

University of Idaho Rangeland Center Strategic Plan (2017-2021) **The Next Horizon**



Executive Summary

The Rangeland Center at the University of Idaho was established in 2011 by a group of researchers and educators interested in addressing contemporary challenges facing Idaho rangelands and the communities that rely on them. Our interdisciplinary approach and active partnerships with agencies and organizations working on rangelands throughout our state are aimed at advancing the study and management of rangelands in Idaho and the region. This strategic plan represents a year of discussion among university members, our Partners Advisory Council, and key individuals who care for and live on Idaho rangelands. From these discussions we have identified five focus areas that rangeland stakeholders see as key issues that will affect the health, productivity, and uses of rangelands in the next decade. These focus areas include challenges related to: 1) fire/fuels/invasive plants and restoration; 2) rangeland uses (including grazing, recreation, energy, etc.); 3) rangeland wildlife; 4) watershed function; and 5) climate change. For the five focus areas we identified 11 priority challenges on which to focus Rangeland Center activities and outputs over the next five years. We have further outlined a dynamic and adaptive process to develop annual operating plans for enacting projects that address the priority challenges identified by our partners and stakeholders. We will also implement steps to reevaluate the relevance of specific rangeland challenges and evaluate projects on an ongoing basis. With this Strategic plan, the Rangeland Center strives to continue development of an adaptive organization that will create insight and foster understanding for the stewardship of rangelands.

I. Introduction

Conducting rangeland science and management in the current context of climatic, ecological and societal changes will require integrative thinking and innovative practices to both maintain and restore these lands and the human communities that rely on them. We work at the confluence of research and outreach while offering hands-on learning opportunities for students, land managers and other interested publics. The Rangeland Center fosters collaboration and builds partnerships with individuals and organizations to craft solutions for today's rangeland challenges by connecting academic expertise with local knowledge from those who manage and live on the land.

The Rangeland Center was initiated with discussions among faculty members in the Colleges of Natural Resources (CNR) and Agricultural and Life Sciences (CALs) at the University of Idaho who sought to advance the study and management of rangelands. These discussions led to a proposal for a University Center that would join together faculty from several colleges working on rangeland topics. This novel endeavor, shaped by UI faculty and rangeland stakeholders, led to the establishment of the Rangeland Center in 2011. The Center was soon adopted into Idaho legislative code in early 2012. A solid foundation for growth was set through legislative action in 2013 which provided funding for the Rangeland Center director, staff, travel, and operating expenses.

Mission: The Rangeland Center empowers researchers and educators at the University of Idaho who strive to create knowledge and foster understanding for the stewardship and management of rangelands. Our innovative design promotes active partnerships with individuals, organizations and communities who work and live on rangelands.

Vision: We serve current and future generations to promote stewardship of rangelands which are vital to the ecological and economic health of Idaho and the region.

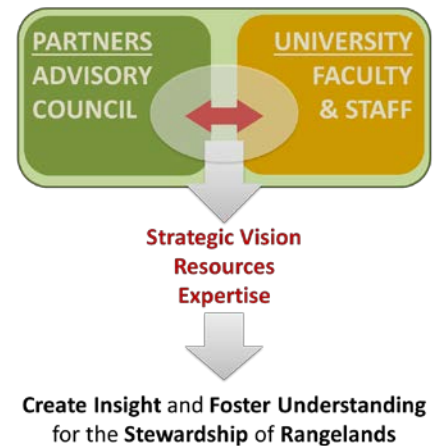
Goals:

- Engage partners and stakeholders to jointly provide leadership for discovery of new knowledge and create science-based solutions for rangelands.
- Provide objective and relevant rangeland information for individuals, organizations and land managers, communities, policy makers and others interested in rangelands.
- Offer learning opportunities for rangeland stewardship.



People and Partners: At the heart of the UI Rangeland Center is a group of UI faculty and staff who collaborate with members of a Partners Advisory Council (PAC) to accomplish the goals and mission of the Center. The UI Rangeland Center is led by a director who works under the guidance of the Deans of the Colleges of Natural Resources (Kurt Pregitzer) and Agricultural and Life Sciences (Michael Parrella) and the Director of Extension (Barbara Petty). Rangeland Center members collaborate with a broad-spectrum of stakeholders to partner in the development of science-based solutions for rangelands.

