Staff organized the 2018 Fall Forum around the theme of OBLM. Over 100 people attended the event, held in Salmon, ID.
- **Staff Effort:** The RC funds staff time and travel for field trips and meetings.
- **Leveraged Funds:** \$324,000 (federal funding from Intermountain West Joint Venture to IRRC)
- **Partners:** IRRC, ICA, IWGA, US FWS, TNC, OSC, IDFG, IDL, BLM, NRCS, USFS, ISDA

- **Idaho Grouse and Grazing project**
 - Purpose: Conduct research to examine the effect of spring grazing by cattle on the nesting success of sage-grouse.
 - Expected Outcomes: Several manuscripts published in referred journals to support federal and state policies related to grazing in sage-grouse habitat. The manuscripts will suggest appropriate management practices to enhance grouse survival on sage-steppe in Idaho and western states.
 - Strategic Plan Focus Area: Rangeland Uses and Rangeland Wildlife
 - Activities: Karen and others involved reported preliminary research results at meetings of land managers and livestock producers including the Idaho Range Livestock Symposium, national meetings Sage-Grouse Initiative, Society for Range Management, and statewide stakeholder groups including the Idaho Chapter of the Wildlife Society and the Public Lands Council. Eric and Karen participated in a team that was awarded a \$661,000 NRCS Conservation Initiative Grant (CIG) which includes a project that will support the sage-grouse project.
 - Effort Involved: The RC supports travel for researchers to five sites across Idaho, facilitates and partially funds the annual meeting of the 10-member Sage-grouse Research planning team, and supports Karen's time to develop proposals, present research, and attend meetings.
 - Leveraged Funds: Currently, about \$10,000 of RC funds have contributed to garnering \$280,000 BLM, \$120,000 Public Lands Council, \$10,000 Idaho Livestock Foundation, and \$200,000 from the NRCS.
 - Partners: The project is managed by a planning team including members from the Idaho Dept of Fish and Game, Bureau of Land Management, US Fish and Wildlife Coop Unit, University of Idaho Rangeland Center, Idaho Conservation League, and public land ranchers. Research for this project is largely directed by Courtney Conway (CNR).

- **Rinker Rock-Creek Ranch**
 - Purpose: To build a 21st-century outreach, education, and research center in the heart of Idaho with a collaborative group of diverse partners.
 - Expected Outcomes: Research activities that investigate complex interactions of rangelands and livestock grazing. Outreach activities reaching a broad audience and showcase solutions to challenges facing Idaho's rangelands.
 - Strategic Plan Focus Area: All
 - Activities:
 - **Monitoring:** Karen worked with Jason Karl (CNR) to plan and implement the 2018 monitoring blitz in July that brought together over 30 volunteers for 3 days to conduct baseline ecological monitoring. Tracey Johnson received RC funds to conduct sage-grouse lek monitoring. RC-supported interns installed weather stations. Eric worked with partners to conduct riparian monitoring at restoration sites. Partners, including Trout Unlimited and Wood River Land Trust conducted stream flow monitoring and aquatic surveys.
 - **Outreach:** Lindsay assisted April Hulet (CNR) with planning, communications, and facilitating three Sagebrush Saturdays. These events were attended by ~90 people. Partners were responsible for other outreach events including a teacher workshop, a beaver-dam analogue workshop, and a monitoring workshop. Lindsay updated the webpage and put posts on social media. Eric and Lindsay worked with UI communications and partners to develop interpretive signs for the ranch.

