

# SERVING WYOMING

## THE LAND-GRANT MISSION IN ACTION



ANNUAL OVERVIEW  
2024-2025



College of Agriculture,  
Life Sciences, and  
Natural Resources

*The strength of Wyoming  
lies in people who know the land,  
understand its challenges, and  
show up to solve them—together.*



# Honoring the Land-Grant Mission

Serving Wyoming—Then, Now, and for the Future

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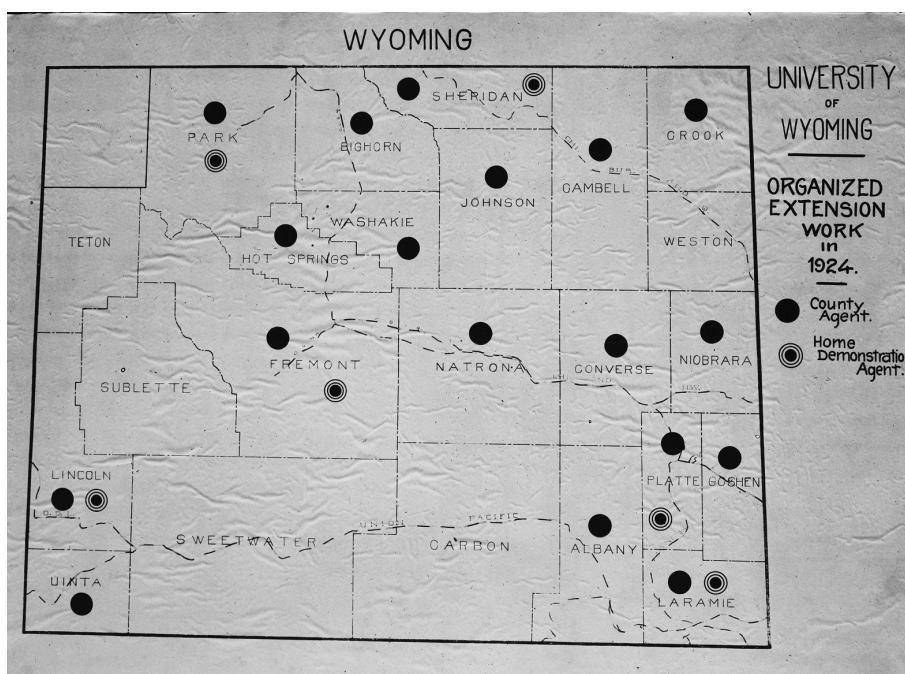
The land-grant vision began with President Abraham Lincoln's signing of the original Morrill Act of 1862 and expanded through the Hatch Act of 1887 and the Smith-Lever Act of 1914. Together, these landmark acts established a national network of universities committed to three enduring principles:

- Providing practical, accessible education
- Advancing research that addresses real-world challenges
- Serving communities through Extension

At the University of Wyoming, the College of Agriculture, Life Sciences, and Natural Resources (CALSNR) embodies this mission in action. We educate Wyoming's future workforce, conduct research that strengthens agriculture and natural resources, and deliver Extension programs that support families, youth, and communities across all 23 counties and the Wind River Reservation.

Today, as Wyoming faces rapid change, emerging industries, and increasing pressures on working lands and rural economies, the land-grant mission has never been more essential.

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# Why the Land-Grant Mission Matters Today

**Wyoming's communities are navigating profound and interconnected challenges:**

- Workforce shortages in rural regions
- Increasing pressure on water, soil, and rangeland health
- Rising costs for livestock and crop production
- Drought, wildfire, invasive species, and changing ecosystem dynamics
- Limited access to healthcare and essential services
- The need to create viable futures for young people in small towns

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Together, these challenges shape the work of CALSNR—guiding how we teach, discover, and serve across the state. Our efforts strengthen ranching and farming, support wildlife and natural resource management, improve public health, nurture youth leadership, and help build durable economic pathways for rural communities.

# COLLECTIVE IMPACT

CALS NR translates the land-grant mission into measurable outcomes that serve Wyoming's people, industries, and landscapes.