University of Idaho Rangeland Center



II. Identifying Challenges and Opportunities

After five years of activity, the UI Rangeland Center initiated a strategic planning effort to focus and guide our work in the next five years. In September of 2015, the Center hosted six listening sessions in the communities of Salmon, Blackfoot, Twin Falls, Marsing, Cambridge and Boise. A diverse cross-section of 72 stakeholders attended the listening sessions, representing a broad array of federal, state, and local resource management agencies and commissions, conservation organizations, consultants, farmers and ranchers, recreation groups, and elected officials. The Rangeland Center shared information with participants about projects and outputs we have developed to address major challenges to managing rangelands. Participants were asked two primary questions:

- What are the major issues that will affect the health, productivity, and uses of rangelands in the next decade?
- Where do you get information to make management decisions (e.g. websites, scientific literature, emails, etc.)?

During the listening sessions, stakeholders raised 65 challenges¹ that will affect the health, productivity, and uses of rangelands including:

- Wildfires and associated fuel loading from annual grasses and invasive species.
- Wildfire prevention and restoration following wildfires.
- Livestock grazing and rangeland fuels management.
- Impact of livestock grazing on local economies and how land uses affect rural community stability.
- Need for more research and strategies for noxious weed and invasive species control.
- Climate change, drought, and associated impacts on rangeland management and uses.

¹ The total list of challenges identified in listening sessions is available for download at: <https://goo.gl/Qjnt1C>.

- Lack of policy flexibility which creates barriers to adaptive management for agencies to respond to annual variations in forage and rangeland conditions.
- Need for more integrated management across multiple land ownerships.
- Impact of population growth, changing demographics, and urban impacts on rangelands and uses.
- Public perception of grazing on public and private lands.
- Livestock and wildlife interactions on rangelands.
- Need for community of knowledge and effective working relationships between ranchers and agency personnel, especially for entry-level professionals.
- Recreation use and impacts putting pressures on rangelands.
- Watershed and riparian health.

The results of the listening sessions were summarized and provided to the Rangeland Center Partners Advisory Council for consideration in development of this strategic plan. At the fall 2015 PAC Meeting, a subcommittee was formed to draft the strategic plan. The subcommittee reviewed the results of the listening sessions and identified major challenges and opportunities facing Idaho Rangelands. The subcommittee used the following guiding principles to prioritize challenges and opportunities:

- **Relevant** – Germane to the Rangeland Center mission, goals and objectives.
- **Timely** – Pressing ecological or social challenge or opportunity on rangelands.
- **Significant** – Outcomes would facilitate decisions of great importance.
- **Unique** – Fill gaps in understanding or fill needs not otherwise addressed.
- **Effective** – Highlights Center expertise and offers opportunities for partnerships.



Rangeland Center members (including faculty, staff, and PAC) examined individual challenges, looked for overlap, and refined the list to the following five focus areas: Fire/Fuels/Invasive Plant Species and Restoration, Rangeland Uses, Rangeland Wildlife, Watershed Function, and Climate Change. At the spring 2016 Rangeland Center Retreat, each Center member was asked to identify the highest priorities amongst the 65 challenges raised in the listening sessions. The priority setting exercise narrowed the 65 challenges down to 11 priority challenges within the five focus areas:

Focus Area 1: Fire/Fuels/Invasive Plants and Restoration

Challenge 1. *Rigid post-fire policies limiting management and restoration options on rangelands.*

Challenge 2. *Inadequate clarity on effective approaches to minimize rangeland fire risk and severity.*

Challenge 3. *Lack of understanding by decision makers and the public about causes of rangeland fire and cost-effective methods to address fire risk and restoration.*

Focus Area 2: Rangeland Uses (including grazing, recreation, energy, etc.)

Challenge 4. *Land use policies that limit rangeland management flexibility to account for annual variations in forage, water, drought, pests, disturbance, market conditions, etc.*

Challenge 5. *Need for greater understanding of how land uses affect rural community stability (i.e., economic and social systems at the local level).*

Challenge 6. *Limited public understanding of the complexity of livestock grazing encompassing a range of values and effects from unfavorable to beneficial.*

Focus Area 3: Rangeland Wildlife

Challenge 7. *Inadequate understanding of how land management practices and uses affect sage-grouse and other obligate species in sagebrush-steppe ecosystems.*

Challenge 8. *Limited understanding by public and decision makers about how wildlife habitat is provided by well-managed rangelands.*

Focus Area 4: Watershed Function

Challenge 9. *Lack of awareness and understanding about management options and effects on riparian health and ground water resources.*

Focus Area 5: Climate Change

Challenge 10. *Limited understanding of how changes in growing season will affect forage and habitat and how plant and animal communities on rangelands will adapt to changes in climate.*

Challenge 11. *Insufficient awareness among land managers and users of consequences of climate change and opportunities for adaptive management on rangelands.*

Note: As the Rangeland Center implements this strategic plan, additional input will be solicited from social scientists because the predominant expertise employed in the development of this plan was from bio-physical disciplines and fields of practice.