- **Research:** Nine research and monitoring projects occurred at the ranch. Eric teamed with Tracey Johnson (CNR) and Melinda Ellison (CALS) on a \$75,000 NRCS award to the UI supporting their research examining livestock grazing effects on sage-grouse habitat and meadow vegetation. Other research investigated causal factors for non-native weed invasion, impact of livestock grazing on willows, and the efficiency of livestock grazing in range versus irrigated pasture settings. A full list can be found on the RC's website.
- **Partner Coordination:** Eric worked with Lou Lunte to coordinate two Advisory Committee meetings (including one field tour) and attended several field tours with partners and stakeholders. Eric initiated a data-sharing folder system for all partners. Lindsay initiated a shared calendar. Karen and Eric participated on the team to facilitate transitioning the ranch from The Nature Conservancy (TNC) and Wood River Land Trust (WRLT) to UI. Lindsay spearheaded a team with TNC, WRLT, UI Office of Advancement, and UI Communications to promote the Rinker Rock Creek Ranch Celebration Ceremony and accompanying press release. Karen presented information about the Ranch to the UI Foundation Board and presented at the Celebration Ceremony to thank the Rinker's for their philanthropy.
- **Interns:** Four interns worked at the ranch this summer, two of which were supported by RC endowments and funding secured from the Idaho Cattle Foundation. Interns worked on projects including monitoring, research, infrastructure, invasive weed removal, and other general ranch activities. Eric managed the two RC interns.
- **Facilities:** Eric and partners installed new tents and a shower at Cow Camp and organized the porta-potties for the summer. External partners provided ~\$2,000 in funds for the improvements. Eric worked with John Hall on a \$119,475 National Fish and Wildlife Foundation proposal to fund fence and spring developments (not yet funded as of December 2018).
- **Effort involved:** The RC paid for staff time, travel, and operations funds for visits, outreach materials, and equipment (~\$7,000 for FY 18).
- **Leveraged funds:** About \$7,000 of RC funds were spent at RRRCR this year. This amount garnered \$12,000 from the Idaho Cattle Foundation and \$4,000 from Center Endowments for interns. The NRCS awarded the UI a \$75,000 CIG grant. Other funds for facility development and restoration came CALS, UI Extension and partners including TNC, WRLT, US FWS, Idaho Office of Species Conservation, and others. Additional proposals have been written to fund \$119,475 of fence and water improvements, but have not yet been funded.
- **Partners:** TNC, ISWCC, NRCS, IDFG, US FWS, BLM, WRLT, TU,

Goal: Provide objective and relevant rangeland information for individuals, organizations and communities.

- **Journal of Rangeland Applications** (www.thejra.info)
 - **Purpose:** Publish scientific synthesis articles to bridge the gap between scientific research and the application of science to make wise land management decisions.
 - **Expected outcomes:** Peer-reviewed articles on the biophysical, ecological, social, and economic aspects of rangelands management and conservation.
 - **Strategic Plan Focus Area:** All
 - **Activities:** Karen and Eric convened a group of interested stakeholders in March and July to discuss ways to increase use of existing and publication of additional articles in the

- JRA. Eric developed a proposal for external funding for articles. Eric and Karen worked with JD Wulfhorst (CNR) to finalize and re-submit an article on a framework for social and economic analysis in grazing management plans for use by land management agencies.
- Effort Involved: The RC paid for staff time to coordinate meetings. The RC provided temporary help (~\$1,000) to assist in completion of the social/economic framework article.
- **Global Rangeland Partnership**
 - Purpose: Connect university librarians and extension agents west-wide in sharing and providing rangeland information to land managers and interested publics.
 - Expected outcomes: Provide resources to inform public debate and decision-making regarding rangeland management and conservation.
 - Strategic Plan Focus Area: All
 - Activities: Karen and Eric participated in two meetings of this partnership, in January and in May. Karen and Eric teamed with Jason Karl (CNR), Jeremy Kenyon (UI Library), April Hulet (CNR) and others to write a NRCS-Conservation Initiative Grant (CIG) proposal to further efforts for land managers to find relevant management information. A \$616,000 grant was awarded to the U of I and the University of Arizona for this work.
 - Effort Involved: The RC paid for staff time to coordinate and participate in meetings about the partnership and proposal development.
 - Leveraged funds: A \$ 616,587 grant (with \$ 616,587 of required match) was secured.
 - Partners: Universities across the western U.S.
 - **Communications Plan:** Lindsay completed the draft communication plan. RC members and the PAC reviewed the plan in May. Updates have been made and are ongoing.
 - **Marketing/Branding:** Lindsay led the development of a new logo and communication materials for the Rangeland Center using the new UI branding standards. Eric developed an updated RC accomplishment one-pager using these materials. Karen developed the rangeland “I” that is used in various promotional materials.
 - **Online Presence:** Lindsay worked with CALS and CNR communications to update and refresh the RC website. This included a re-organization to more closely match other UI websites. Information regarding the UI Little Endowment were previously posted on a non-UI website and Lindsay worked with CALS communication to migrate this information to a UI website and link to the Rangeland Center Site. Lindsay revamped the RC’s social media presence and posted frequently on Twitter and Facebook to share knowledge and advertise events.