## TEACHING

### 14:1 Student-Faculty Ratio

- 1,427 STUDENTS ENROLLED
- 30+ ACADEMIC PROGRAMS
- 351 FIRST-GENERATION STUDENTS TO ATTEND COLLEGE

## RESEARCH

### \$37,912,890 Research Grants

- AGRICULTURE & NATURAL RESOURCES
- BIOTECHNOLOGY
- NEUROSCIENCE & PHYSIOLOGY
- WILDLIFE & FISHERIES
- ECOLOGY

## EXTENSION

### 11,457 Instructional Hours

- 4,811 PROGRAMS DELIVERED STATEWIDE
- 71,790 ADULT EDUCATIONAL INTERACTIONS
- 55,162 YOUTH CONTACTS

## PARTNERSHIPS & SUPPORT

### A leader in donor and industry support at UW

- 118 NEW DONORS
- INCREASED ANNUAL GIVING BY \$385,153
- OVER \$9 MILLION IN TOTAL DONOR SUPPORT



# STATEWIDE REACH

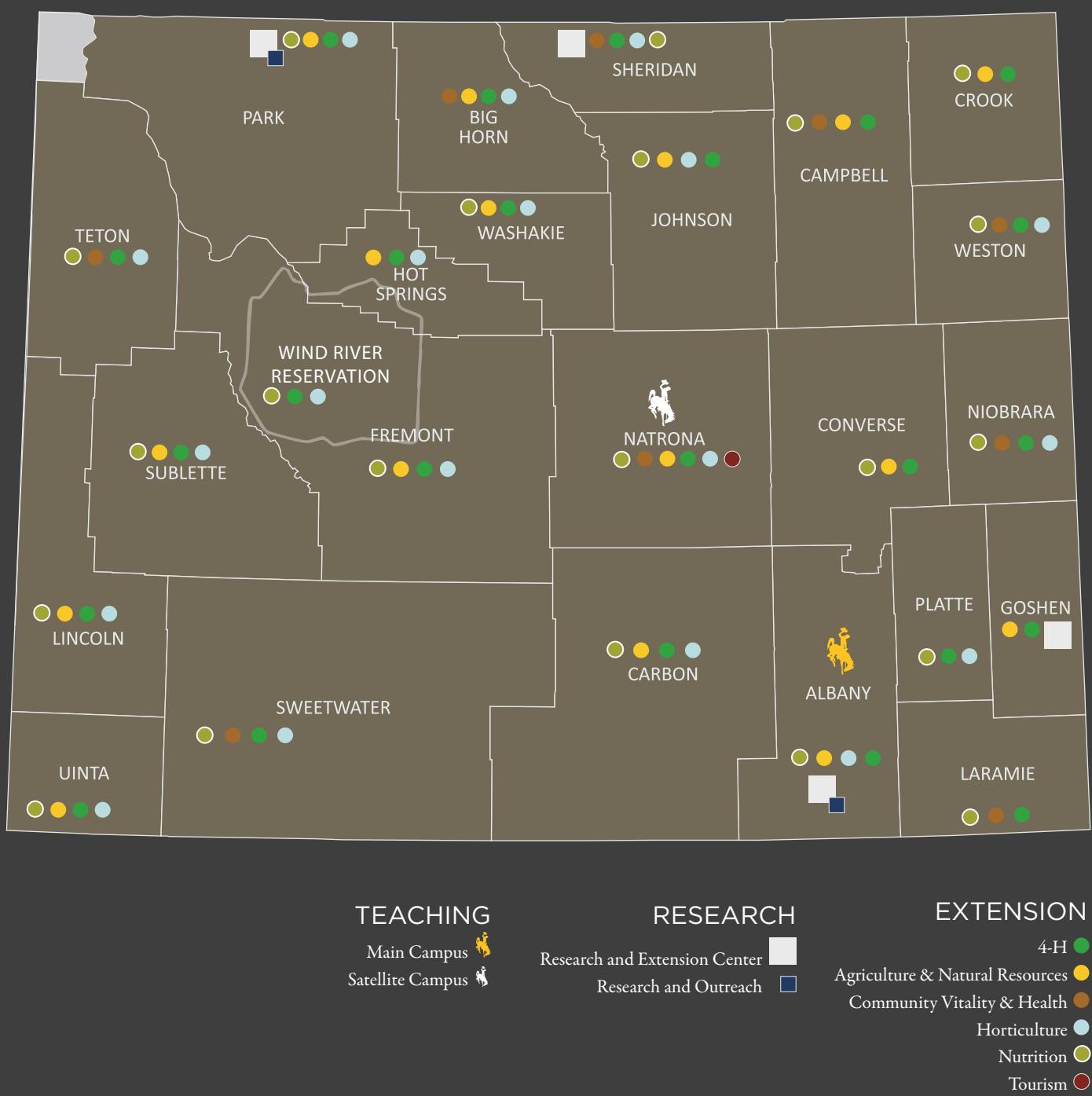
To fulfill the University of Wyoming's land-grant mission, CALSNR operates through a connected network of county Extension offices, research and extension centers, and campus partners. Each location functions as an active collaborator—conducting field-based research, delivering education and workforce training, supporting industry and career development, and responding directly to local community needs.

