

### “Go To” Scientists



**John Buffington**  
Research Fluvial  
Geomorphologist

**Program Expertise/Responsibility:** Fluvial Geomorphology and Watershed Processes

#### Personal Research Program

- Effects of wood debris on channel morphology, hydraulics, and sediment transport
- Interactions between physical and biological systems in mountain basins
- Basin-scale predictions of salmonid spawning habitat distributions
- Channel and aquatic habitat response to wildfire
- Fluvial geomorphology
- Watershed processes
- Topographically-forced hyporheic flow
- Mechanics of sediment motion and bedload transport
- Sediment sampling

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**Kate Dwire**  
Research Riparian Ecologist

**Program Expertise/Responsibility:** Stream-Riparian Environmental Research

#### Personal Research Program

- Distribution of riparian plant species and communities in relation to hydrologic and geomorphic variables and disturbance (natural and anthropogenic)
- Influence of prescribed and natural fire on riparian plant species and communities
- Organic matter dynamics (surface and subsurface) in stream-riparian ecosystem

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**Kelly Elder**  
Research Hydrologist

**Program Expertise/Responsibility:** Watershed Hydrology in Natural, Disturbed, and Managed Systems

#### Personal Research Program

- Water balance on a recovering clear-cut hillslope in a subalpine forest
- Long-term hydrological recovery of clear-cuts in a subalpine forest
- Consequences of beetle-induced tree mortality on basin runoff
- Consequences of post-beetle salvage operations on hillslope hydrology
- Retrieval of snowpack properties using airborne Ku-band radar

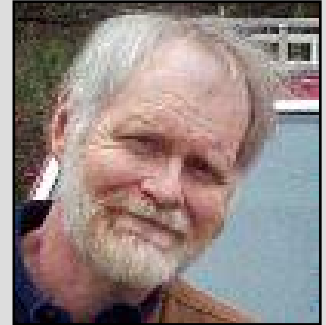
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### “Go To” Scientists

**Program Expertise/Responsibility:** Soil Erosion and Fuels Management

**Personal Research Program**

- Soil erosion processes and prediction
- Applications of the Water Erosion Prediction Project (WEPP) model to forests and rangelands
- Impacts of forest fuel management activities on runoff and erosion



**William J. Elliot**  
Research Soil and Water Engineer

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**Randy B. Foltz**  
Research Engineer

**Program Expertise/Responsibility:** Forest Roads and Erosion

**Personal Research Program**

- Effectiveness of BAER road treatments
- Efficacy of wood-based water and wind erosion control materials
- Impacts of culvert removals and replacements on water quality
- Relationships between ATV traffic and erosion
- Use of [WEPP](#) on forest roads
- Environmental impact of forest road removal

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**Robert Hubbard**  
Research Ecologist

**Program Expertise/Responsibility:** Ecophysiology of Forest Ecosystems

**Personal Research Program**

- How forests respond to disturbance and the role plants play in regulating hydrologic processes. Current research examines how changes in species composition and forest structure alter stream flow in watersheds following mountain pine beetle attack.
- Quantify the physiological mechanisms that control forest productivity
- Understand how resource availability controls forest water use
- Define the role of physiological constraints on species abundance and distribution
- Investigate the effects of climate change on ecosystem water and carbon cycling

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### “Go To” Scientists



**Charlie Luce**  
Research Hydrologist

**Program Expertise/Responsibility:** Hydrology and Erosion

**Personal Research Program**

- Scaling hydrologic and geomorphic processes
- Snow hydrology
- Watershed hydrology
- Slope stability
- Erosion
- Forest road effects on hydrology
- Slope stability, and erosion
- Stochastic climate simulation.

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**Hugo Magaña**  
Research Fisheries Biologist

**Program Expertise/Responsibility:**

**Personal Research Program**

- Aquatic ecology
- Aquatic trophic interactions
- Feeding behavior of *Hybognathus amarus*
- Aquatic habitat response to flooding
- Primary productivity
- Diatom culturing

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**Program Expertise/Responsibility:** Engineering Geomorphology and Landslides

**Personal Research Program**

- Engineering geomorphology
- Mechanics of surficial processes, especially landslides
- Landscape evolution modeling
- Engineering and geomorphic applications of digital terrain modeling and remote sensing, including airborne laser altimetry
- Watershed management

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**Jim McKean**  
Research Geomorphologist

### “Go To” Scientists



**Robert Musselman**  
Research Plant Physiologist

**Program Expertise/Responsibility:** Atmospheric Deposition and Natural Ecosystems

**Personal Research Program**

- Air and water quality in high elevation natural ecosystems
- Tree growth on reclaimed open pit coal mine lands
- Effects of winter recreation (skiing and snowmobiling) on air and water quality

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**Program Expertise/Responsibility:** Semi-Arid Watersheds

**Personal Research Program**

- Post-wildfire flood flows and hydrologic responses, Workman Creek Watersheds, Coon Creek Fire 2000. Neary, D.G.; Gottfried, G.J. .
- Post-wildfire flood flows and hydrologic responses, Stermer Ridge Watersheds, Rodeo-Chediski Fire 2002. Neary, D.G.; Ffolliott, P.F.
- Watershed hydrologic and erosion responses to spring and summer prescribed fires, Peloncillo Mountains, New Mexico. Neary, D.G.; Gottfried, G.J.
- Effects of post-wildfire flood flows on Southwest fish populations. Rinne, J.N.; Neary, D.G.