III. Current Activities and Opportunities

Positioning the Rangeland Center to address the challenges rangelands will face in the next decade requires an objective accounting of current Center activities and projects. The following comparison between the identified Focus Areas and our current ventures illuminates opportunities for partnerships or needed resources to address important rangeland issues.

Focus Area 1: Fire/Fuels/Invasive Plants and Restoration

Rangeland Center members and our stakeholders identified several challenges associated with rangeland ecosystem dynamics related to wildland fire effects and the important need for research and outreach in this area. These topics are primarily related to wildland fire/fuels, invasive plant species, and restoration efforts. Significant work by Rangeland Center researchers and educators is focused on understanding ecological changes initiated by wildland fire and invasive plants.



Our work recognizes the importance of increasing the use and frequency of fire to manage woody plants, such as juniper, in some settings while reducing the frequency and extent of wildfire in other settings, such as cheatgrass invaded sagebrush steppe. We also study opportunities for restoration of systems altered by fire and invasive plants.

Challenge 1. Rigid post-fire policies limiting management and restoration options on rangelands.

Research by Rangeland Center members are often cited in policies regarding land use and restoration after fire. Center members are often called upon to analyze alternative policy impacts and considerations by local, state and federal managers, and elected and appointed officials. More effective research and outreach programs could be fostered by working more closely with partners to inform Center members about post-fire policies.

It is clear that effective policies and strategies must include significant flexibility as viable management approaches vary among sites and years. It is also important to consider the inclusion of introduced and native plants in restoration strategies. Rangeland Center research is valuable as land managers develop policies and management options that consider yearly, site-specific and climate-driven variation. Rangeland Center members provide unbiased analysis of management alternatives being considered by policy makers. However, Center members need to discuss our potential involvement while natural resource policies and management alternatives are being drafted, as this is a time when informing decisions may be most flexible and effective. Faculty generally see their role as providing information, but stakeholders and partners would like researchers to bring the best available science to discussions early in the policy process.

Challenge 2. *Inadequate clarity on effective approaches to minimize rangeland fire risk and severity.*

Several research projects by Center members have focused on altering landscape patterns of wildland fuels through targeted grazing and establishing fire/fuel breaks. In addition, significant outreach activities are aimed at helping land managers recognize threats and develop management strategies related to fire and plant invasion.

Challenge 3. *Lack of understanding by decision makers and the public about causes of rangeland fire and cost-effective methods to address fire risk and restoration.*

Effective management approaches must be set in a context of the cost, likelihood of success, variation among sites, and longevity of specific management strategies. Researchers in the Rangeland Center have laid a foundation of understanding about wildland fuels and the ecological implications of excessively long or short fire return intervals. However, we are currently engaged in only a few projects that provide significant information to evaluate the efficacy and economic viability of specific management approaches.

Focus Area 2: Rangeland Uses

Rangelands provide for many uses, including grazing, recreation, and sustainable energy production. Livestock grazing is most often recognized as the dominant use of rangeland for economic gain and rural community stability. Grazing is also influential in terms of how it affects other rangeland values including wildlife, recreation, and open space. Researchers and educators in the Rangeland Center are conducting significant work on the ecological impacts of grazing with implications for grazing management decisions. We are also conducting research on economic influences of public land grazing on rural communities. Science-based options for livestock management are presented to livestock producers and land managers in several outreach activities including the Idaho Range Livestock Symposium. The Rangeland Center is positioned to contribute to the dialogue of “best available science” and advance the



understanding and application of science-based solutions to rangeland management. Expanding knowledge of non-commodity uses of rangelands and expanding outreach to include non-commodity stakeholders is important to advancing the study and management of rangelands. Our ability to address this focus area of interacting rangeland uses will be enhanced in the newly established Rock Creek Ranch collaboration.

