Welcome

The 2018-19 academic year is now in the books and we look forward to the coming fall when students will fill the hallways and classrooms in their pursuit of knowledge. The current group is clearly focused on gaining the skills to help them succeed in their chosen professions. They are fiscally conservative, and socially liberal with broad support for inclusion, equity, and environmental values. I am honored to support our students in their efforts to find their path to succeed in fostering global sustainability.

The Quinney College completed a remarkable year. We celebrate Ethan Hammer, our first ever Goldwater Scholar, the selection of three faculty as Fellows in their scientific societies, 20 recipients of the new Certificate in Geographic Information Science, and the largest graduating class in 26 years.

We continue to adapt to the ever-changing landscape of funding for higher education. In 2018 we recovered from declines in federal research funding. Appropriations from the Utah Legislature and funding from Utah agencies increased to fill much of the loss from federal agencies. Generous gifts from foundations and donors increased substantially and allowed us to pursue research and educational activities that greatly enhance student experiences. Gifts from alumni to support the Collaborative Employment Opportunity Program, summer forestry programs, and student travel to scientific meetings have been instrumental in providing the education and career preparation needed by today’s students. Subsequent pages of this report provide details on these accomplishments and more.

Chris Luecke

Ethan Hammer - Goldwater Recipient

From Left: Dr. Nancy Huntly, Dr. Peter Adler: Ecological Society of America, Dr. Chuck Hawkins: Society for Freshwater Science
The Quinney College exceeded our finance goals for the year. Funding from state support, external research dollars, and donations from individuals and foundations all increased over previous years.

After 30% declines in research funding during the 2017 and 2018 fiscal years, the faculty in the college did an outstanding job of finding new programs and sources of funding for their research activities. Increases in funding from the National Science Foundation, the U.S. Department of Defense, and the U.S. Bureau of Reclamation provided new opportunities for faculty and students to continue work on conservation and restoration of ecosystems. Notable awards from the National Science Foundation were made to Peter Adler, Janice Brahney, and Edd Hammill. Chuck Hawkins and Edd Hammill received new funding from the Department of Defense. Phaedra Budy received additional funding from the Bureau of Reclamation to continue her work on the conservation of desert fishes.

In addition to increases in federal research dollars, the Utah Legislature expanded their support for natural resources research at USU through initiatives directed to water conservation and public land management. These additional funds allowed faculty and students to develop new programs in mine reclamation, municipal water conservation, wildfire prevention, and species recovery. We thank our supporters in the legislature for allowing Utah to remain a leader in the conservation of our natural resources.

We could not accomplish our research and educational successes without the continued support of alumni and foundations. Planned gifts from the Lisa Urness family, continued support from Jennifer Speers, Sheila Miller, and Steven Ryberg, and contributions from the Janet Quinney Lawson Foundation, the Catena Foundation, and the Walton Family Foundation greatly expanded educational activities and research endeavors. Total charitable donations rose from $1M to over $4M in FY2019. We are extremely grateful for all of our donors for demonstrating your faith in our efforts to enhance our planet’s sustainability and to educate the natural resource leaders of tomorrow.
An outstanding commencement ceremony for QCNR graduates was held May 2. The 2019 graduation marked the first time that graduate degrees were awarded with the baccalaureate ceremony. Over 120 students received bachelor’s degrees and hooding ceremonies included 46 masters students and 12 doctoral candidates.

A crowd of more than 700 family members, friends, and supporters attended the ceremony and the luncheon afterward. Smiles beamed from students and family members as all celebrated this momentous occasion.

At this year’s ceremony, Anders Hart, the 2019 QCNR Valedictorian summed up the feelings of students in his Valedictorian speech. Anders reflected “I’ve learned from and continue to love the friendliness of students, advisors, and professors who share a passion for understanding the world’s ecosystems and humanity’s place in them. Learning and contributing knowledge makes the world a better place.” Here are some additional highlights of students who share the QCNR sense of community.

