

Moraine Park, Rocky Mountain National Park, CO



La Poudre Pass Creek, CO



## Research in Fluvial Geomorphology at CSU

*... an intellectual and physical adventure!*

Ouzel Creek, CO



Snake River, Grand Teton National Park, WY



Northwest Territories, Canada



# Big River Wood Dynamics in the Canadian Subarctic

This project focuses on instream wood dynamics (transport and geomorphic effects) in the Mackenzie River drainage basin of Canada. The Mackenzie River has historically been famous as a major source of wood flux to the Arctic Ocean, but little is known of the mechanisms or rates of wood recruitment and transport in the drainage, or of how wood dynamics might change under global warming.



Natalie Anderson



PhD student

# Influences on basin-scale sediment yield to reservoirs in drylands of Turkey

Umit Duru



This project uses spatial statistics to infer the relative importance of different potential controls (e.g., drainage area, relief, lithology, land use, disturbances such as fire) on basin-scale sediment yields to watersheds in arid and semiarid regions of Turkey.

PhD student

# Assessing Headwater Stream Function & Sensitivity to Energy Development in the Piceance Basin



Krista Garrett

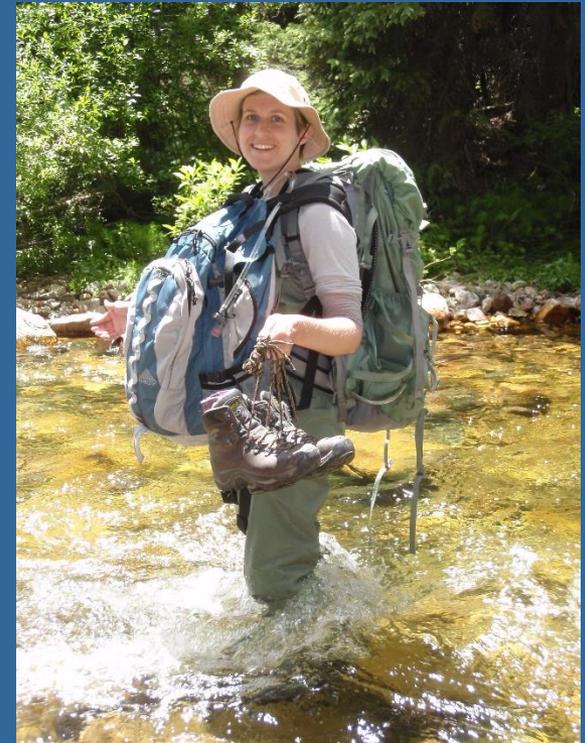
This project focuses on identifying channel segments with the greatest physical function (habitat abundance & diversity) and sensitivity (likely greatest response to changes in water & sediment yield) based on field data collection and analysis of remote sensing data. The project area is the Piceance Basin of southwestern Colorado, where field work will be conducted during summer 2015.

# Physical Complexity of Beaver Meadows in Relation to Level of Activity

This project focuses on how physical complexity – number and planform of channels, floodplain extent and turnover time, channel-floodplain connectivity – change between actively maintained beaver meadows and meadows that have been abandoned for differing lengths of time. Field work will begin during summer 2015.



DeAnna Laurel



PhD student

# Floodplain Storage of Organic Carbon in the Central Yukon River Basin



This project examines how levels of organic carbon stored in diverse floodplain environments vary among tributaries to the Yukon River. Lots and lots of auger holes ...

