The academic year of 2016-17 has been good for the Quinney College of Natural Resources. Our students continue to achieve success in their many academic, social, and professional activities. Pages 5-6 provide a glimpse of the joy and satisfaction that comes with being a student in the college. These extra-curricular activities define their college years and provide shared enjoyment for the rest of us.

In addition to fun times, our students graduate in high numbers (pages 3-4). Our graduates find good positions with land-use agencies, wildlife departments, and environmental firms. Students from recent years have an 85% placement rate into careers related to their degrees.

Research funding in the College hit the highest level ever with over $14 million dollars awarded to QCNR faculty (p. 2). The efforts of our faculty to solve environmental problems in Utah, the Intermountain West, and the world are reflected in these research awards. The productivity of faculty make my job one of the best imaginable.

Our Extension programs demonstrate enhanced focus on sustainability with new efforts in salvage timber use, water conservation, and community involvement. Nancy Mesner received the Career Specialist Award for her program in water quality and youth education. Ros Brain was promoted to Associate Professor with tenure in the Department of Environment and Society, and Terry Messmer received the Governor's Medal for his work on Sagegrouse conservation. Congratulations and thanks to our Extension Specialists and county agents for the work they do.

Chris Luecke

Contributing Writers - Traci Hillyard, Shauna Leavitt, Patrick Strong
Photo and Design Layout - Brian Kartchner
Financial Report

QCNR Funding 2016-2017
Total: $24M

The Quinney College of Natural Resources remains on solid financial footing. Our state funding (E&G) grew a bit with the addition of a new faculty line in Water Quality. Dr. Janice Brahney (p.8), assistant professor in Watershed Sciences, arrived in Logan last fall and began assessing nutrients and toxicants in snow, dust and water. Estimated funding for research programs was based on numbers from July-April, and extrapolated through the end of June. Jon Paulding, our director of development reports that the College received over $6m in donations this past year (p.14). Highlights include enhanced funding from the Janet Quinney Lawson Foundation, contributions to build an endowment for a Chair in Colorado River Studies, and a planned gift from alumnus Andrew Senti.

Faculty in the College received over $14M in research funding during the past year with major grants from NSF, the US BLM, and the UDWR. This record level of research funding was responsible for the Quinney College accounting for over 20% of USU’s research expenditures. Notable grants include the $2.6M NSF Research and Traineeship Program on Climate Adaptation Science awarded to Dr. Nancy Huntly, Director of the Ecology Center. Dr. Phaedra Budy received a $330,000 grant to study effects of climate warming on arctic lakes, and Dr. Jim Lutz received a $280,000 award from EPA to assess impacts of fire on tree demography.

QCNR Research Funding
Total: $14M

The past academic year proved to be a tremendous success for QCNR students. The 2017 graduating class consisted of 100 undergraduate students and 36 graduate students. The largest number of BS degrees were in Wildlife Science, Recreation Resources, and Environmental Studies. Over 400 enthusiastic family and friends attended the graduation ceremony on May 6th. We congratulate all of the graduates and wish them well in their journey of lifelong learning. We highlight six of these students who typify graduates of the Quinney College.

**Molly Van Engelenhoven**  
BS Environmental Studies  
BS Political Science  
Next Adventure – Graduate School, Middlebury Institute of International Studies, Monterey California

Molly made significant contributions to the QCNR community both through academic achievement and student leadership. Molly served as our Student Senator and was Valedictorian for the 2017 graduating class. Molly brought a unique perspective and style to the undergraduate community. We appreciate all of her hard work and wish her the best. Molly is heading to Monterey to begin a Master’s Degree in Nonproliferation and Terrorism Studies.

**Liz Winters**  
BS Forest Ecology and Management  
Next Adventure – Silviculturist, USFS Colville National Forest, Washington

Liz graduated this spring with a degree in Forest Ecology & Management. Two years ago, Liz was hired into the US Forest Service Pathways program. She completed her internship on the Siuslaw National Forest, and now begins a permanent position on the Colville National Forest in Washington as a silviculture trainee. As part of this position, Liz will attend the National Advanced Silviculture Program to become a certified silviculturist this fall.
Bret Mossman

BS Wildlife Ecology and Management
Next Adventure - Graduate School, University of Hawai’i Hilo

Bret will continue his passion for ornithology at the University of Hawai’i Hilo. He will begin his graduate program in Tropical Conservation Biology and Environmental Science this fall. His graduate project involves the translocation of the critically endangered Kiwikiu. This small bird is found only on the island of Maui. This summer Bret will continue exploring the islands as he documents the location and populations of the endangered Ua'u and other sea birds.

