

YELLOWSTONE NATIONAL PARK RESEARCH NEEDS 2018

For more information, contact the Yellowstone Research Permit Office at 307-344-2239 or yell_research@nps.gov. The park does not have funding or housing available for interested researchers. Be prepared to secure your own camping or lodging during fieldwork.

GEOLOGY and HYDROLOGY

- Mineral mapping of hydrothermal areas with remotely sensed data
- Slope stability, landslides, and debris flows in post-glacial landscapes
- Groundwater recharge at the margins of hydrothermal systems
- Measuring the recovery of microbial mats after vandalism or other disturbance



HISTORY

- History of Yellowstone poetry
- History of religion in the Yellowstone region
- Oral histories on major park topics (except for the 1988 fires), Example: What it is like to live in the park interior, and how has that changed over time?
- History of the Army soldier stations and backcountry patrol cabins
- Humans and Wildlife: history of the changing methods, laws, and attitudes surrounding the wildlife of the Greater Yellowstone Ecosystem
- Gardiner, MT and the park: history of the town and its connection with Yellowstone (this could also be expanded to include the other gateway communities: Cooke City, Cody, Jackson, West Yellowstone)
- History of the Civilian Conservation Corps projects and involvement in Yellowstone

VEGETATION

- Life history, expansion rate, and the ability of select exotic winter annual plants to alter native plant communities
- Geothermal plant community types and threats to integrity
- Demography of whitebark pine and lodgepole pine in sympatric mid-elevation zones
- Changes in plant phenology in regards to climate
- Surveys of rare plants
- The role and function of high elevation wetlands
- Characterizing geothermal wetlands in the park
- Studies of native plants and their pollinators
- Visitor impacts to native plant communities
- Investigating native plant community responses to herbicide



CULTURAL RESOURCES

- National Register documentation of historic trail features such as footbridges, retaining walls, overlooks, views, vegetation, etc.
- National Register documentation of historic buildings, bridges, overlooks, trails, etc. constructed during the MISSION 66 period (1945-1973)
- NPS Cultural Landscape Inventories for Norris and Madison Trailside Museums, Norris Ranger Museum, and Lamar Buffalo Ranch
- Inventory of historic ancillary and abandoned wagon and vehicle road corridors
- Ethnohistoric research and archaeological inventory of the Bannock Trail
- Archaeological inventory of the Yellowstone River Plain from Yellowstone Lake to the Thorofare Plateau
- Archaeological inventory of Bechler Meadows and Falls River Basin
- Archaeological inventory of high elevation plateaus
- Ethnographic overview of traditional use of high elevations in the park
- Prehistoric availability of various animal species: DNA analysis of archaeological faunal bone
- Develop a field guide for regional projectile point typology and nomenclature
- Research traditional ethnobotanical resources and practices in the park

SOCIAL SCIENCE QUESTIONS

- How can the park better attract and provide a positive experience for socio-economically underrepresented groups?
- How are visitors spending their time and money inside and outside of Yellowstone?
- How can the park better understand and deter visitor behaviors that are dangerous, negatively impact other visitors, and/or cause resource damage?
- How are visitors using Yellowstone's backcountry for day trips? How prepared are these visitors? Where are these visitors going? Do they hike on or off trail? Do they understand wildlife encounter best practices and carry bear spray?
- What are visitors' perceptions of wildlife viewing, wildlife jams, and roadside wildlife management options?
- What are visitors from China hoping to experience during their visit, and how can the park meet their needs for safety, communication, and other visitor services?
- What patterns describe serious safety incidents, what might be underlying explanatory factors for the increase, and how might the park respond?
- At regional, national, and international scales, what are the key groups of stakeholders who appreciate the park from afar? What about Yellowstone is important to these groups?
- What visitor segments would like to visit Yellowstone NP during either the summer and winter seasons but choose not to visit? What are the reasons for not visiting?



INVERTEBRATES

- Invertebrate response to ecological restoration
- Baseline inventories of invertebrate herbivores
- Soil invertebrate inventories and ecology
- Herbivore ecology of sage plant communities
- Insect response to fire
- Human/insect pathogen ecology
- Avian/insect pathogens and ecology
- Invertebrate diversity, ecology, and nutrient cycling of mammal carcass sites
- Curation and data management of invertebrate collections



ETHNOGRAPHY

- Blackfoot Use Rights in the Yellowstone, Grand Teton, and National Elk Refuge Areas: Narrative Report
- Gros Ventre and Assiniboine Use Rights in the Yellowstone, Grand Teton, and National Elk Refuge Areas: Narrative Report
- Nez Perce Use Rights in the Yellowstone, Grand Teton, and National Elk Refuge Areas: Narrative Report
- Salish and Kootenai Use Rights in the Yellowstone, Grand Teton, and National Elk Refuge Areas: Narrative Report

WILDLIFE

- Weasels -- distribution and relative abundance
- Snowshoe hare responses in post-fire regrowth
- Pika responses to changing climate
- White-tailed jackrabbit distribution limits
- Pine marten distribution and building conflicts
- Marmots and building conflicts
- Ground squirrels – distribution and prevalence of plague
- Organizing online rare animal reporting system that meets NPS requirements and provides useful data
- Mesocarnivore (coyote, bobcat, fox, etc.) distribution and relative abundance
- Moose population response to climate change, disease, and/or parasites
- Red-tailed hawk distribution and relative abundance
- Loon population trends

OTHER

- Continued LiDAR mapping (habitat characterization, change analysis, fire fuels modeling, geologic hazards identification)
- Measuring effects of high concentrations of geothermal components (lithium, boron, arsenic, mercury, fluoride) on the food chain from vegetation to invertebrates to mammals