Goal: Offer learning opportunities for land stewardship.

- **Updates:** The RC paid for temporary help to create two project summaries and update another.
 - Native seed enhancement techniques
 - Authors: A. Hulet (CNR), J. Price (CNR), T. Prather (CALS), and D. Johnson (CNR)
 - Focus Area: Fire/Fuels/Invasive Plants and Restoration
 - Partners: BYU, USDA NIFA, USDA ARS, TNC - Oregon
 - Sage grouse and spring grazing
 - Authors: C. Conway (CNR); K. Launchbaugh (CNR) and E. Strand (CNR)
 - Focus Area: Rangeland Uses and Rangeland Wildlife
 - Partners: BLM, IDFG, WAFWA, ICA, USFS, USGS, ICA, PLC, etc.
 - Impacts of wild horses on riparian areas (updated by Lindsay)
 - Authors: M. Kaweck (CNR), K. Launchbaugh (CNR), E. Strand (CNR), J. Hall (CALS), and S. Baker (CALS).
 - Focus Area: Rangeland Uses and Rangeland Wildlife

- Partners: BLM, IRRRC, USDA-ARS
- **Webinars:** The RC hosted two webinars
 - Outcomes Based Management (March)
 - Authors: K. Launchbaugh (CNR), L. Lunte (TNC), T. Murphy (BLM), and D. Becker (CNR).
 - Focus Area: All
 - Water and Junipers (May)
 - Authors: R. Niemeyer (CNR)
 - Focus Area: Watershed Function
- **Events:**
 - 2018 Livestock Symposium, attended by over 300 people at four locations in Idaho
 - Organizers: S. Jensen (CALS), A. Hulet (CNR), H. Tejada (CALS), S. Baker (CALS), J. Sprinkle (CALS), J. Hall (CALS), M. Ellison (CALS), M. Mackey (CNR), and others.
 - Focus Area: Rangeland Uses
 - Staff Effort: The RC helped coordinate the 2018 event and paid for travel and operating supplies.
 - Partners: IRRRC, ISDA, IDL, NRCS, ICA
 - May Rangeland Center Member Retreat conducted in May in McCall
 - Organizers: L. Lodis, E. Winford, K. Launchbaugh
 - Focus Area: All
 - Staff Effort: The RC paid for travel and project costs.
 - Boise Farmer's Market Rangeland Center Booth
 - Organizers: L. Lodis and A. Hulet
 - Focus Area: All
 - Staff Effort: The RC provided materials to host a booth during the Boise Farmer's Market and paid for soil/native seeds to help promote the RC.
 - 2018 Sagebrush Saturdays at Rinker Rock Creek Ranch
 - Organizers: A. Hulet (CNR), and L. Lodis (CNR)
 - Focus Area: All
 - Staff Effort: The RC paid for travel, operating, and promotional costs.
 - RiverFest Rock Creek Ranch Booth (Hailey, Idaho)
 - Organizers: L. Lodis and A. Hulet
 - Focus Area: All
 - Staff Effort: The RC paid for some travel and supplies
 - Fall Forum, "Action Today – Outcomes for Tomorrow", held in Salmon, Idaho October and drew over 100 participants.
 - Organizers: L. Lodis (CNR), E. Winford (CNR), K. Launchbaugh (CNR), M. Ellison (CALS), J. Hall (CALS), S. Williams (CALS), and C. Calahan (UI McClure Center) plus several PAC members including Merrill Beyeler and Toni Ruth.
 - Focus Area: All
 - Staff Effort: Lindsay and Eric led the coordination and implementation of the event. The net cost of the event to the RC was \$1,016 (after accounting for ticket sales). The RC leveraged \$2,278 in external funding.
 - Partners: Lemhi County Extension, Nancy M. Cummings REEC, UI McClure Center for Public Policy, Salmon Valley Stewardship, Lemhi Regional Land Trust
 - Fall PAC meeting: Eric and Brett Dumas organized this meeting. The RC paid for lunch and staff travel.
- **Interns:** Endowments, student work-study, and external funding/grant sources were used to support student interns who work on rangeland projects and gain organizational and research skills. Eric managed the summer interns at Rock Creek, and Karen managed the interns at on