This statewide network ensures that knowledge, expertise, and practical solutions reach Wyoming's people where they live and work.

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Where people live, we are there.  
Where challenges emerge, we respond.

Locations shown by county to reflect CALSNR's statewide service model.





# TEACHING

EMPOWERING STUDENTS. STRENGTHENING WYOMING.

CALS NR prepares students to thrive in agriculture, natural resources, and the life sciences by connecting classroom learning with real-world discovery. Students work alongside researchers, industry partners, Extension educators, and community organizations—developing the skills Wyoming employers need today and the leadership the state will need tomorrow.

## STUDENT SNAPSHOT

With **14:1** faculty mentorship, students gain individualized academic support and access to hands-on research at UW's statewide facilities.

**69%**

Incoming  
First-Time Students

**31%**

Incoming  
Transfer Students

**28%**

First Generation  
Undergraduates

**1,254**

Undergraduates

**173**

Graduates

# HANDS-ON LEARNING

## AI for Herd Health



Students train artificial intelligence models to detect heart and lung disease in cattle, gaining specialized experience while advancing tools that protect Wyoming's beef industry.

**Learn more:**  
[bit.ly/4q3uWim](https://bit.ly/4q3uWim)

## From Research to Startup



Undergraduate researchers helped uncover how cavity-causing bacteria resist treatment—leading to development of a new maple-based mouthwash and demonstrating how CALSNR students convert scientific discovery into public benefit and entrepreneurial opportunity.

**Learn more:**  
[bit.ly/44uNklJ](https://bit.ly/44uNklJ)

## Controlled Environment Agriculture



Launched in 2024, this interdisciplinary course trains students to operate hydroponic and vertical farming systems—preparing a workforce for Wyoming's growing interest in resilient, locally produced food systems.

**Learn more:**  
[bit.ly/4aj1ksK](https://bit.ly/4aj1ksK)

## Training the Healthcare Workforce



CALSNR faculty lead core biomedical instruction in Wyoming's WWAMI program, biology and physiology majors – preparing future physicians and strengthening healthcare workforce capacity statewide.

**Learn more:**  
[bit.ly/4qmMqqE](https://bit.ly/4qmMqqE)



## Building Skills in Meat Processing & Food Safety

UW's meat processing course provides hands-on training in food safety, curing, and value-added meat production. Working in the UW Meat Lab, students develop practical skills for careers in meat science, processing, and ranch-based enterprises—strengthening Wyoming's food system through safe, value-added production.

**Learn more:**  
[bit.ly/4iVhA5k](https://bit.ly/4iVhA5k)

“

No matter where you come from or what your background is, as long as you are interested and passionate, we have a good supporting team here to help you succeed.”

**Dr. JJ Chen | Plant Sciences**

# ALUMNI OUTCOMES

Over the past five years, CALSNR has awarded more than 1,350 degrees across agriculture, life sciences, and natural resources.

## Alumni Trends

**86%** live and work in the region

**55%** employed in their field of expertise

**\$81,400**

Estimated average wage potential for CALSNR graduates

*\$40,000-\$42,000  
Average wage potential without a college degree*

CALSNR graduates carry their education into daily work across Wyoming, applying practical skills and local knowledge in agriculture, natural resources, and public service to support working lands, trusted institutions, and the communities that depend on them.





## CALSNR Alumni Strengthen Wyoming Communities

### Kelcey Christensen

B.S., Animal & Veterinary Sciences

After more than a decade managing UW's Meat Lab, **Kelcey Christensen founded 307 Meat Company to help meet Wyoming's local meat-processing needs.** His work supports small producers, expands local processing capacity, and strengthens rural food systems—helping keep value-added agriculture rooted in Wyoming communities and giving producers more options close to home.

### Joe Reed | Ph.D., Microbiology

Joe Reed directs chemical testing, microbiology, and preparedness programs at the Wyoming Public Health Laboratory. A UW graduate, he supports statewide public health and emergency response efforts, providing reliable science that protects communities during everyday operations and times of crisis. **His work helps ensure Wyoming remains prepared, resilient, and responsive to public health challenges.**

### Tanner Warder

B.S. Wildlife & Fisheries Biology & Management

Raised in Big Horn, Wyoming, Tanner Warder turned a lifelong connection to open spaces into public service. As a UW undergraduate, **his field research documenting mule deer migration gained national attention.** Today, he applies hands-on experience to habitat monitoring, fence retrofitting, and wildlife conservation projects across the Bighorn region.