Undergrad Class of 2019 Student Highlights

Rylee Jensen

“I am basically living my dream job in this spectacular place!” This quote is Rylee’s response to QCNR’s request to highlight her in the annual newsletter. She graduated this May with a bachelor’s degree in Wildlife Ecology and Management. She is working at Brooks Camp in Katmai National Park as a brown bear technician.
Mark Krumwiede

Mark Krumwiede completed a Bachelor of Science in Geography, Geographic Information Science. After graduation, Mark started a position as a physical scientist with the Naval Oceanographic Office at the Stennis Space Center in Mississippi. This center collects, creates and maintains large amounts of oceanographic data for use by NATO, federal agencies, and other federal departments.

Oaklee Trogstad

A Wildlife Ecology and Management graduate from the Uintah Basin campus, Oaklee has started her career with the Division of Wildlife Resources. She is working as a wildlife technician for the sensitive and endangered species biologist in the northeastern region. She develops conservation plans for yellow-billed cuckoos, burrowing owls, black footed ferrets, pinyon jays and bats.

Graduate Class of 2019 Student Highlights

Gwendwr Meredith

During her graduate career, Gwen was involved in student government and chairing the QCNR Graduate Student Council. Because of this involvement, she was awarded the “Outstanding Personal Contribution Award” from USUSA for community involvement, especially her volunteer work with Stokes Nature Center and the Graduate Enhancement Award last spring. Outstanding is part of Gwen and what she exemplifies in all her hard work. After graduation Gwendwr will continue working with Dr. Mark Brunson in the Social-Ecological Systems Lab.

Deni Murray

While completing her masters program Deni received the QCNR Masters Researcher of the year award and subsequently was recognized as USU’s Robins Award recipient. She received six other national and international research awards all before completion of her masters degree. QCNR produces the next generation of top-notch researchers such as Deni. We look forward to watching where she will go in her career.

Eric LaMalfa

Eric has been a part of the QCNR family during his graduate studies and now joins QCNR as Assistant Professor in Rangeland Ecology and Management Education. Eric has been actively engaged with QCNR for some time including graduate studies in Kenya examining the recovery of lands after controlled burns.
Wildland Resources Studies Predators

Faculty and students in the Wildland Resources Department have been studying and learning about predators for decades. Their research has included cougars throughout Utah, wolves in Yellowstone and the Arctic, coyotes, jaguars, fishers, foxes, bobcats, bears, and other species. Here are some of the projects and animals they are working on.

Dr. Mark Chynoweth

Dr. Mark Chynoweth is an Assistant Professor at the Uintah Basin regional campus who specializes in large carnivore ecology and conservation. Mark brings a variety of research opportunities to students in northeastern Utah in courses and through directed research. He is currently involved in a broad scale research collaboration to monitor brown bears, gray wolves, and Eurasian lynx in eastern Turkey that will guide long-term efforts to grow Turkey’s national park system and establish the country’s first wildlife corridor, a protected area that links larger protected habitats.

Mark maintains an active student wildlife club at the USU - Uintah Basin campus. Student members have many opportunities including their work with the endangered black-footed ferret, replacing GPS collars on denning black bears, and visiting Yellowstone National Park.

Dr. Dan MacNulty

Dr. Dan MacNulty and his students work at the interface of animal behavior, population biology, and community ecology to address basic and applied questions in animal ecology and conservation. They are learning how predators structure food webs and modify ecosystem function, and how populations at the edge of a species’ range respond to environmental change. They study large mammals in ecosystems that range from the Montane Slopes of northern Utah to the Polar Deserts of the High Arctic. Much of his research centers on a long-term, collaborative study of wolves and ungulates in Yellowstone National Park.
Dr. Eric Gese