Challenge 4. *Land use policies that limit rangeland management flexibility to account for annual variations in forage, water, drought, pests, disturbance, market conditions, etc.*

Stakeholders expressed frustration during listening sessions that land management policies do not provide necessary flexibility to address annual variation in plant communities,

drought, pests, disturbance, and market conditions that affect rangeland uses. Though Center members conduct research on how dynamic conditions alter the impact of rangeland uses, particularly grazing, on rangeland health, we do little work on policy analysis or examining ways to improve flexibility in land management policies. This shortcoming implies a need to enhance the Center’s partnership with the UI Policy Analysis Group and other policy groups such as the McClure Center.

***Challenge 5.** Need for greater understanding of how land uses affect rural community stability (i.e., economic and social systems at the local level).*

Significant research and outreach projects are being conducted by Center members to understand the economic and social implications of changes in rangeland ecosystems and local, state and national land use policies. Concerns related to rural community stability were raised in our listening sessions and confirmed by Center members. This consistent sentiment of the needed focus on rural community stability suggests vigilance in maintaining and strengthening this expertise among Center members.

***Challenge 6.** Limited public understanding of the complexity of livestock grazing encompassing a range of values and effects from unfavorable to beneficial.*

Our listening sessions with stakeholders revealed significant concern that most Idahoans do not understand the value of livestock grazing in sustaining rangeland health, managing wildland fuel, improving wildlife habitat, and maintaining open space. Research by Center faculty has clearly shown that the vast majority of Idaho citizens are supportive of public land grazing. However, those who attended focus group discussions indicated that they believe the public does not clearly understand the potential benefits or detriments of livestock grazing. Several programs conducted by Rangeland Center members are designed for youth and policy makers, though the majority of our research and outreach activities are designed to support active land management, not to increase general awareness of rangelands or the potential value of grazing. This shortcoming implies the need to enhance partnerships with organizations who work with youth and urban audiences including the IRRC, TNC, 4H, FFA, and others. Inherent in this challenge is maintaining transparency about the adverse effects of improper grazing as well as the beneficial effects of properly designed grazing systems.

Focus Area 3: Rangeland Wildlife

The importance of rangeland wildlife was consistently raised in focus group discussions, and confirmed in subsequent discussions among Center members.

***Challenge 7.** Inadequate understanding of how land management practices and uses affect sage-grouse and other obligate species in sagebrush-steppe ecosystems.*



Of particular interest among stakeholders is how land management activities affect sage-grouse and other sagebrush-steppe obligate species. In addition, interest was raised about identifying strategies to reduce conflict and competition between livestock and wildlife. Center researchers and educators conduct projects on a variety of wildlife species, but the majority of our work focuses on sagebrush-steppe ecosystems including how grazing affects sage-grouse habitat. Few projects are aimed at managing competition between livestock and wildlife or how livestock grazing practices may enhance wildlife habitat.

***Challenge 8.** Limited understanding by public and decision makers about how wildlife habitat is provided by well-managed rangelands.*

The inherent link between wildlife habitat and well-managed rangelands was raised in listening sessions and viewed as an important challenge by Center members. Only a few Center outreach projects are currently aimed at increasing the understanding of how to manage rangelands to provide healthy wildlife habitat. Several Center members have expertise in habitat ecology. Programs or partnerships aimed at increasing understanding and awareness of the value and management of rangelands for wildlife should be developed. Participation of the Rangeland Center in the Rock Creek Ranch collaboration offers many opportunities to study the impacts of land management practices and uses on wildlife habitat.

Focus Area 4: Watershed Function

Sufficient high-quality water was consistently raised as an important rangeland resource in



discussions with stakeholders. Concern was raised that land managers, policy makers, and the public have limited understanding of the link between rangeland watersheds and ground and surface water abundance and availability for other purposes, including farming, commercial and domestic use. Research and outreach focused on how aquifer levels and annual precipitation and snowpack levels affect rangeland surface water availability are needed

***Challenge 9.** Lack of awareness and understanding about management options and effects on riparian health and ground water resources.*

Rangeland Center researchers and educators understand the importance of clean water as a rangeland resource, though only a few center members are conducting projects specifically related to water resources, watershed processes, and riparian health. Current projects include how weeds affect water quality and impacts of drought on watershed processes. Outreach events often include elements related to riparian monitoring and management. Water yield is another critical factor associated with rangelands. Substantial efforts are underway to reduce invasive plant cover (e.g., juniper and annual grasses) and part of the justification for these efforts is enhanced water quality and water yield. We currently have limited expertise within the Center to address watershed level processes including

interchange between surface and ground water processes. Efforts should be made by the Center to enhance our expertise in areas dealing with water quality and quantity, either through hiring new personnel and/or enhancing partnerships with other agencies and groups (e.g., Idaho Water Resources Research Institute, USDA-ARS Northwest Watershed Research Center, and others) who directly address water issues.