campus during the school year. A grant of \$20,450 was secured in 2018 to support an intern at Rock Creek and one for the Grouse and Grazing project.

- Spring 2018: Six interns (8-10 hours for each intern) supported during academic semester.
- Summer 2018: Two interns supported during summer months at Rock Creek Ranch
- Fall 2018: Six interns (8-10 hours for each intern) supported during academic semester

Rangeland Center Staff Activities

The following are research and outreach projects in which RC staff were involved in 2018, but not to the same extent as priority projects. Categories of involvement include coordination support, funding support, and promotion support.

Coordination support: This is the highest level of support the RC provides for projects. Staff assist projects in various ways including grant writing, project coordination, research, funding travel, and/or outreach.

- **Co-Existing in Wet Meadows: Cattle Grazing Utilization Levels And Grouse Brood-Rearing Habitat**
 - Project Leads: T. Johnson (CNR), M. Ellison (CALs), K. York (CNR and Trout Unlimited)
 - Purpose: Research investigating interactions between livestock grazing, vegetation response, and sage-grouse habitat.
 - Expected Outcomes: Grazing strategies that will enhance late brood-rearing habitat for sage-grouse.
 - Focus Area: Rangeland Wildlife and Rangeland Uses
 - Activities: This project is in the second year of data gathering. It has received additional funding to continue to year 3.
 - Staff Effort: Eric coordinated a grant-writing team that resulted in an Idaho NRCS CIG award. Eric and RC interns assisted with data-gathering.
 - Leveraged Funds: This project received \$75,000 in federal funding (NRCS CIG) and \$9,740 in UI funds (Little Endowment).
 - Partners: TNC, WRLT, TU
- **Integrating Satellite and Field Measurements for Improved Grazingland Management**
 - Project Lead: J. Karl (CNR) with a team of collaborating scientists and land managers from the UI and TNC.
 - Purpose: Develop a remote sensing approach for monitoring utilization and residual biomass on rangelands.
 - Expected Outcomes: A web-based tool that will provide estimates on forage availability, utilization, and grazing intensity.
 - Focus Area: Rangeland Uses and Rangeland Wildlife
 - Activities: This project began at the TNC Zumwalt prairie reserve in 2016 led by Crystal Kolden (CNR). This initial grant and collaboration provided a platform for an additional grant that was developed and awarded in 2018. Planning activities are underway, research will begin in 2019.
 - Staff Effort: Karen worked with Crystal Kolden (CNR) in developing this initial grant which set the groundwork. Karen and Eric teamed with Jason Karl (CNR) in 2018 to write the grant with several collaborators that resulted in a national CIG award.
 - Leveraged Funds: This project committed \$661,000 from TNC, IDFG and Rangeland Center faculty and staff time to write and match a grant for \$661,000 in USDA funding.
 - Partners: TNC-Oregon and IDFG.

