

1-1-2013

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Recommended Citation

Debinski, Diane M.; Klaver, Robert; Blanchong, Julie; and Fairbanks, Sue (2013) "Iowa State University Field Trip Report: Ecology and Evolution in the Greater Yellowstone Ecosystem," *University of Wyoming National Park Service Research Center Annual Report*: Vol. 36, Article 24.

Available at: http://repository.uwyo.edu/uwnpsrc_reports/vol36/iss1/24

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IOWA STATE UNIVERSITY FIELD TRIP REPORT: ECOLOGY AND EVOLUTION IN THE GREATER YELLOWSTONE ECOSYSTEM

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Figure 1. Iowa State University EEB Fieldtrip participants at UW-NPS Research Station, June 2013. In order from left to right: Jer Pin Chong, Lynne Gardner, Hannah Julich, Amy Podaril, Karri Folks, Bob Klaver, Julie Blanchong, Tatyana Flick, John Delaney, Ryan Williams, Brent Mortensen, and Melissa Telemeco (photo by Diane Debinski).

✦ COURSE DESCRIPTION

Iowa State University's graduate program in Ecology and Evolutionary Biology (EEB) requires that all graduate students participate in one field trip class during their graduate career. In this 2 credit class students learn about the ecology of the ecosystem that they will be visiting via seminars and lectures during the semester. The classroom teaching culminates in a field trip experience. During the field trip the students have an opportunity to meet local scientists, researchers, land managers and representatives from non-government agencies. They then write up a summary of their work and are graded on these activities.

The 2013 EEB fieldtrip was led by Drs. Diane Debinski, Julie Blanchong, Bob Klaver, and

Sue Fairbanks. Ten graduate students participated in the field trip focused on the Greater Yellowstone Ecosystem (Figure 1).

The Greater Yellowstone Ecosystem (GYE) is one of the largest intact ecosystems in the continental U.S. However, it faces pressures from extractive industries, ecotourism, disease, and burgeoning population growth. The goal of this course was to familiarize the students with some of the ecological, social, and political issues related to managing this ecosystem. We met during the 2013 spring semester as a seminar group to inform ourselves about some of these issues. Then in June of 2013, we took a 10 day field trip to the GYE to explore some of these lands and organisms. Our team was housed for four nights at the University of Wyoming-National Park Service Research Station. We also spent two nights in cabins

near Gardner, Montana interacting with staff of the Yellowstone Institute. From these sites, we conducted day hikes through a variety of habitat types (forest, alpine, riparian, geyser basins, etc.) and met with biologists and conservationists representing organizations such as the National Park Service, the U.S. Forest Service, U.S. Geological Survey, Northern Rocky Mt. Science Center, Teton Science School, Wyoming Game and Fish Department, and the Greater Yellowstone Coalition. Some of the issues that our group explored included:

- Management of brucellosis and chronic wasting disease relative to bison and elk both in the parks and within the surrounding landscape
- The status of the wolf reintroduction program - Case studies: trophic structure before and after wolves came back; delisting/hunting issues; sarcoptic mange
- Protection of genetic biodiversity housed in hot springs of Yellowstone National Park, birth place of *Thermus aquaticus*, used in PCR techniques
- Potential effects of global climate change in the GYE - Case studies: pine beetles, pikas, forest change, and grizzly populations

- Warming waters and native trout
- Invasive species
- The role of fire in maintaining biodiversity
- The debate over wilderness designation of national forest lands in the GYE
- Water quality issues and the protection of geothermal resources
- Phosphate and gold mining, oil extraction, and wind power - Case study: sage grouse.

✦ CONCLUSIONS AND ACKNOWLEDGEMENTS

The class went very well and we appreciated the opportunity to spend time at the UW-NPS Research Station and to interact with the broad array of researchers and managers who work within the ecosystem.

Field Trip Itinerary			
Date	Location	Event	Location for the night
May 31 (Friday)	ISU Transportation Services parking lot	Pack vehicles	Ames
June 1 (Saturday)	Ames, IA to points westward	Westward ho!	Cheyenne WY
June 2 (Sunday)	Point westward to Moran WY	Drive to UW-NPS	UW-NPS Research Station, Moran, WY
June 3 (Monday)	AMK Grand Teton National Park	Hank Harlow – morning welcome to AMK, hibernation physiology talk. Hike/canoe near station Deb Patla & Kelly McCloskey – wetland restoration & amphibians	UW-NPS Research Station, Moran, WY
June 4 (Tuesday)	Grand Teton NP	Renee Seidler 9 a.m. AMK - wolverines; Diane Debinski - climate change experiment Pilgrim Creek Aly Courtemanch -evening presentation, bighorn sheep and migration routes	UW-NPS Research Station, Moran, WY
June 5 (Wednesday)	Old Faithful, Hot Springs	Drive through YNP, stop at hot springs to learn about archeobacteria	UW-NPS Research Station, Moran, WY
June 6 (Thursday)	Hayden Valley, Norris Hot Springs	Drive through YNP, discussion with Paul Cross (USGS) at Mammoth (~2 p.m.) about bison, elk, and disease	Yellowstone Institute, Gardiner, MT
June 7 (Friday)	Yellowstone Institute	Yellowstone Institute Programming (wildlife viewing and hike in Lamar Valley)	Yellowstone Institute, Gardiner, MT
June 8 (Saturday)	Drive eastward	Drive from Gardiner, MT and stop in Chamberlin, SD	Chamberlain, SD
June 9 (Sunday)	Drive home	Drive SD to IA	Ames