Focus Area 5: Climate Change

A need for greater understanding of how a changing climate will affect rangeland plant and animal communities was raised by stakeholders and Center members. In addition, critical outreach efforts are needed to increase manager and stakeholder understanding of the implications of climate change.

Challenge 10. Limited understanding of how changes in growing season will affect forage and habitat and how plant and animal communities on rangelands will adapt to changes in climate.

Several Rangeland Center projects include monitoring of plant communities and wildlife species over time, though our work seldom includes a component of forecasting changes in light of climate variation. Center researchers and educators are not currently conducting substantial work on the consequences of climate change to water supply, wildlife, livestock grazing, rangeland restoration, wildland fire and rural economies and opportunities for adaptive management relative to climate change. Significant efforts should be made by the Center to enhance our expertise in this area. This is particularly true in light of the national priorities on research and educational funding dealing with the critical area of climate change.

Challenge 11. Insufficient awareness among land managers and users of consequences of climate change and opportunities for adaptive management on rangelands.

Discussions with stakeholders and among Center members revealed a clear lack of understanding about how climate change will affect rangeland ecosystems and management in the future. Initially, a greater understanding about the implications of climate change is needed among Center members. There are several researchers and educators at the University of Idaho who could help the Rangeland Center address this topic. There are also existing and potential partnerships with agencies and researchers to enhance our abilities in this critical area (e.g., USDA-ARS, multi-state projects with other states). Future endeavors may then focus on outreach projects related to improving an understanding of climate change and ways to adaptively manage for it among rangeland managers and users.

IV. Implementation Strategy

Outlined below are strategies by which the UI Rangeland Center will initiate projects and evaluate our progress around the Focus Areas and Priority Challenges we identified as the most pressing challenges facing Idaho's rangelands and consistent with the Center's goals, capabilities and capacities. Our annual operating plan of activities, described below, is designed

to encourage Center members and partners to focus activities and outputs on important challenges identified during our strategic planning process. Center members will continue to engage research and outreach/education activities outside the priorities highlighted in this plan, however, our adaptive approach will allow us to address important challenges, seize opportunities, and change with immersing issues and challenges.

Aligned with the University and Center goals, strategies fall into three general categories: **Resources**, **Research**, and **Outreach/Education**.

Resources: Our resources (i.e., funding, data, education, and people) include existing and potential partnerships that can shape Center capability and capacity to address Focus Areas and Priority Challenges.

- For each Focus Area, create a team of Center members and partners to develop and implement objectives and actions aligned with this plan.
- Solicit new and expand existing partnerships with agencies, organizations, permittees, and land users that have priorities aligning with the Center's goals and priority challenges.
- Work with partners and Center members to identify areas where additional capabilities and capacity are needed to address Center goals and Focus Areas. Then, draft plans to improve adequacy related to these topics. For example, this strategic planning process identified a need for greater expertise in natural resource policy, rural sociology and economics. We will strive to recruit faculty to active roles within the Center in these areas.

Research: The Rangeland Center will encourage members to work collaboratively to investigate and understand specific ecological and social challenges within the Focus Areas identified in this strategic plan.

- Bring together faculty to form teams and to initiate research relevant to each of the Focus Areas we have identified. Facilitate these teams and encourage collaboration to bring needed expertise to discover solutions to problems within a focus area.
- Work with proposal development specialists in CNR, CALS, and the Office of Research and Economic Development to target calls for proposals that address priority challenges and identify teams of faculty who will collaborate on proposal development. Also, engage core resources of partners' organizations to aid in research proposal development.

Outreach and Education: Members and partners of the Rangeland Center will collaborate to regularly evaluate the relevance of focus areas and priority challenges affecting those who manage Idaho's rangelands. Our work in outreach and education involves identifying problems and sharing potential solutions, providing educational training to solve rangeland related problems.