### Kerin Clark

B.A., Agricultural Communications

With nearly three decades of experience in agricultural communications and youth leadership, **Kerin Clark serves as a leading advocate for Wyoming agriculture.** As Executive Vice President of the Wyoming Farm Bureau Federation she helps connect producers, policy, and education—strengthening agriculture's voice and representation across Wyoming.

### Embere Hall | Ph.D., Ecology

A UW Ph.D. graduate, Embere Hall helped establish Wyoming Game and Fish's first dedicated research program. She now **leads statewide efforts to improve wildlife management through better data, monitoring, and long-term planning.** Her work strengthens how science informs decision-making that affects Wyoming's landscapes, wildlife populations, and public trust.



“

We are a group of problem solvers. . .working with partners to answer questions that matter.”

**Dr. Brian Mealor** | Interim Associate Dean & AES Director

# RESEARCH

TURNING KNOWLEDGE INTO PRACTICAL SOLUTIONS

While CALSNR prepares students to lead Wyoming’s future, our research teams work to solve the state’s most urgent challenges today. Grounded in Wyoming’s landscapes, industries, and communities, this work delivers practical solutions—from animal health and invasive species management to water, wildfire, and rural well-being.

# PARTNERSHIPS & CAPACITY

Through trusted partnerships, CALSNR brings federal resources and national expertise to Wyoming to address challenges across land, livestock, wildlife, water, and rural communities. In FY2024, these efforts resulted in \$37.9 million in new research grants supporting applied research and collaboration statewide.

The initiatives below are just a few examples that reflect how partnerships turn research into work that matters to Wyoming.

## IMAGINE

Managing Invasive Annual Grasses

### Purpose

Reduces invasive annual grasses to improve rangeland health, wildfire resilience, and long-term land stewardship statewide.

### Partners

Wyoming Agricultural Experiment Station  
Bureau of Land Management · USDA ·  
Wyoming Weed and Pest Councils

## Wyoming Migration Initiative

### Purpose

Supports conservation of Wyoming's wildlife migrations while balancing habitat connectivity with working lands.

### Partners

Wyoming Game and Fish Department ·  
U.S. Geological Survey · Bureau of Land  
Management · Private Landowners

## Wyoming INBRE

Biomedical Research Network

### Purpose

Expands Wyoming's biomedical research capacity by supporting faculty, students, and shared research infrastructure.

### Partners

National Institutes of Health · IDeA  
Program University of Wyoming ·  
Regional Research Institutions

## Noble Research Institute

3M Project

### Purpose

Measures and reduces methane in grazing systems while supporting productive, economically viable livestock operations.

### Partners

Noble Research Institute · University of Wyoming · USDA · Industry Collaborators

## WyACT

### Purpose

Helps communities and land managers plan for environmental change using applied research and decision tools.

### Partners

National Science Foundation · University of Wyoming · State and Local Agencies

## WyCHEx

### Purpose

Builds drought resilience by strengthening Extension capacity and producer decision-making around weather, water, and land.

### Partners

NOAA National Drought Information System Northern Plains Climate Hub  
Wyoming Climate Office ·  
USDA Farm Service Agency



# Working Lands, Working Solutions

## Science that Strengthens Wyoming Agriculture

CALS NR research begins with the realities producers face—weather, markets, land conditions, and time—and focuses on knowledge that can be applied directly in working operations. The result is critical insights that sustain productive lands, healthy livestock, and resilient agricultural businesses across Wyoming.



## High-Altitude Research to Real-World Herd Performance

Animal Science researchers use high-altitude bull testing to translate performance data into practical breeding decisions, strengthening herd outcomes and producer confidence across the Mountain West.

**Learn More:** [bit.ly/3Kzikk3](https://bit.ly/3Kzikk3)

## Rancher-Led Innovation

Animal Science researchers work alongside producers to test practical approaches to nutrition, grazing management, and predator challenges—producing results that integrate directly into ranch operations.

**Learn More:** [bit.ly/3KOplOO](https://bit.ly/3KOplOO)



## Improving Water Use Efficiency

Ecosystem Science and Management researchers show how irrigation timing affects evaporation and water-use obligations—guiding producers toward more efficient practices.