Dr. Eric Gese is a Research Wildlife Biologist with the USDA-National Wildlife Research Center, but he also is a faculty member (Professor (FR or Federal Research)) in the WILD Department. He conducts research on behavior, ecology, and management of wild carnivores, with particular focus on predator-prey dynamics, predator-predator interactions, and human-carnivore conflicts. His research has spanned North and South America from jaguars in Brazil to polar bears along the northern coast of Alaska. Predator species he has studied include swift and kit foxes, coyotes, wolves, mountain lions, fishers, jaguars, and polar bears, plus prey species including elk, mule deer, pronghorn, and snowshoe hares. He and his graduate students are currently studying recruitment and growth of pronghorn populations in Idaho, impacts of seismic testing on denning ecology of polar bears, niche partitioning of coyotes and kit foxes in the west desert of Utah, as well as fisher ecology in the western states.

Dr. Julie Young

Dr. Julie Young conducts research on behavior, ecology, and management of mammalian carnivores. Her research utilizes wild and captive mammalian carnivore populations to understand and reduce human-wildlife conflict. She is a faculty member in WILD (Associate Professor (FR)) and she works for USDA, running their Predator Research Facility at USU’s Millville property, where WILD undergraduate students volunteer, carry out undergraduate research projects, and complete internships. Her graduate students are currently studying cougar ecology and cougar-bear interactions, Utah’s coyote bounty program, and beaver translocations.

WILD Accomplishments in 2018-2019

The WILD Department currently has 32 faculty who conduct research, teach, and do Extension programming in wildlife, forestry, rangelands, and in conservation and restoration of wildlands. Recent accomplishments include:

- We educate and mentor about 80 graduate students and 280 undergraduate students.
- We published over 128 peer-reviewed articles in top journals including Nature, Science, Wildlife Conservation, etc. (in 2018).
- We produced over 100 Extension publications (in 2018).
- We received $3.2 million in competitive research grants (in 2018).
Faculty, staff and students in the Department of Environment and Society strive to understand the impacts humans have on our environment and how to better manage these impacts for the benefit of society. Below are a few examples of our work.

ENVS Welcomes Three New Faculty

Dr. Zachary Miller has accepted a position as an Assistant Professor in Wildlife and Society and will begin a tenure-track position in ENVS beginning August 2019. Zach grew up in Northern California, where he spent his earlier years rambling through the foothills of the Sierra Nevada Mountains. He completed his PhD in Forest and Conservation Science at the University of Montana. Zach’s research focuses on park and protected area management, where he uses social science concepts to inform the management of visitor use. Zach also works on social-ecological projects, where he integrates social and ecological sciences to understand how humans and the environment affect and are affected by each other.

Dr. Rebecca Schild has accepted a position as a tenure-track Assistant Professor in Recreation Resource Management based out of the Moab Regional Campus beginning August 2019. As a Colorado native, love for public lands and outdoor adventure are in Rebecca’s blood, which motivated her to attend Colorado College. There, she earned her BA in International Sustainable Development. In 2008, she earned her Masters in Environmental Management from Duke University, specializing in organizational sustainability. She completed her PhD in Environmental Studies at CU Boulder. Her overarching research objectives aim to understand how human systems can flourish without degrading the natural environment.
Dr. Stefani Crabtree has accepted a position as an Assistant Professor in Social-Environmental Modeling and will begin a tenure-track position with ENVS starting in January 2020. Stefani is a computational archaeologist and complexity scientist. Her interest in archaeology is spurred from the desire to understand commonalities of humanity that can only be grasped by asking big questions. Stefani holds an external research fellow position at the Center for Research and Interdisciplinarity in Paris France, and is currently a visiting faculty member at the Santa Fe Institute.

Stefani will teach courses in geospatial analysis and plans to continue her research project in northern Mongolia (https://www.nomadsciencesmongolia.com).

Promotions for Claudia Radel and Peter Howe

Dr. Claudia Radel was promoted to full professor in the Department this spring. Dr. Radel is one of our nation’s leading researchers in assessing the impact of environmental conditions on the role of gender in access to family resources. Claudia remains as the associate dean of the college.