- **A National Grazingland Information Systems**
 - o Project Lead: J. Karl (CNR) with a team of UI and University of Arizona researchers, librarians and outreach specialists in The Rangeland Partnership.
 - o Purpose: Leverage expertise of the Rangelands Partnership to develop a grazinglands thesaurus and then use that to tag a core set of reference materials to help land managers find relevant information.
 - o Expected Outcomes: A web-based platform and mobile app that provides a search interface for finding and discovering relevant grazingland information in offices and in the field.
 - o Focus Area: All
 - o Activities: This project is in its first year, activities will begin in 2019.
 - o Staff Effort: Eric and Karen team with Jason Karl (CNR) to write a grant that resulted in a national NRCS CIG award.
 - o Leveraged funds: This project committed \$616,000 in Rangeland Center faculty and staff time (Karl, Launchbaugh, Hulet, Kenyon, and Winford) and faculty/staff time from the University of Arizona to match \$616,000 in funding from USDA.
 - o Partners: Librarians and extension faculty in ID, WY, AZ, UT, WA, HI, AK, NM, CO who are members of the Rangeland Partnership

- **Field Guide to Idaho Grasses and Grass-like Plants**
 - o Project Lead: E. Strand (CNR) and J. Trujillo (CNR)
 - o Purpose: Develop and publish a book and mobile app with technical information and pictures of Idaho grasses and grass-like plants.
 - o Expected Outcomes: Increased ability of rangeland users to identify grasses and grass-like plants on Idaho rangelands.
 - o Focus Area: All
 - o Activities: The app is completed, and the book is near publication.
 - o Staff Effort: Lindsay took lead on securing a printer for the book and forged a relationship with CALS Extension publishing, which has agreed to host and sell the book on its website. Karen wrote the initial grant with Eva Strand and participated in reviewing the book.
 - o Leveraged Funds: Over the last three years, the RC has provided about \$5,000 to Trujillo and Strand and helped to secure the initial grant of \$30,000 from the American Institute of Biological Sciences to develop the book and mobile app. The Idaho Rangeland Resources Commission provided \$5,700 for printing.
 - o Partners: IRRRC, CALS Publishing

- **Long-Term Monitoring at Rinker Rock Creek Ranch**
 - o Project Leads: J. Karl (CNR) and K. Launchbaugh (CNR)
 - o Purpose: Establish 90 long-term monitoring plots to support and attract ecological research projects to Rinker Rock Creek Ranch.
 - o Expected Outcomes: Train rangeland managers and conservationists to conduct monitoring with the Assessment, Inventory, and Monitoring (AIM) protocol, establish information to track changes at Rinker Rock Creek Ranch, and conduct research to answer questions related to the type and amount of monitoring needed to make management decisions.
 - o Focus Area: All
 - o Activities: In 2018, about 28 volunteers conducted the AIM protocol on 30 plots at Rock Creek.

- Staff Effort: Karen secured the volunteers, gathered and provided equipment, and oversaw cooking/food and camping for the field crews. Jason Karl and Alex Trainer (RC Intern) trained field teams. RC- Interns Alex and Kassandra Dunham are summarizing and archiving data. The RC provided food and travel for some participants during this 3-day event.
 - Leveraged Funds: About \$3,500 of RC Funding was used to feed and manage the field teams. We amassed 543 hours of volunteer field time worth at least \$16,000 of monitoring. Plus, 7 field trucks, 8 ATVs, 3 side-by-sides, and lots of boots were committed to this 3-day monitoring blitz.
 - Partners: TNC, WRLT, BLM, NRCS, IDL, private consultants and other range enthusiasts.
- **Virtual Fence**
- Project Lead: K. Launchbaugh (CNR), J. Karl (CNR), M. Ellison (CALs), and John Hall (CALs)
 - Purpose: Acquire or develop a virtual fence technology that is effective and affordable for rangeland use.
 - Expected Outcomes: Evaluation of virtual fence technologies that are nearly ready for the market and development of a concept best on local (non-GPS) technologies.
 - Focus Area: Rangeland Uses
 - Activities: RC Faculty have relationships (MOU or Non-Disclosure Agreement) with the two companies that have a virtual fence system nearly ready for market. We are also developing a virtual fence concept that address perceived weaknesses in existing virtual fence technologies.
 - Staff Effort: Karen worked with UI researchers to develop several proposals and secure a team of five engineering students and five animal science and rangeland conservation students to develop a new virtual fence concept and test several basic design elements.
 - Leveraged Funds: The input of faculty and staff time secured \$26,000 in support for UI President Staben and VPR Nelson to secure a team of students to explore the idea.
 - Partners: TNC, UI engineering professor (M. Hefieda) and UI animal physiologist (G. Murdoch), UI President Staben, and UI Research Office.
- **Social, Economic, and Ecological Implications of Grazing Use and Timing on Riparian Habitats**
- Project Lead: M. Ellison (CALs), T. Johnson (CNR), E. Winford (CNR), K. Lee (CALs), JD Wulfhorst, (CNR), J. Ritten, U. Wyoming
 - Purpose: A grant-writing team that formed to develop and discuss how to integrate social, economic, and ecological implications of riparian grazing and rest.
 - Expected Outcomes: If funded, a 3-year research and extension project will be conducted.
 - Focus Area: Rangeland Uses; Watershed Function; Rangeland wildlife
 - Activities: The team wrote a USDA NIFA grant for \$494,117.
 - Staff Effort: Eric led the proposal- writing. If funded, Eric will help coordinate research, outreach, and extension activities for the team. Some of this research will occur at Rinker Rock Creek Ranch.
 - Leveraged Funds: This proposal is not yet funded.
 - Partners: This proposal brought together researchers from CNR, CALs, and University of Wyoming as a team. If funded, we will partner with BLM, ICA, and others.

