



## 2015 Research Conference Rocky Mountain National Park

Estes Park Municipal Building, 170 MacGregor Ave, Estes Park, CO 80517

### Wednesday, March 4<sup>th</sup>

### Morning

|   |                              |   |
|---|------------------------------|---|
| 8:00 – 8:20 AM  | Coffee and Mixer             |   |
| Room A: Welcome / Citizen Science, Science Literacy, and Youth Engagement |                              |   |
| 8:20 – 8:40 AM  |                              | Conference Introduction and Awards Presentation   |
| 8:40 – 9:10 AM  | Mark Fiege                   | <b>Keynote Address:</b> Thinking like a planet: “The Long Now” and the changing role of science and history in the National Parks |
| 9:20 – 9:40 AM  | Dan Cribby                   | Plains to the Park: Integrating STEM initiatives into national parks  |
| 9:40 – 10:00 AM   | Mattie Horn & Kristi Lee     | Rocky Mountain National Park and Santa Elena Cloud Forest Reserve student scientific and cultural exchange                        |
| 10:00 – 10:20 AM  | Break                        |   |
| 10:20 – 10:40 AM  | Tena Engelman                | Hummingbird survey, 2003-2012, Rocky Mountain National Park   |
| 10:40 – 11:00 AM  | Chris Ray                    | Projecting futures for the American pika, a climate indicator species, in Rocky Mountain National Park                            |
| 11:00 AM – 12:00 PM   | <b>Conversation Café **</b>  |   |
| 12:00 – 1:15 PM   | Lunch                        |   |
| Room B: Current Management Issues   |                              |   |
| 9:20 – 9:40 AM  | Kristen Kaczynski            | Recovery of riparian vegetation in Moraine Park after the Fern Lake fire  |
| 9:40 – 10:00 AM   | Mark Schutte                 | Geomorphic response of Fall River to the 2013 flood   |
| 10:00 – 10:20 AM  | Break                        |   |
| 10:20 – 10:40 AM  | David Pettebone              | Trail use in Rocky Mountain National Park   |
| 10:40– 11:00 AM   | Rebecca Urquhart             | No park is an island – community collaboration  |
| 11:00 AM – 12:00 PM   | <b>Conversation Café ***</b> |   |
| 12:00 PM – 1:15 PM  | Lunch                        |   |

\*\* The Conversation Cafe is a structured discussion time in which conference attendees rotate, at 20-minute intervals, among tables at which a specific topic is discussed. Please join us in a thoughtful discussion of Rocky’s hot topics.

**Wednesday, March 4<sup>th</sup>****Afternoon**

| Room A: Climate Change             |                  |   |
|------------------------------------|------------------|---|
| 1:20 – 1:40 PM                     | Aaron Piña       | Prediction system for nitrogen deposition in Rocky Mountain National Park   |
| 1:40 – 2:00 PM                     | Glenn Patterson  | Trends in accumulation and melt of seasonal snow in Rocky Mountain National Park  |
| 2:00 – 2:20 PM                     | Jason Sibold     | Stability of spruce-fir forests in the Loch Vale watershed, Rocky Mountain National Park, USA   |
| 2:20 – 2:40 PM                     | Timothy Fegel    | Biogeochemical signatures of alpine glacial and periglacial features throughout the American west   |
| Room B: Aquatic Sciences           |                  |   |
| 1:20 – 1:40 PM                     | Ellen Wohl       | The brief, tumultuous life of logjams in Rocky Mountain National Park   |
| 1:40 – 2:00 PM                     | Michael Venarsky | Western mountain streams past and present: the influence of forest stand age and logjam density on aquatic community structure  |
| 2:00 – 2:20 PM                     | Joshua Stepanek  | Preliminary observations on the diatom ( <i>Bacillariophyta</i> ) flora of Rocky Mountain National Park: Summary of genera present and reports of new and interesting species |
| 2:20 – 2:40 PM                     | Adam Herdrich    | Effects of large woody debris and log jams on eastern slope rocky mountain trout populations  |
| 2:40 – 3:00 PM                     | Break            |   |
| Room A: Visitor Use and Wilderness |                  |   |
| 3:00 – 3:20 PM                     | Jamie Krzeminski | Transportation and management strategies to reduce congestion in the Bear Lake Road corridor, Rocky Mountain National Park, USA   |
| 3:20 – 3:40 PM                     | Jeremy Schultz   | Crowding among winter recreationists in Rocky Mountain National Park  |
| 3:40 – 4:00 PM                     | Colin Leslie     | Measuring and monitoring wilderness character in Rocky Mountain National Park   |
| 4:00 – 4:20 PM                     | Ben Lawhon       | Influences on future leave no trace behavior in national parks  |
| Room B: Disturbance                |                  |   |
| 3:00 – 3:20 PM                     | Jean Fleming     | The effects of bark beetle-fire disturbance interactions on post-disturbance forest regeneration  |
| 3:20 – 3:40 PM                     | Gregory Pappas   | Understory vegetation response to mountain pine beetle-induced lodgepole pine mortality in Rocky Mountain National Park   |
| 3:40 – 4:00 PM                     | Ben Gannon       | Montane forest structure and fire history, Colorado Front Range, USA  |
| 4:00 – 4:20 PM                     | Lindsay Ringer   | Soil amendment application after road construction alters resource availability and can benefit native over non-native species  |

