

# GRAND TETON NATIONAL PARK RESEARCH NEEDS 2018-19

## HYDROLOGY, AIR QUALITY AND GEOLOGY

- Use of LiDAR for habitat characterization and change analysis, especially in alpine and subalpine areas
- Use of LiDAR for fire fuels modeling
- Relating trends in glacier mass balance to downscaled regional and local climate data
- Compiling and analyzing local stream temperature data for change/trends, assessing implications of warming temps for water quality and aquatic species survival
- Effects of dam removal on snowmelt dominated streams: long term analysis for Spread Creek
- Change analysis techniques for assessing habitat change from aerial photography (NAIP imagery)



For questions about geologic and hydrologic studies, contact Simeon Caskey at 307-739-3493

## ECOLOGY, VEGETATION AND SOILS

- Predicting the spread of cheat grass in relation to climate change on a local scale in Grand Teton NP
- Soil food web study of Kelly hayfields to determine differences between native and agricultural soils
- Investigate effects of earlier plant flowering on pollinators and/or wildlife

For questions, contact ecologists Dan Reinhart at 307-739-3678 or Kelly McCloskey at 307 413-1285

## FISH AND WILDLIFE

*Broad themes of interest:*

- Investigate climatic influences to aquatic and terrestrial habitats of fisheries and wildlife
- Evaluate effects of aquatic and terrestrial invasives on wildlife and their habitats
- Evaluate the effects of contaminants, pathogens, and disease on fisheries and wildlife
- Monitor and research threatened and endangered species

*Specific study needs:*



- Potential overlap in diet and habitat use of mountain goats and bighorn sheep in GTNP
- Occurrence of lynx in and around Grand Teton NP
- Ecological and human factors assoc. w/ long-term decline of nesting great blue herons
- Distribution and genetics of Northern leatherside (*Lepidomeda copei*) in GTNP
- Strategies for controlling exotic aquatic species in GTNP
- Identify tributaries to Jackson Lake for cutthroat trout recruitment
- Investigate fish entrainment and water rights in selected irrigation ditches in the park
- Study distribution, abundance, and bat species occurrence; locate roosts, nurseries, and hibernacula

For questions about fish & wildlife, contact Dave Gustine, Branch Chief of Fish and Wildlife, 307-739-3485

## **HISTORY, HISTORIC PRESERVATION AND ARCHEOLOGY**

- Research, identify, and propose a management strategy for cemeteries and burial sites in Grand Teton National Park
- Complete a history of the Civilian Conservation Corps' involvement in Grand Teton National Park
- Research and document the history and chronology of trail development in Grand Teton and the John D. Rockefeller Memorial Parkway and develop evaluation context
- Complete a history of the elk reduction program in Grand Teton National Park
- Study and analyze energy efficiency in historic log buildings and propose compatible, sustainable retrofits to improve energy efficiency in occupied log buildings
- Conduct emergency salvage data recovery of a historic trash dump eroding into the Snake River
- Survey ice patch archaeology and write a report
- Research traditional and current ethnobotanical resources and practices in the park and parkway
- Create a field guide to the classification of common projectile points in Grand Teton National Park



For questions, contact Kate Birmingham, Acting Branch Chief of Cultural Resources, 307-739-3671



## **MUSEUM COLLECTIONS**

- Conduct preliminary research on mountain climbing history in GTNP and conduct oral history interviews within members of the local climbing community
- Complete an initial context study of "imaging Grand Teton National Park"-- a history of painters, filmmakers, and artists

For questions, contact Bridgette Guild, museum curator, 307-739-3494

Many of these projects are ideal for a graduate student with supervision.