- **Water Quality in the Mink Creek watershed: Characterizing fecal pollution across time and space.**
 - o Project Lead: J. Sprinkle (CALs), E. Winford (CNR), A. Kolok (CNR), M. Strikland (CALs), R. Michelson (USFS); R. Findlay (CALs); C. Luce (USFS); M. Pratt (ICA)
 - o Purpose: This team formed to address concerns about the water quality of Mink Creek, near Pocatello, ID. The watershed has grazing, recreation, public lands, and private lands within it. The team seeks to understand the source of microbial pollutants in the watershed. It is seeking funding currently (as of December 2018).
 - o Expected outcomes: If funded, the project will show the source of microbial pollutants (whether human, livestock, or wildlife) and provide recommendations on approaches to reduce the microbial load. It will also increase U of I capacity to conduct similar tests at other watersheds across the state.
 - o Focus Area: Rangeland Uses; Watershed Function
 - o Activities: The team wrote several grants totaling \$38,000.
 - o Staff Effort: Eric has worked with Jim Sprinkle to develop the project, bring the team together, and write the grants.
 - o Leveraged Funds: This project is not yet funded.
 - o Partners: This proposal brought together a team from CNR, CALs, U of I Extension, the USFS Caribou-Targhee National Forest, the USFS Rocky Mountain Research Station, the Mink Creek Grazing Association, and the Idaho Cattle Association.

RC Funding Support: This activity occurs when the RC provides funding (either travel funding or operational funding) to projects, or if a project receives funding from one of the endowments the RC manages. Projects are provided funding support when the PI is an active RC member and the project supports the RC's goals. Staff are generally not heavily involved in these projects, though many projects do go on to get Promotion Support.

- **Effects of Broad-scale Juniper Removal on Non-Target Species, Including Sage-Grouse Nest Predators**
 - o Project Lead: T. Johnson (CNR)
 - o Focus Area: Fire/Fuels/Invasive Plants and Restoration and Rangeland Wildlife
 - o Activities: Ongoing research
 - o Funded: \$800
- **Forage Utilization Monitoring at Rock Creek Ranch**
 - o Project Lead: J. Sprinkle (CALs Extension and NMCREEC)
 - o Focus Area: Rangeland Uses
 - o Activities: Ongoing research
 - o Funded: ~\$250
- **Low-Cost GPS Collars**
 - o Project Lead: J. Karl (CNR)
 - o Focus Area: Rangeland Uses
 - o Activities: Design and field-test new GPS collars
 - o Funded: \$4,000 from the Little Endowment
- **Rangeland Litigation Trends**
 - o Project Lead: J.D. Wulfhorst (CNR)
 - o Focus Area: Rangeland Uses
 - o Activities: Finalizing research and nearing publication of papers
 - o Funded: \$1,000