Katherine Lininger

PhD student

# Leaky Rivers: Nutrient Retention & Productivity in Rocky Mountain Streams Under Alternative Stable States

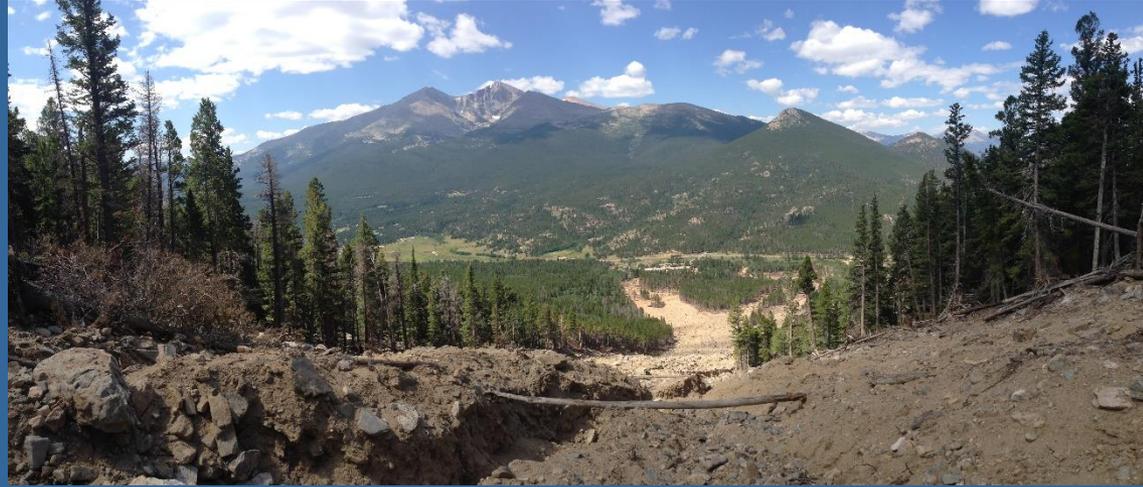


Bridget Livers

This project compares instream wood loads and channel complexity in old-growth and younger forest, and relates these characteristics to stream metabolism and riverine productivity.

PhD student

# Upland Processes & Controls on Sep. 2013 Mass Movements, Rocky Mountain National Park, CO



This project examines the factors that influenced the location and nature of debris flows in the Rocky Mountain National Park during the September 2013 rainfall event, as well as developing a chronology of historic mass movements at study sites where older debris deposits have been identified.

Annette Patton  
MS student

# Sediment Transport Dynamics along the Toklat River in Denali National Park, Alaska

This project examines sediment transport dynamics and the implications of in-stream gravel mining along a reach of the Toklat River in the national park. The park has constructed bridges across the Toklat River in the same area where the park extracts sediment to refurbish the 90-mile-long park road. Extraction of sediment from a renewable, glaciated river is a lesser impact than trucking in gravel. To continue this practice, the park has invested in research of sediment transfer, river dynamics and infrastructure impacts along this stretch of the Toklat River.



Maisie Richards  
MS student



# Reconstructing Flow and Climate History of the Yellowstone River Using Cottonwood Dendrochronology



This project uses cottonwood tree rings to understand floodplain development and river discharge history on the Yellowstone River in Montana in the context of increasing human influence on the river and ongoing climate change.



Derek Schook

PhD student

# Alpine Lake Evolution



This project examines the evolution of alpine lake deltas and associated carbon storage.



Dan Scott, the barefoot geomorphologist

MS student

# Post-fire sediment transport, South Fork Cache la Poudre basin

Scott Shahverdian



This project examines channel dynamics and the resulting sediment yield following the 2012 High Park Fire in the Poudre River catchment.

MS student

# Carbon Dynamics in Valley Bottoms of the Colorado Front Range

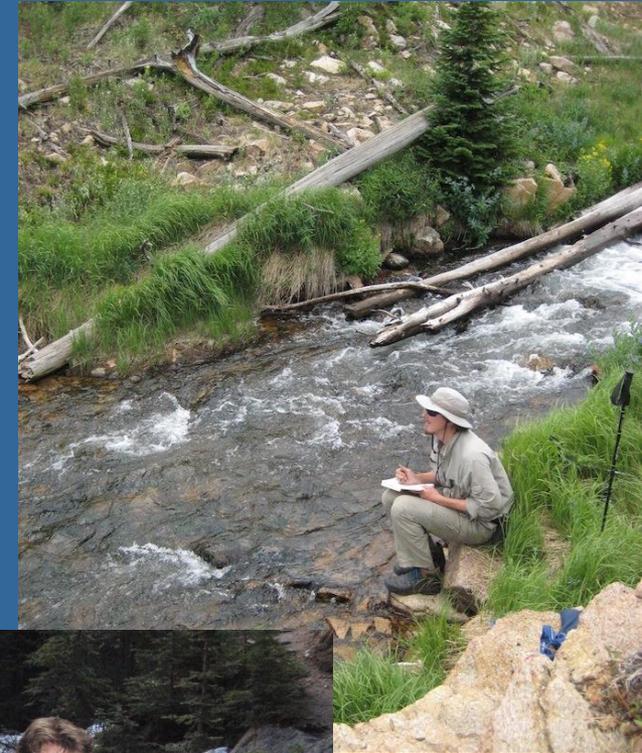
This project quantifies carbon storage in floodplain sediments and coarse downed wood along different types of valley bottoms at diverse elevations within the Front Range, and relates floodplain turnover times to disturbance regime and location within the drainage basin.



Nick Sutfin: carbon crusader



... or Ninja geomorphologist?