Rebecca Rossi

MS Watershed Science
Next Adventure - Graduate School, Dartmouth College

Rebecca Rossi joined Joseph Wheaton's lab at Utah State University as a research assistant in 2014. During her time at Utah State University, Becca researched sandbar dynamics in the Grand Canyon using emerging structure from motion photogrammetry techniques. Becca will be heading to Dartmouth College this fall to begin her doctoral program in river dynamics.

Jarod Raithel

PhD Ecology
Next Adventure - Faculty Position, Estrella Mountain Community College, Avondale AZ

Jarod Raithel joined Lise Aubry's lab at Utah State University as a Graduate Research Assistant in 2013. While at USU, he examined how landscape changes shaped the behavior, ecology and population dynamics of black bears during the past 30 years along the eastern coast of the United States. Jarod will pursue his goal of teaching at the college level in Arizona.

Ellie Leydsman-McGinty

MS Bioregional Planning
Next Adventure - Remote Sensing/GIS Lab Quinney College of Natural Resources

Ellie's research at USU focused on the use of GIS and remote sensing to support watershed and bioregional planning. She assessed the distribution and dynamics of water resources in Utah. Results of this research will be used by land managers to better allocate this increasingly scarce resource. Ellie continues her work on the spatial distribution of natural resources in her position as research technician for the Geographic Information Science and Remote Sensing Laboratory at QCNR.
Student Organization for Society and Natural Resources (SOSNR)

SOSNR had a busy year, as one of the most dynamic student clubs in QCNR. Their efforts focused on bringing awareness to pressing environmental and public land issues. The group visited with local civic leaders in Moab last fall to discuss issues of balancing economic growth and environmental protection. The club made several trips to support Bears Ears National Monument. On Saturday May 6, the group rallied at the state capital building to show their support for protecting the monument during a visit from Interior Secretary Ryan Zinke.

The Wildlife Society

USU’s student chapter of The Wildlife Society had a busy academic year. Highlights from the fall semester included a trip to the national conference in North Carolina where three members presented their research at the poster session. The fall also included a trip to the Goshute Mountains in Nevada to participate in the annual migration monitoring of HawkWatch International. Club members continued the tradition of their annual spring trip to Yellowstone National park with their faculty mentor Dr. Dan MacNulty. Observing wolves, bear, moose and elk was a highlight.

Society of American Forestry

In the fall, members of the QCNR Forestry Club traveled to the Society of American Foresters convention in Madison Wisconsin. Our students presented posters and one club member was hired onto the Forest Service Pathways Program. Students visited the farmstead of Aldo Leopold, witnessing the landscape made famous in “A Sand County Almanac”. The conference provided valuable professional experience for all.

Society for Range Management

In January, USU student chapter attended the Range Management Society meeting in St. George. The USU Range Management team, consisting of 15 students, walked away with first place in the college-bowl contest. USU team member Christine Blubaugh received the highest score ever recorded on the Undergraduate Range Management Exam. Congratulations to Christine and all the USU Range Club members.
Summer Abroad

Great Barrier Reef

Providing students with vibrant and engaging research experiences has always been a priority for QCNR professors, staff, and donors. This year Dr. Trisha Atwood and Dr. Edd Hammill, both assistant professors in Watershed Sciences, unveiled their new field course on coral reef ecology in Australia’s Great Barrier Reef. On this maiden voyage, Atwood and Hammill led 12 QCNR students on a wild trip to Heron Island, a secluded research station in the southern part of the reef.

The course provided students with a hands-on experience in designing and conducting marine ecological research. Each day started off with a morning snorkel in the boat harbor or a boat trip to the outer reef, where the students encountered sharks, reef fishes, nudibranchs, stingrays, and sea turtles. Trish and Edd provided lectures and field training to collect data for developing and testing student-derived hypotheses. Exhausted, but with smiles on their faces and stories to tell they headed back to the lab to analyze their data and report on their findings. Exhilarated by their experiences, the nights ended with conversations about careers in science and laughs about the days’ endeavors. The daily blogs from the students can be found at http://watsatheron.weebly.com/, On reflection of the course, Atwood and Hammill felt like it was some of the most effective teaching they have ever done. Not only did the unique setting ensure that the students were entirely engaged, but the course also provided a platform for them to really get to know their students and for their students to really get to know them.
Monz Measures Recreation Impact

Dr. Chris Monz and collaborators Drs. Ashley D’Antoinio and Milan Mitrovich began a project on the recreation use, ecological impacts and visitor perceptions in the open space lands of Orange County, California. Managers of urban-proximate wildland settings must often strike a careful balance in providing nature-based recreation experiences and maintaining ecological integrity. With over 3 million residents within a 30-minute drive of the natural areas of central and coastal Orange County, the demand for recreational experiences is ever present and increasing. Equally important is the increasing need for the conservation of natural resources and preservation of the rich natural heritage of an iconic area of the California coast.