- **Owhyee Region Socio-Economic Impact Assessment**
 - o Project Lead: J.D. Wulfhorst (CNR)
 - o Focus Area: Rangeland Uses
 - o Activities: Finalizing publication of papers
 - o Funded: \$1,000
- **Sage-Grouse Lek Monitoring at Rock Creek Ranch**
 - o Project Lead: T. Johnson (CNR)
 - o Focus Area: Rangeland Wildlife
 - o Activities: Ongoing research and monitoring
 - o Funded: \$2,000
- **Seed Bank Response to Wildfire Frequency in Sagebrush Steppe**
 - o Project Leads: A. Hulet, (CNR), and B. Stokes (CALs)
 - o Focus Area: Fire/Fuels/Invasive Plants and Restoration
 - o Activities: Ongoing research
 - o Funded: \$6,115 from the Little Endowment
- **Range Outreach Activities Manual For 4-H**
 - o Project Lead: T. Roland (CALs)
 - o Focus Area: Rangeland Uses and Rangeland Wildlife
 - o Activities: Developing outreach materials
 - o Funded: \$2,500 from the Little Endowment
- **Ranchers and Rangeland Monitoring**
 - o Project Lead: S. Williams (CALs)
 - o Focus Area: Rangeland Uses
 - o Activities: Workshops and outreach events
 - o Funded: \$4,000 from the Little Endowment
- **Sagebrush Saturdays**
 - o Project Lead: A. Hulet (CNR)
 - o Focus Area: All
 - o Activities: Outreach events ongoing
 - o Funded: Ongoing
- **Drought Resilience Among Ranchers and Land Managers**
 - o Project Lead: C. Wardropper (CNR), K. Lee (CALs)
 - o Focus Area: Fire/Fuels/Invasive Plants and Restoration, Rangeland Uses, Watershed Function, Climate Change
 - o Activities: Ongoing research, travel
 - o Funded: 4,055

RC Faculty Project Promotion: Many researchers and extension faculty look to the RC to help broadcast results or to help them connect with stakeholders/partners. Project Promotion occurs when we celebrate or promote a project or event on our website, social media outlets, via a webinar, a workshop, or in print. We also connect interested partners to researchers on projects. Staff are generally not heavily involved in the grant-writing, research, coordination, or results portions of the project, and only participate by promoting it on our website or social media pages.

- **Seed Enhancement Technologies**
 - o Project Lead: A. Hulet (CNR)
 - o Focus Area: Fire/Fuels/Invasive Plants and Restoration
 - o Status: Ongoing research

- **Grazing Behavior and Forage Intake on Rangelands for Cows Differing in Production Efficiency.**
 - Project Lead: J. Hall (CALs), and J. Sprinkle (CALs)
 - Focus Area: Rangeland Uses
 - Status: Ongoing research
- **Rock Creek Monitoring workshop**
 - Project Lead: A. Hulet (CNR), J. Karl (CNR), and J. Sprinkle (CALs)
 - Focus Area: Rangeland Uses
 - Status: Ongoing outreach
- **National Resources Inventory**
 - Project Lead: J. Karl (CNR), and A. Hulet (CALs)
 - Focus Area: Watershed Function and Climate Change
 - Status: Ongoing research
- **Outcomes Based Management Policy Analysis**
 - Project Lead: D. Becker (CNR), and K. Wollstein (CALs)
 - Focus Area: All
 - Status: Ongoing research
- **Targeted Grazing for Fuels Reduction**
 - Project Leads: E. Strand (CNR), and K. Launchbaugh (CALs)
 - Focus Area: Fire/Fuels/Invasive Plants and Restoration
 - Status: Completed research project. Outreach, including webinars and publications, are being developed.
- **Idaho Rangeland Atlas**
 - Project Lead: J. Kenyon (UI Library)
 - Focus Area: Rangeland Uses
 - Status: Ongoing outreach project. Online web tool is active.
- **Fine Fuels Reduction**
 - Project Leads: April Hulet (CNR), Scott Jensen (CALs), Jim Sprinkle (CALs) collaborating on with Sergio Arispe (OSU Extension).
 - Focus Area: Fire/Fuels/Invasive Plants
 - Status: A NIFA grant proposal was submitted.