Dr. Peter Howe was promoted to Associate Professor with tenure in 2019. Dr. Howe is a recipient of the National Science Foundation’s CAREER program. This award will support Dr. Howe’s research in modeling the dynamics of public perceptions and behaviors in the context of climate change adaptation. Dr. Howe was awarded the 2019 Faculty Researcher of the Year in the Quinney College of Natural Resources.

Looking Forward

The ENVS Department is looking forward this coming year to an external review of our academic, research, and extension programs. The review comes at an opportune time in that we have successfully completed the goals set out in our 2015 strategic plan. We also hope to continue development and implementation in the expansion of our Environmental Studies and Recreation Resource Management degrees at the regional campuses.
The Department of Watershed Sciences provides expertise in all aspects of the hydrologic cycle, in the conservation, restoration and management of aquatic ecosystems, and in the geographic analyses of the earth’s landcovers. Below are highlights of our recent accomplishments.

**QCNR is Busy with Beaver**

Beaver used to be found in abundance throughout North America. After extensive trapping for pelts, the beaver population was a tiny fraction of its former size. But beavers have come back in fashion – not to make hats but to help restore our riverscapes. Beaver and their dams are now being sought after by land managers and private ranchers for their ability to create diversity and resiliency in the watershed. We now realize that these ecosystem engineers provide valuable services, including resilience to drought and fire, flood control, water storage, water quality improvement, and increased livestock forage. Research and restoration work in WATS and around QCNR helps us understand how we can recruit beaver to restore valley bottom ecosystems. QCNR is at the forefront of developing restoration strategies and the science of how beaver effect ecosystem processes.

**Understanding Beaver Impacts on the River Ecosystem**

In WATS, Konrad Hafen (MS, 2017) explored how water storage in beaver dams might help compensate for reductions in snowfall under a warming climate. Susan Washko (2018 QCNR Graduate Researcher of the Year) and her advisor Trisha Atwood studied the macroinvertebrate communities in beaver ponds and how they contribute to the diet of trout. Deni Murray (2019 QCNR Graduate Researcher of the Year) and her advisor Janice Brahney are examining the effect of beaver ponds on water quality, particularly concerning the storage and delivery of nutrients and heavy metal pollutants. Karen Bartelt and her advisor Joe Wheaton are examining how beaver dams alter valley bottom topography and how
these changes persist over time. Marshall Wolf and his advisor Edd Hammill are working to scale up our understanding of the ecosystem services provided by beavers in order to inform managers where restoration should take place to best achieve their restoration and management goals. In WILD, Emma Doden is working with advisors Julie Young and Phaedra Budy to evaluate the success of beaver introductions to desert rivers.

**Beaver Translocation**

When beavers do what they do, land owners and ranchers are not always happy. Beavers might take down landscaping trees or block irrigation ditches. Their ponds will raise groundwater levels, flooding basements, parking lots, and grazing land. Traditionally seen as a nuisance, beavers are often lethally trapped. We have an opportunity to relocate beavers from where they are not wanted to where they can be free to transform the riverscape. USU researchers have been pioneering techniques to make translocation more successful.

Part of our work is to educate the public on the benefits of beavers and the ways to out-smart them. We are working on the best methods for live trapping and relocation. QCNR has built a beaver-holding facility in Millville that can hold nuisance beavers until they are certified disease free and healthy and can be grouped with other beavers to increase the probability of successful translocation. We also have a custom trailer – a beaver RV – that can be used to safely transport live-trapped beaver.