Resource management planning and implementation strategies in natural areas are often more successful when informed by interdisciplinary research that combines both ecological and social science approaches in a location specific manner. Monz and colleagues will conduct a multi-year project designed to address ecological aspects, human benefits, and contemporary management approaches of recreation in the region. The study area includes Orange County Parks, California State Parks, and the Irvine Ranch Conservancy. Work will include field assessment of the condition of trails, sites, and other areas of visitor use, a determination of the spatial distribution of use, and an assessment of visitor preferences. The social and biophysical field sampling on this 3-year project started in May of this year.
Brahney Digs into Dust

Dust is what Janice Brahney, assistant professor in Watershed Science really digs. Brahney’s research focuses on the impact of that dust on freshwater ecosystems. Advanced atmospheric models and improved satellite imagery have enhanced our understanding of dust movement. Brahney examines the composition of dust, how it moves through the atmosphere, and how it affects the land where it is deposited. “The atmospheric transport of material is a large unmeasured component of critical biogeochemical cycles, like that of phosphorus,” says Brahney. “These nutrients deposited with dust have significant effects on lake ecosystem function including productivity, species composition and carbon cycling.”

The shores of the Great Salt Lake, along with other playas and desert environments, are the leading contributors of dust in Utah. “Atmospheric dust arises from these low-elevation basins and is then deposited in mountain environments that act as natural barriers to transport,” continues Brahney. She is interested in finding out how dust deposition impacts the nutrient availability and biology of lakes and rivers.

Although one doesn’t often see the large dust events that happened in the dust-bowl era, Brahney’s work has shown that small dust events can have a large cumulative and profound effect on low-nutrient level ecosystems, such as the mountain lakes and rivers of Utah and the Western U.S.
The Utah Cooperative Fish and Wildlife Research Unit was established in 1935 at Utah State University. The purpose of the Unit was to educate personnel to solve wildlife conservation problems and to conduct research to aid in more effective wildlife and fisheries management.

This research unit is a vital part of the research and graduate education programs in QCNR. Phaedra Budy and Tom Edwards direct Unit activities in their roles as employees of the US Geological Survey. They oversee over $1M in research funding annually, examining issues related to renewable natural resources, wildlife management, and conservation biology. Phaedra and Tom supervise graduate students and teach courses in the departments of Wildland Resources and Watershed Sciences. Their programs form an important link to our College's collaborations with state and federal agencies, and with non-governmental organizations.
The National Aquatic Monitoring Center

The National Aquatic Monitoring Center (NAMC) is a cooperative venture between Utah State University and the US Bureau of Land Management. The purpose of the lab is to encourage and foster scientifically sound watershed monitoring programs on public lands. We work in cooperation with numerous federal and state agencies and private land owners to develop monitoring and assessment protocols and to process and identify aquatic invertebrate samples. Each year, NAMC receives about 2000 benthic samples collected from streams, rivers, lakes, and ponds from all over the western US. Our dedicated technicians sort and identify more than one million benthic macroinvertebrates each year. Data from these samples enable land managers, hydrologists, and biologists to assess the condition of aquatic resources throughout the western US. Drs. Trip Armstrong and Chuck Hawkins direct activities of the center.
Lumber from Salvage Logging

The Utah Biomass Resources Group, in partnership with the USU Botanical Center, was awarded a Wood Innovations Grant in 2016 from the USDA Forest Service for the design of the nation’s first public building made from ICLT (Interlocking Cross Laminated Timber.) A centerpiece of the Utah State University Botanical Center, the newly constructed building will showcase what is possible using ICLT in construction. This new type of timber will be fashioned from the salvaged logging projects from forests decimated by beetle epidemics. Logging these forests benefits the environment by clearing fuel and reducing wildfire hazard. In the Intermountain West alone, there is more than a half billion board feet of beetle-killed wood available from National Forests annually. By using four-way dove tails and butterfly joints, lumber that was previously susceptible to cracking and checking becomes an aesthetically pleasing, carbon-storing wood wall.
Dr. Roslynn Brain designed and oversees USU Extension Sustainability – a national program fostering environmental behavioral change in the areas of land conservation, air quality, community supported agriculture, water conservation, and energy efficiency. Roslynn teaches workshops in communicating sustainability, and chairs the National Extension Sustainability Summit and the National Network for Sustainable Living Education. She also is coordinator for Utah Farm-Chef-Fork, the USU Permaculture Initiative and the Moab Bee-Inspired Gardens and Sustainable You! kids’ camps. Dr. Brain was promoted to Associate Professor and tenured in the Department of Environment and Society in 2017.