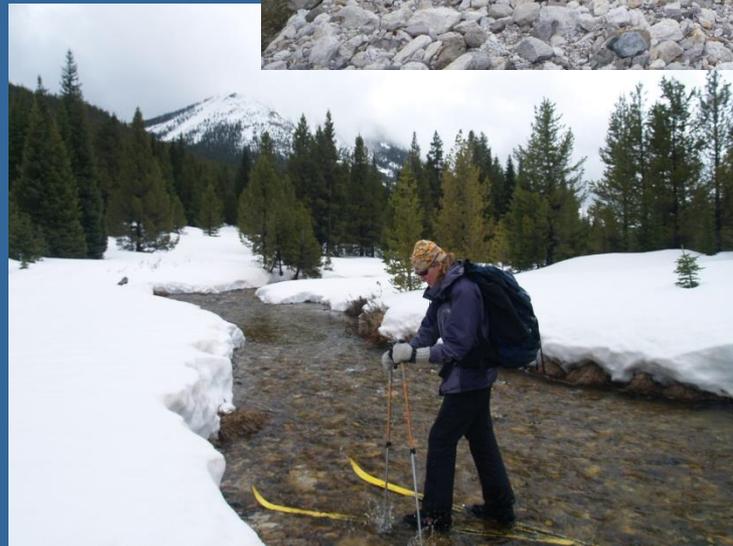
PhD student

# Channel Restoration on the Upper Colorado River

This project began in 2003 when a breach in an irrigation ditch in Rocky Mountain National Park caused extensive erosion and sedimentation within the Upper Colorado River basin. Monitoring flow and sediment transport over eight years provides a robust data set to guide channel restoration design and implementation.

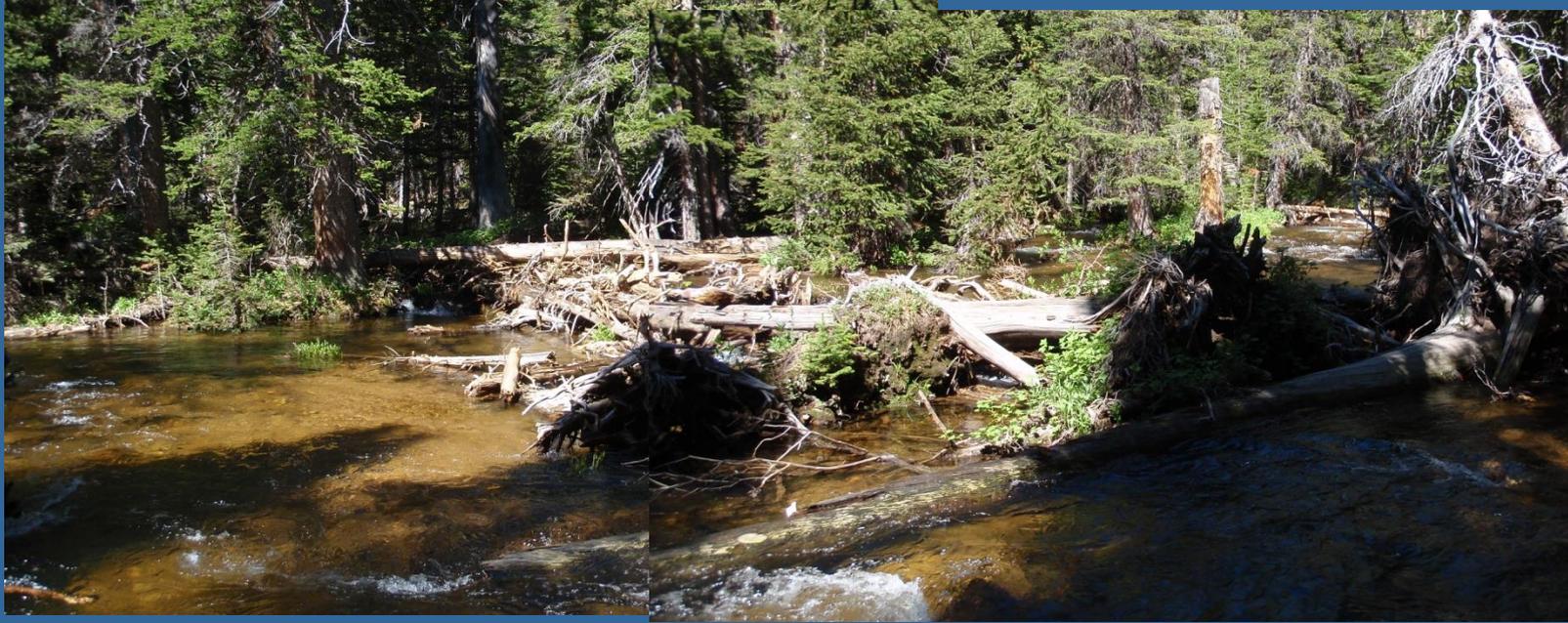


Sara Rathburn



# Channel-Spanning Logjams in the Colorado Front Range

This long-term project monitors changes in the longitudinal spacing of channel-spanning jams along channels in Rocky Mountain National Park in order to document multi-year retention of instream wood.



Ellen Wohl



Faculty