**Restoring Riverscapes – Action, Training**

Beaver provide a cost-effective and sustainable approach to restoring riverscapes. Strategies include not only beaver reintroduction but building beaver dam analogs that provide the same functions while recruiting beaver residents to maintain the structures. Professor Joe Wheaton, Adjunct Professor Nick Bouwes, and research associates Steve Bennett, Wally MacFarlane, and Scott Shavardian are actively involved in designing and installing beaver dams and other wood structures meant to provide the benefits of beaver dams. This approach is being adopted by state and federal agencies. The WATS team has produced a valuable design manual *Low-Tech Process Based Restoration of Riverscapes* and offers hands-on short courses through the USU Restoration Consortium. A key innovation in this work is using low-tech approaches that can be readily implemented and scaled up to achieve more restoration with less funding.
50th Anniversary Celebration

Utah State University ecologists celebrated past and current achievements during the USU Ecology Center’s 50th Anniversary Luncheon and Symposium held Oct. 24, 2018, in the Huntsman Hall Perry Pavilion on campus. Among the honored guests were past center directors John Neuhold, Frederic Wagner, and James MacMahon. Although past director, Martyn Caldwell, was unable to attend, he was there in spirit as John Stark spoke about his contributions to the center and shared many photos of Marty and his students and other collaborators, often in the field and doing science. Other faculty members, Michelle Baker, Dan MacNulty, and Dean Chris Luecke described the contributions of the other past directors, their careers, and their time leading the Ecology Center.

To support graduate scholarships in the Ecology Center, you can donate to the 50th Anniversary Scholarship Campaign.

Dr. Peter Adler Elected as ESA Fellow

Congratulations to Department of Wildland Resources and Ecology Center faculty member, Peter Adler, on his recent election as an Ecological Society of America Fellow. Dr. Adler was elected as an ESA Fellow for “providing critical insight into climate change impacts on biodiversity through the application of sophisticated statistical analyses to extensive datasets, and, more broadly, for leadership in generating and preserving the spatially and temporally extensive data needed to observe and forecast anthropogenic impacts.”

Dr. Adler was also awarded a Fulbright Fellowship during which he will be at the Laboratorio Ecotono, Universidad Nacional de Comahue in Bariloche, Argentina teaching his Ecological Dynamics and Forecasting graduate course as a 2-week intensive course and coordinating with Argentine researchers studying the invasive annual grass Bromus tectorum in the Patagonian steppe.
ESA E. Lucy Braun Award Recipient

Jacqueline J. Peña, a recent Ecology master’s alumna, from the Department of Wildland Resources in the S.J. and Jessie E. Quinney College of Natural Resources, was awarded the 2018 Ecological Society of America (ESA) E. Lucy Braun award for her poster, “Plant evolutionary response to climate change: Detecting adaptation across experimental and natural precipitation gradients.” The poster described her Master of Science research at Utah State University.

The E. Lucy Braun award, one of the highest student honors offered by ESA, is given for an outstanding poster presentation at the ESA Annual Meeting. With the guidance of faculty advisors Peter Adler (Ecology Center and Department of Wildland Resources) and Zachary Gompert (Ecology Center and Department of Biology), Peña’s research examined how climate change affects genetic diversity of Bluebunch wheatgrass (Pseudoroegneria spicata) populations in a sagebrush plant community in eastern Idaho. The goal of her project was to understand the evolutionary consequences of climate change in order to explore genetic mechanisms of adaptation in natural populations.

Ashley Rohde Recognized by the Society for Professional Journalists

The Ecology Center’s Utah Public Radio (UPR) Science Reporter Internship program was created in 2016 to offer students the opportunity to apply their technical backgrounds while honing strong science communication skills. Our graduate student interns continue to produce award winning news pieces. This year the Society of Professional Journalists – Utah Chapter recognized Ecology graduate student, Ashley Rohde twice: 1st place for a General Feature “Please, Pick Up Your Dog’s Poop To Protect Our Watersheds” and 1st place for Minority Issues “Utah Women 20/20: Scientifically Unsound, How We Exclude Women From Science.”