**Learn More:** [bit.ly/49cb5I2](https://bit.ly/49cb5I2)



## Preparing Rangelands for the Future

Plant Science researchers lead statewide strategies to control invasive annual grasses—protecting forage, wildlife habitat, and ranching livelihoods.

**Learn More:** [bit.ly/4qeaM5j](https://bit.ly/4qeaM5j)



# Stewarding Wyoming's Land & Wildlife

## Research that Supports Resilient Land and Wildlife

Wyoming's landscapes support many uses at once—wildlife habitat, working lands, recreation, and communities. CALSNR research helps make sense of how these systems interact and where thoughtful management can make a difference. By studying movement, habitat, water, and restoration at the scale they occur, this work provides decision-makers with information they can trust to care for Wyoming's land, wildlife, and natural resources over the long term.



## Restoring Post-Mining Lands

Researchers from Ecosystem Science and Management and Agricultural and Applied Economics lead an NSF-funded study to improve mine reclamation—reducing erosion and enhancing long-term landscape recovery.

Learn More: [bit.ly/44s62k7](https://bit.ly/44s62k7)



## Improving Chronic Wasting Disease Detection



Veterinary Science researchers partner with Wyoming Game & Fish to develop more sensitive diagnostics that support wildlife health.

Learn More: [bit.ly/4blTija](https://bit.ly/4blTija)



## Wildlife Migration & Roadway Solutions

Migration Initiative researchers identify how mule deer and pronghorn use new wildlife crossings—informing future conservation and highway planning.

Learn More: [bit.ly/4almaYw](https://bit.ly/4almaYw)



## Understanding How to Manage High-Elevation Forests

Botany researchers used more than a century of tree-ring data to show that whitebark pine populations are increasingly responding to drought and weather extremes in sync—insights that enable land managers to identify and prioritize resilient forests.

Learn More: [bit.ly/4aq4l5a](https://bit.ly/4aq4l5a)





# Supporting Healthy People & Communities

## Strengthening Food Systems and Rural Health

Healthy communities rely on systems that work—safe and accessible food, clean water, and early awareness when risks emerge. CALS NR research focuses on strengthening these systems before they are strained. Through applied science and close collaboration with partners, this work helps protect public health and food security, supporting Wyoming communities that are informed, prepared, and resilient.



## Strengthening Indigenous Food Sovereignty

Plant Sciences & Family Consumer Science researchers evaluate cultivation practices for edible native berries, helping restore culturally important foods in Wyoming.

Learn More: [bit.ly/3YtFOVU](https://bit.ly/3YtFOVU)



## Empowering Youth Nutrition

Family Consumer Science researchers evaluate nutrition apps for Wyoming teens, providing data that may help reduce Type 2 diabetes risk.

Learn More: [bit.ly/45WYoNg](https://bit.ly/45WYoNg)

## Protecting Rural Health

Agricultural and Applied Economics researchers lead a national project on rural healthcare access, providing insights that help Wyoming communities plan for long-term resilience.



## Protecting Wyoming's Water Resources

Researchers from Zoology and Physiology, and Animal Science track fecal pollution sources in Wyoming rivers, informing safer recreation practices and water management decisions.

Learn More: [bit.ly/4iXnCCq](https://bit.ly/4iXnCCq)



“

Extension's strength lies in its people—educators who live and work alongside the communities they serve.”

**Dr. Mandy Marney** | Associate Dean  
& UW Extension Director

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# EXTENSION

WHERE WYOMING'S LAND-GRANT  
MEETS EVERYDAY LIFE

Extension is where Wyoming meets its land-grant university. Through research efforts that form a scientific base that directly informs Extension programming, local Extension educators, embedded in every county and the Wind River Reservation, supports agriculture, youth development, families, businesses, and community leadership.





