

# University of Wyoming National Park Service Research Center Annual Report

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## Front Matter and Table of Contents

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# UNIVERSITY OF WYOMING - NATIONAL PARK SERVICE RESEARCH STATION

38th ANNUAL REPORT 2015



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## 2015 UW-NPS RESEARCH STATION PERSONNEL



HAROLD BERGMAN ♦ DIRECTOR  
BONNIE ROBINSON ♦ OFFICE MANAGER  
GORDY RICHMAN ♦ FACILITY SUPERINTENDENT  
CALLAHAN JOBE ♦ SUMMER STAFF  
JACKSON MARR ♦ SUMMER STAFF  
DANIEL GREENWOOD ♦ SUMMER STAFF  
TONI PROESCHOLDT ♦ SUMMER STAFF

### 2015 PROPOSAL REVIEW COMMITTEE

HAROLD BERGMAN  
DIRECTOR ♦ UW-NPS RESEARCH STATION

MICHAEL DILLON  
ZOOLOGY & PHYSIOLOGY ♦ UNIVERSITY OF WYOMING

JEFF LOCKWOOD  
PHILOSOPHY ♦ UNIVERSITY OF WYOMING

SUE CONSOLO-MURPHY  
RESOURCE BIOLOGIST ♦ GRAND TETON NATIONAL PARK

KERRY GUNTHER  
WILDLIFE BIOLOGIST ♦ YELLOWSTONE NATIONAL PARK

# DIRECTOR'S COLUMN

## 38<sup>th</sup> ANNUAL REPORT 2015



During the period of this report the University of Wyoming-National Park Service (UW-NPS) Research Station supported and administered research in the biological, physical and social sciences and cultural resources performed in national parks, national forests and surrounding areas in the Greater Yellowstone Ecosystem. The UW-NPS Research Station solicited research proposals from university faculty, governmental research scientists and non-governmental research organizations throughout North America via a request for proposals. Research proposals addressed topics of interest to National Park Service scientists, resource managers, and administrators as well as the academic community. Studies conducted through the Station dealt with questions of direct management importance as well as those of a basic scientific nature.

The Research Station continues to consider unsolicited proposals addressing applied and basic scientific questions related to park management. Research proposals are reviewed and evaluated by the Research Station's proposal review committee. This committee is composed of University faculty and National Park Service representatives and is chaired by the Director of the UW-NPS Research Station. Research contracts are usually awarded by early April.

The UW-NPS Research Station operates a field station facility at the AMK Ranch on Jackson Lake in Grand Teton National Park. The Research Station provides researchers in the biological, physical and social sciences and cultural resources an enhanced opportunity to work in the diverse aquatic and terrestrial environments and the cultural resources of Grand Teton National Park, Yellowstone National Park and the surrounding Greater Yellowstone Ecosystem. Station facilities include housing for up to 60 researchers, wet and dry laboratories, a library with internet access, an herbarium, boats, and shop facilities. The research station is available to researchers working in the Greater Yellowstone Ecosystem regardless of funding source, although priority is given to individuals whose projects are funded by the Research Station.

A summary of the 2015 users and activities at the Station is included below. And additional information about the UW-NPS Research Station, including the current year's Request for Proposals, housing and facilities request forms, summaries of past and current research, upcoming seminars and other events, and location information, can be found at the station's web site: <http://uwnps.org/>.

### AVAILABILITY OF RESEARCH PROJECT REPORTS

The following project reports have been prepared primarily for administrative use. The information reported is preliminary and may be subject to change as investigations continue. Consequently, information presented may not be used without written permission from the author(s). Reports from past research at the Research Station (1954–present) are available online and full-text searchable from here: [http://repository.uwyo.edu/uwnpsrc\\_reports](http://repository.uwyo.edu/uwnpsrc_reports)

## **2015 UW-NPS RESEARCH STATION USERS AND ACTIVITIES SUMMARY (3655 total user-days)**

### **Classes and Field Research Courses**

*11 classes on Field Ecology, Geology, Social Science and Art from UW, LCCC-Cheyenne, CWC-Riverton, UW-Casper, NWCC, Nebraska, Oklahoma, California, Pennsylvania, Texas and Utah – 959 user-days*

- Field Geology – Laramie County Community College - Cheyenne
- Field Geoscience – Chadron State University
- Field Ecology – Oklahoma City University
- Outdoor Studio Art Class – UW Art Department
- Field Geoscience – Mt. San Antonio College, CA
- Human Dimensions of Wilderness Use – S. F. Austin University, TX
- Field Geoscience – University of Nebraska
- Field Ecology/Geology – University of Pittsburgh
- Watershed Science Graduate Student Field Course – Utah State University
- Field Geology – Central Wyoming Community College - Riverton
- Wildlife Photography – Northwest Community College - Powell

### **Workshops/Meetings**

*13 workshops and meetings on climate and butterflies, international energy and environmental security, historic building restoration, ecophysiology, landscape painting, international wildlife issues and biomedical topics from UW and WY Community Colleges, Iowa, Germany, Botswana, Jackson Hole, regional game and fish agencies and GYA federal and state agencies – 513 user-days*