Follow our Science Reporters here: https://www.upr.org/term/science-0

New SW CASC Partnership

Utah State University recently joined the Southwest Climate Adaptation Science Center (SW CASC) university consortium, with the Ecology Center as the consortium’s home unit at USU. Scientists in the SW CASC region are examining topics such as how future temperatures will impact streamflow in the Colorado River basin, how severe wildfires might contribute to forest loss and how managers can plan for post-fire recovery, how climate extremes may affect California estuaries, and much more. To learn more, please visit: https://www.swcasc.arizona.edu/
Students and Programs

QCNR Collaborative Employment Opportunities

QCNR’s Collaborative Summer
Employment Program (formerly known as
the QCNR Summer Internship Program) has
expanded opportunities for students this year
with a variety of new agencies participating.
Two new positions with Trout Unlimited are
giving our fisheries and aquatic science
majors field experience and networking
opportunities. We are also excited to have a
student working with US Geological Survey
and The Nature Conservancy on restoration
work in the Moab area.

QCNR is also happy to welcome Timpanogos
Cave National Monument to the program.
Utah Botanical Center has joined us this year
with two positions focusing on environmental
education. The USFS Fisheries Program has
also joined us this year with several positions
for our conservation focused students.
This collaborative effort to provide summer
work experience for our students has a
tremendous impact on their future careers.
We appreciate everyone who contributes to
make this possible.

Undergraduate Research Program

The QCNR Undergraduate Research Program supported nineteen undergraduate research
projects in fiscal year 2019, awarding grants to students from all three departments. These
grants totaled $28,222 and cover research expenses and stipends. These funds were also used for
required matches to provide an additional fourteen undergraduate research grants. On completion,
students frequently present their findings at state and national professional meetings.
One of these projects, is part of an ongoing, multi-student effort. Since 2015, a group of undergraduate students has been studying cougars in the Bear River Range east of Logan. They set up motion-sensitive “camera-traps” in a 400 square mile grid. So far, they have confirmed 42 active sites, including one in Blacksmith Fork Canyon where a female cougar with her kitten was observed. The current student research team, led by Natalie D’Souza and Tim Cromwell, is working to document the occurrence of cougars along the wildland-urban interface in Cache Valley.

Examples of other funded projects are, “The effects of invasive common carp on invertebrate food sources for diving ducks in Great Salt Lake wetlands,” “Using GIS to support public land management decisions in and around the Grand Staircase-Escalante and Bears Ears National Monuments,” and “Mapping erosional processes on hillslopes post-wildfire.”

Development

The 2018-2019 fiscal year was a strong one for external fundraising from alumni, donors, foundations and others. A total of 323 gifts from 207 distinct donors totaling $1,477,745 was received! In addition, there were three new endowments and two new scholarships created by generous gifts to the college.

No year can ever go by without a huge thank you to the family and board of directors of the S.J. and Jessie E. Quinney Foundation and the Janet Quinney Lawson Foundation. The family and board members continue to provide critical support that strengthens the mission of the college. At the Old Main Society event this year, Peter Lawson was awarded the Distinguished Service Award for his longstanding commitment to the college and his tremendous work to help USU raise funds to build a new Moab campus building.

Some exciting news is a very generous pledge from a donor through a bequest from their estate to create the Endowment for Great Basin Wildlife and Habitat Research, Conservation, and Preservation. Some day this gift will create an endowment which will generate earnings to support research to preserve wildlife populations and critical habitat in the Great Basin. Landmark gifts such as this make a huge impact on the students, faculty and future of ecosystems in the region. They also enhance the standing of the college among land-grant universities and the research community.

Of note, our longtime development Director, Jon Paulding, has accepted another position at USU, as Senior Director of Corporate and Foundation Engagement. We are in the hiring process to secure a new director of development and look forward to introducing them to our community of loyal alumni, donors and friends.
Aug 26: Fall Classes Begin

Aug 28: Opening Social

Sept 4: QCNR Seminar
Doug Hunter: Small modular nuclear power for Utah

Oct 8-9: Restoring the West
www.restoringthewest.org

For details on these and other upcoming events please visit:
www.qcnr.usu.edu