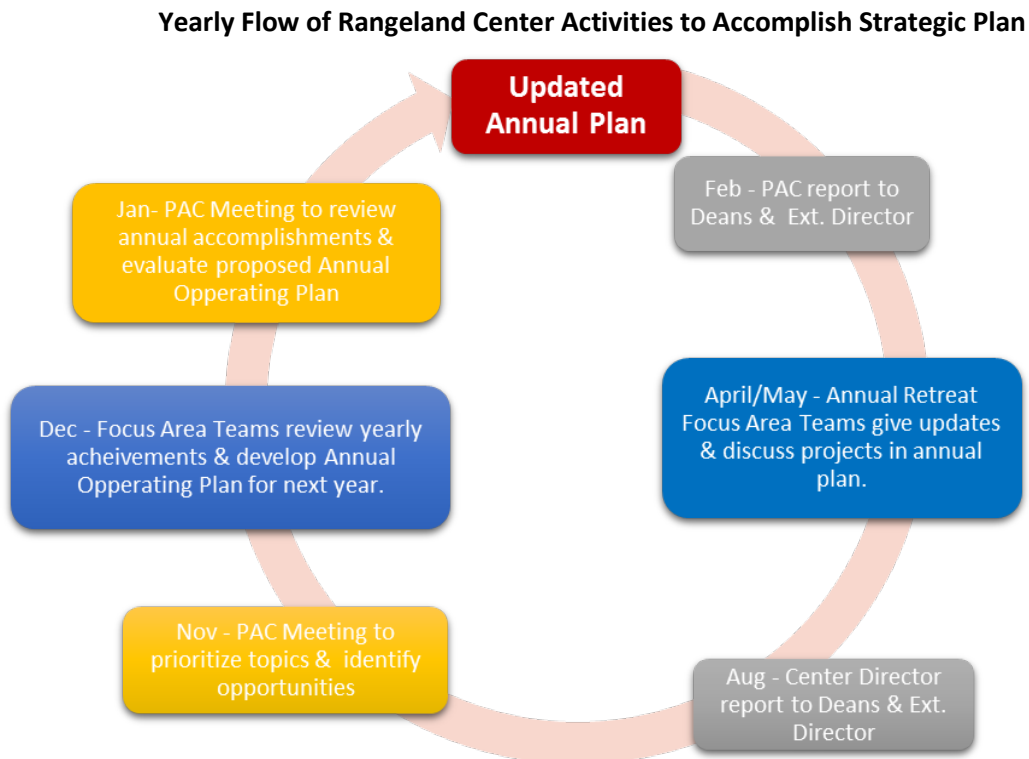
- Implement projects within specified topics using field-based demonstrations, publications, presentations and workshops, designed with stakeholder/user expertise to devise implementation methods.

- Allocate resources to Focus Areas and identify emerging opportunities on which to focus outreach and education projects and outputs.
- Seek opportunities to engage students, permittees, agencies, and other land users in problem-solving experiences, including internships, to better prepare them for the work force.

V. Annual Operating Plan

This strategic plan will be actualized through a dynamic and adaptive annual operating plan, supported by a detailed budget, to prioritize activities and evaluate outcomes. The Center will develop an annual operating plan in cooperation with the Deans of the Colleges of Natural Resources and Agricultural and Life Sciences and the Director of Extension to enact this strategic plan in conjunction with College and University goals. Project specifics and timelines for accomplishment will be outlined in the Annual Operating Plan. Attached to this Strategic Plan is a supporting document that was developed by Center Members to give guidance for the Annual Operating Plan. This guidance document provides examples of actions to address priority challenges intended to initiate discussions before prioritization of actions to initiate.

The Annual Operating Plan will be reviewed each year by Center members to assess progress and identify ways to overcome barriers to accomplishing goals. A report will be prepared annually by the Center Director and the Chair of the PAC to highlight accomplishments, obstacles, and opportunities. The annual report will be delivered to the Deans of CNR and CALS and Director of Extension. The steps in this annual cycle to implement the strategic plan are illustrated below.



VI. Summary

The Rangeland Center Strategic Plan outlined above directly addresses two of the three pillars of the University of Idaho Strategic plan for 2016 to 2025. We will address “Ideas That Matter” by engaging in interdisciplinary research and outreach, and engaging partners in Idaho’s communities to impact our state and region. Our dynamic and adaptive annual operating plan will address the “Building Our Team” pillar in the UI strategic plan by creating a purpose-driven and nimble organization able to effectively respond to emerging trends, challenges and opportunities.

In the next five years (2016-2021), the Rangeland Center faculty/staff and Partners Advisory Council intend to implement activities around Focus Areas identified in this plan, seek partnerships and secure resources to accomplish our goals, and leverage our resources to build greater capacity in our efforts. We also intend to follow and adjust our yearly cycle of reporting, evaluation, and revision to accomplish our Annual Operating Plan.