**Sustainability**

QCNR's newest interactive display demonstrates the power of green roofs to protect urban environments. McKenna Drew, a recent graduate of the Landscape Architect and Planning program, partnered with Nancy Mesner’s Water Quality Extension group to design and build the display. The display measures the timing, total amount, and quality of water running off two very different types of roofs: one with standard asphalt shingles and the other covered with panels filled with living sedum. Students measure the results to learn more about basic runoff characteristics.

The same principle can be applied on the ground where grassy swales and “rain gardens” are counteracting increased runoff over paved areas. These simple fixes reduce pollutants and maintain normal flows in our waterways and improve energy efficiency by reducing heat islands in urban areas. Learn more at [extension.usu.edu/waterquality](http://extension.usu.edu/waterquality)

**Plant it or Pave it**

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This past year was outstanding for the recruitment of private philanthropic support for the Quinney College, with just under $6 million dollars raised from 305 separate donors! Because less than 30% of Utah State University’s funding comes from the state of Utah and other public sources, private donors and competitive research grants expand our programs. Much of the philanthropic support the college receives goes directly to support students. Some of the gifts of note include:

- The Janet Quinney Lawson Foundation made an impactful 3-year grant of $1.2 million to the college. This grant will support the newly formed Endowed Chair in Colorado River Studies, a new environmental education degree to allow QCNR graduates to gain teacher certification, and a series of ecosystems restoration projects used to promote student involvement in research and real life ecosystem solutions.
- The estate of QCNR alumnus Andrew J. Senti contributed over $2 million dollars to establish the Andrew J. Senti Endowed Professorship in Ecosystems Services in the Department of Environment and Society.
- The estate of Eugene and Donna Ruetz made a bequest to establish an endowed scholarship in Forestry in the Department of Wildland resources.
- Marilyn Reeves and Stephen Ryberg donated funds to support student participation in professional society meetings to present their research.
- Over 40 Forestry alumni donated funds to support scholarships for Forestry majors to participate in Professor Jim Lutz’s summer field course in the Sierra Nevada Mountains.
- My Good Fund Trust supported a PhD fellowship in the Center for Colorado River Studies.

On behalf of the students, faculty and administration in the Quinney College of Natural Resources we enthusiastically thank our donors who create outstanding opportunities for students and faculty!
The recent gift of the Janet Quinney Lawson Foundation has allowed QCNR to adopt the Logan River as our home watershed. Students and faculty are working to establish the Logan River as a place of student research and restoration. It stretches from the subalpine peaks of the northern Bear River Range, across forest, range, and farmland to the Cutler Reservoir outside the city of Logan. The students and faculty of QCNR regularly take advantage of this close proximity to include fieldwork and data analyses in their classes. The watershed is particularly valuable in providing capstone experiences for undergraduate research projects.

In partnership with iUTAH Modeling and Data Federation, students and faculty are working to integrate data collection and stewardship efforts. We construct and maintain a network of sensors at several sites across the watershed. From the 8,000 foot heights of the Daniel Experimental Forest to the Cache Valley’s floodplains, these stations provide a wealth of data on snowpack, weather, stream flow, water quality and fish passage. The data allows researchers and students to explore relationships between climate, weather, and our region’s water supply.

This data (left) demonstrates how the highlands store winter precipitation in their snowpack—well over 10 feet in the past 2016-2017 winter. As spring air temperatures rise, this water is released overland into a dense network of creeks, aquifers, and springs. The flow is managed by a series of dams to provide water for the urban and agricultural needs. As a major tributary to the Bear River, the Logan River comprises a significant portion of the annual inflow to the Great Salt Lake and the services it provides to the entire Wasatch Front.
Quinney College of Natural Resources
5200 Old Main Hill
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QCNR EVENTS

Aug 6-11: ESA Meeting, Portland
Aug 28: Fall Classes Begin
Aug 31: Opening Social
Oct 18-19: Restoring the West
Nov 15-19: SAF Convention, Albuquerque

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