- Iowa State University Debinski Ecology Lab Workshop/Retreat
- Grand Teton NP Science and Resource Management Division Staff Meeting
- UW Energy-Environment Security Workshop
- WY/ID/MT Game and Fish Agency Annual Tri-State Meeting
- Greater Yellowstone Coordinating Committee Meeting
- Alliance for Historic Wyoming Workshop and AMK Historic Building Tour
- GYA Revegetation Science Meeting and Tour
- Teton Plain Air Painters – Landscape Painting Session
- UW Dillon Ecophysiology Lab Workshop/Retreat
- UW INBRE Planning Workshop – UW & WY CC Instructors and Students
- Bavarian Forest National Park, Germany, Education Program Tour
- Wildlife Summit at JL Lodge
- Atlas of Wildlife Migration: Wyoming Ungulates

### **Research Projects with Residence at the Station (\* = funded by UW-NPS/GRTE)**

*37 research teams of from 1 to 12 researchers studying diverse topics in Ecology, Geology, Water Quality, Fish and Wildlife Biology, Social Sciences and Cultural/Historic Resources from UW, WY Community Colleges, and 17 other colleges and universities from all over the US and 6 federal or state agencies – 1966 user-days*

- Butterflies and Climate Change – Iowa State University
- Avian Biomechanics – Harvard University
- Cultural History of Snake River Rafting – Idaho State University
- \* Small Mammals and Fire Ecology – UW-Casper/LCCC
- River Otter – Frostburg State University/University of Maryland
- Avian Ecophysiology – University of Wyoming
- \*Historic Building Conservation – University of Pennsylvania
- Cricket Ecology – St Louis Schools Biology Class
- \*Beaver Ecology – University of Wyoming
- \*Human Response to Acoustic Environment – Penn State University
- Avian Biodiversity – University of California Los Angeles
- Fire and Climate Change – University of Wyoming
- \*Geomorphology of Snake River – University of Wyoming
- Aquatic Ecology – University of Wyoming
- Aquatic Invasive Species and Ecology – University of Wyoming



- Aquatic Community Ecology – Penn State Altoona
- \*Aquatic Ecology and Diatom Distribution – S. D. School of Mines
- Big Game Ecology – University of Wyoming
- \*Whitebark Pine at Alpine Treeline in GRTE – Virginia Tech
- Butterfly Biodiversity – Utah State University
- Active Tectonics in GRTE – University of Kentucky
- Climate Change and Whitebark Pine in GRTE – Kansas State University
- Teton Geology – Idaho State University
- Art History of GYA – University of Wyoming
- Jackson Lake Fish Survey – Wyoming G. & F. Department
- Water Quality – National Park Service
- Nutrient Cycling and Aquatic Ecology – University of Wyoming
- \*High-Resolution Teton Fault Mapping –University of Pittsburgh
- Bushy Tailed Wood Rats – University of New Mexico
- \*Aquatic Invertebrate Ecology – University of Wyoming
- \*Teton Fault Hazard Analysis – Idaho State University
- Sound Measurements – National Park Service
- Spider Ecology/Biogeography – Craighead Beringia South
- Upper Snake River Hydrology – National Park Service
- Lake Trout Egg Collections – US Fish and Wildlife Service
- Jenny Lake Archeology Survey – Wyoming State Archeologist

**Interns and Visiting Scholars Resident at Station (\* = funded by UP-NPS/GRTE)**

*2 Grand Teton National Park interns co-funded by UW and Grand Teton NP and selected competitively for work with Grand Teton National Park staff; 2 guest interns in Ecology/Sustainability and Nature Writing; 1 guest UW faculty member in music composition – 217 user-days*

- \*Hydrogeology/Glaciers – MS student from University of Colorado-Boulder
- \*Museum Curation/History – MS student from Idaho State University
- Ecology/Sustainability – Undergrad, University of the Sunshine Coast Australia
- Nature Writing – MA student from University of Wyoming MFA Writing Program
- Music Composition/Opera – Composition Faculty Member Univ. of Wyoming

**Harlow Summer Seminars – UW-NPS Research Station at the AMK Ranch**

*Weekly Thursday evening seminars from mid-June to mid-August with a \$5 donation for a BBQ dinner followed by a seminar – 10 seminar events in 2015 drew an average audience of 120 members of the general public from the Jackson Hole / Greater Yellowstone Area*

- Mark Elbroch, Panthera's Teton Cougar Project: Altruism in mountain lions – June 18
- Diana Miller, Wyoming Game and Fish Dept., Jackson: History of fisheries management in the western US with notes on the Hoback River and Jackson Lake – June 25
- Tom Serfass & Kelly Pearce, Frostburg State Univ. & Univ. of Maryland: River otters as flagships for aquatic conservation: The approach doesn't fit the North American model of wildlife conservation – July 2
- Joe Riis, National Geographic, and Arthur Middleton, Yale University: Invisible Boundaries: The Greater Yellowstone elk migration project – July 9
- Hank Harlow, University of Wyoming: Biomimicry, what we can learn from animals living in stressful environments: Lions, dragons, bears and other critters – July 16
- Bob Smith, University of Utah: Immense magma reservoir discovered beneath Yellowstone extending well beyond its caldera – July 23
- Sarah Benson-Amram, University of Wyoming: The evolution of problem-solving abilities in carnivores: Badgers and bears to snow leopards and spotted hyenas – July 30
- Tanja A. Börzel, Freie Universität, Berlin: On leaders and laggards in environmental governance and management: The case of the European Union – August 6
- Mary Centrella, Cornell University: Reading BEE-tween the lines: Honey bees, colony collapse disorder, and the importance of wild bees to agriculture – August 13
- John Stephenson, Grand Teton National Park: Sage-Grouse conservation in Jackson Hole – August 20