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**Daniel Neary**  
Research Soil Scientist



**Kerry Overton**  
Fisheries Technology  
Transfer Specialist

**Program Expertise/Responsibility:** Acting AWA Program Manager - Research Management Integration

**Technology Transfer/Science Application Program**

- Facilitate manager-researcher collaboration to identify and deliver research tools and procedures
- Manage the PACFISH/INFISH Implementation Monitoring database and website
- Coordinate development and delivery of multi-scale aquatic assessment decision support procedures, tools and information
- Facilitate the identification, completion, and delivery of RMRS Air, Water and Aquatic (AWA) Environments Science Program research
- Acting program manager for AWA
- Co-lead on Fish & Fire Western Manager-Researcher round table

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### “Go To” Scientists



**Chuck Rhoades**  
Research Biogeochemist

**Program Expertise/Responsibility:** Watershed Biogeochemical Research

**Personal Research Program**

- Investigating the biogeochemical consequences of climate change, wildfire, and insect outbreak in snow-dominated watersheds of the central Rockies
- Evaluating the elemental links between atmospheric deposition, vegetation and soil nutrient retention and transformation, and streamwater export
- Increasing the understanding of the natural range of variability in watershed processes and support efforts to monitor the consequences of management manipulations and assess the success of restoration treatments
- Long-term monitoring of Fraser Experimental Forest watersheds

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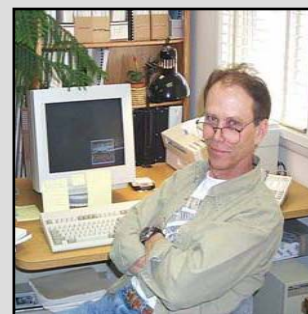
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**Program Expertise/Responsibility:** Aquatic Ecology, ESA Fish

**Personal Research Program**

- Larger patterns in species distributions and the processes relevant to the dynamics and persistence of populations at watershed and larger scales
- Metapopulation processes and in the expression of life histories as mechanisms potentially stabilizing populations in spatially and temporally variable environments
- Fish-fire researcher & manager integration
- Understanding the effects of climate change on stream habitats and fish communities



**Bruce Rieman**  
Emeritus Fisheries Scientist

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**John Rinne**  
Emeritus Fisheries Scientist

**Program Expertise/Responsibility:** Processes that Affect Fish Distributions

**Personal Research Program**

- Determine the specific interrelationships among hydrologic, geomorphic, and biotic processes that affect fish distributions, abundance, habitat and assemblages.
- Determine the effect of watershed-scale activities such as prescribed fire, grazing, and vegetation management on the functioning and quality of riparian ecological systems.
- Determine the natural and human caused disturbance factors that influence populations and habitats of TES fishes, invasive fishes and other biota in southwestern riparian ecological systems.

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### “Go To” Scientists



**Peter R. Robichaud**  
Research Engineer

**Program Expertise/Responsibility:** Fire and Erosion

**Personal Research Program**

- Modeling and mitigation techniques of erosion from timber-harvested and burned areas in a forest environment
- Rill and interrill erodibility and ground cover parameters
- Model components for predicting erosion from spatially-varied, complex hillslopes
- Spatial variability
- Hydrophobic soil conditions
- Effects of prescribed fire and wildfire on erosion
- Monitoring methods and mitigation techniques

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**Program Expertise/Responsibility:** Sediment Transport Processes

**Personal Research Program**

- Sediment transport processes and storage in steep mountain streams
- Changes in channel morphology associated with natural and anthropogenic disturbances
- Research areas primarily in the subalpine environments of Colorado and Wyoming where runoff is dominated by snowmelt



**Sandra Ryan**  
Research Hydrologist,  
Geomorphologist

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**Program Expertise/Responsibility:** Native Fish, Sampling, Conservation Biology

**Personal Research Program**

- Structure and dynamics of wild Chinook salmon populations:
  - Temporal and spatial dynamics, persistence, genetic and demographic structure, application of otoliths
- Validation of methods and development of sampling protocols:
  - Redd counts, snorkeling, stream electrofishing, spawning substrate
- Life history, distribution, and habitat utilization:
  - Chinook salmon, steelhead, bull trout, cutthroat trout, redband trout
- Influence of landscape features and physical processes on fish habitat:
  - Physical-biological integration, broad scale investigations of habitat distributions



**Russ Thurow**  
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## “Go To” Scientists



**Michael Young**  
Research Fisheries Biologist

**Program Expertise/Responsibility:** Aquatic Ecology, ESA Fish

### Personal Research Program

- Conservation biology of cutthroat trout
- Life history patterns in boreal toads
- Monitoring of stream fish populations
- Dynamics of fish-stream-forest interactions: the short- and long-term roles of large wood and fire
- Consequences, characteristics, and control of nonnative brook trout invasions

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