# Serving Wyoming Communities

## EXTENSION SNAPSHOT

**4,811**

educational programs

**11,457**

instructional hours

**126,952**

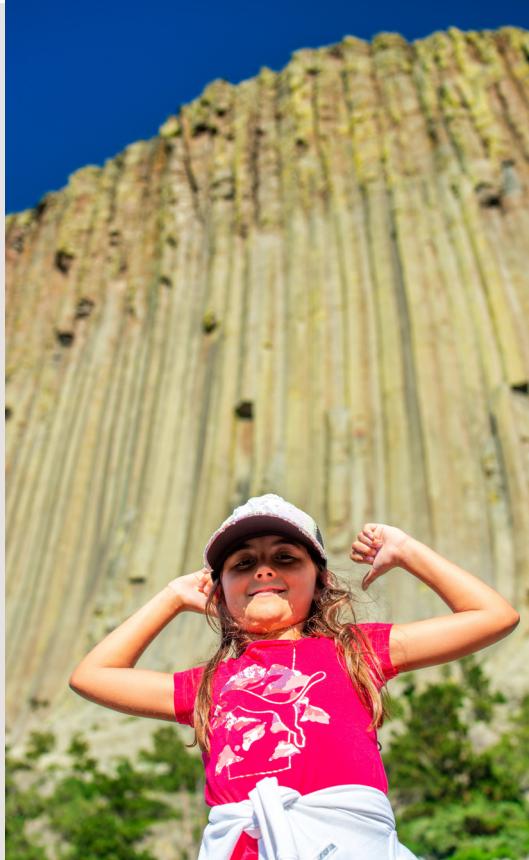
total educational contacts

## 4-H & Youth Development

More than 13,000 youth participate in hands-on learning through 4-H, gaining leadership, science, agriculture, and citizenship skills.

These numbers reflect thousands of workshops, consultations, field days, leadership trainings, and youth programs delivered by Extension educators who live and work in all 23 counties + Wind River Reservation.





## Encouraging Wyoming Families to Explore Outdoors

The “Ready, Set, Explore” program offers free statewide outdoor activities that strengthen family well-being and connect people to Wyoming landscapes.

**Learn More:** [bit.ly/4oVQpsw](https://bit.ly/4oVQpsw)



## Supporting Aging Wyoming Residents

UW Extension developed the Aging Well in Wyoming (AGE) resource to help older adults, caregivers, and families access clear, Wyoming-specific guidance on health, finances, housing, and caregiving—supporting independence and informed decision-making in rural communities.

**Learn More:** [bit.ly/4j0M4mn](https://bit.ly/4j0M4mn)

## 4-H Skills, Lead to Opportunity

Johnson County 4Her transformed a photography project into a thriving business—an example of how 4-H helps Wyoming youth build confidence and contribute to their communities.

**Learn More:** [bit.ly/4nKulBp](https://bit.ly/4nKulBp)



## Listening to Wyoming's Agricultural Community

UW Extension conducted a statewide agricultural needs assessment to help producers, communities, and decision-makers identify priorities, anticipate challenges, and plan for Wyoming's agricultural future.

**Learn More:** [bit.ly/491jl7f](https://bit.ly/491jl7f)

## Building Local Capacity

Extension revitalized an internship program that places students in county offices—strengthening summer programming and developing future educators.

**Learn More:** [bit.ly/3KZVAK5](https://bit.ly/3KZVAK5)



# A Shared Commitment to Wyoming

Wyoming's challenges are not abstract. They are shaped by weather, distance, land, water, and the people who depend on all of it working together. As Wyoming's land-grant college, the College of Agriculture, Life Sciences, and Natural Resources exists to meet those realities—preparing students to serve, advancing research that solves real problems, and delivering knowledge where it is needed most.

Across classrooms, rangelands, laboratories, county offices, and communities, the work reflected in these pages shares a single purpose: strengthening Wyoming's future by showing up—consistently, practically, and in partnership with the people who call this place home. This is the land-grant mission at work—not as an idea, but as a daily commitment to being relevant, responsive, and accountable to the needs of Wyoming.



# CALSNR LEADERSHIP

The College of Agriculture, Life Sciences, and Natural Resources is guided by a collaborative leadership team committed to advancing Wyoming through education, research, and outreach. Led by Dean Kelly K. Crane and supported by associate deans spanning academic programs, research, and Extension, the college integrates local expertise with a statewide perspective. Together, this leadership team stewards CALSNR's land-grant mission—connecting students, communities, and partners to practical solutions that strengthen Wyoming's people, landscapes, and industries.



**Kelly K. Crane**  
Farm Credit Services of America Dean  
College of Agriculture,  
Life Sciences, and Natural Resources  
University of Wyoming



**Mandy Marney**  
Associate Dean &  
Director of Extension  
College of Agriculture,  
Life Sciences, and Natural Resources  
University of Wyoming



**Brian A. Mealor**  
Interim Associate Dean &  
Director Wyoming AES  
College of Agriculture,  
Life Sciences, and Natural Resources  
University of Wyoming



**Christine Wade**  
Associate Dean  
Academic and Student Programs  
College of Agriculture,  
Life Sciences, and Natural Resources  
University of Wyoming

## Stay connected as the work continues.

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