**Thursday, March 5<sup>th</sup>****Morning**

| Room A: Wildlife              |                       |  |
|-------------------------------|-----------------------|--|
| 8:40 – 9:00 AM                | Alison Ketz           | Abundance estimation of elk in the Estes Valley, Colorado using a Lincoln-Petersen estimator with multiple data sources  |
| 9:00 – 9:20 AM                | Dane Vanhoozer        | The democracy of nature: culling American identity   |
| 9:20 – 9:40 AM                | Jeffrey Christiansen  | Application of mouse models to investigate chronic wasting disease   |
| 9:40 – 10:00 AM               | Aimee Ortega          | Prions in plants: assaying grasses from rocky mountain national park for PrPCWD  |
| Room B: Vegetation            |                       |  |
| 8:40 – 9:00 AM                | Christa Sumner        | Perceptions of bark beetle affected forests, Rocky Mountain National Park  |
| 9:00 – 9:20 AM                | Anna Schoettle        | Proposed limber pine conservation plan for Rocky Mountain National Park  |
| 9:20 – 9:40 AM                | Scott Franklin        | Forty-years of change in Aspen forests, Rocky Mountain National Park, USA  |
| 9:40 – 10:00 AM               | Chris Davis           | Managing cheatgrass with Imazapic in Rocky Mountain National Park: Lessons learned from a six year study   |
| 10:00 – 11:00 AM              | <b>Poster Session</b> |  |
| Room A: Birds                 |                       |  |
| 11:00 – 11:20 AM              | Shelley Spear         | Factors influencing avian populations and habitat use in the alpine region of Rocky Mountain National Park, USA  |
| 11:20 – 11:40 AM              | Kathryn Langin        | How distinct is Rocky Mountain National Park's white-tailed ptarmigan population? Insights from a genetic analysis of park birds and beyond                                  |
| 11:40 – 12:00 PM              | Jason Beason          | Bird migration research at Rocky Mountain National Park  |
| Room B: Historic Perspectives |                       |  |
| 11:00 – 11:20 AM              | Joshua Johnson        | Understanding our spectacular mountain landscapes: A helium thermochemistry study in Rocky Mountain National Park  |
| 11:20 – 11:40 AM              | Mitchell Schaefer     | To not impede nature: The transition from rustic to modern architecture in the national parks as represented by twenty structures at Rocky Mountain National Park, 1929–1962 |
| 11:40 – 12:00 PM              | Jaci Wells            | The McGraw conundrum: Preserving nature and culture in a historic landscape  |
| 12:00 – 1:15 PM               | Lunch                 |  |

**Thursday, March 5<sup>th</sup>****Afternoon**

| Room A: Bears                |                       |  |
|------------------------------|-----------------------|--|
| 1:20 – 1:40 PM               | Mark Vieira           | Estimation of black bear density using hair snags along Colorado's northern Front Range  |
| 1:40 – 2:00 PM               | Mary Kay Watry        | Improving visitor experience by reducing bear confrontations and property damage in Rocky Mountain National Park   |
| 2:00 – 2:20 PM               | Stacy Lischka         | Understanding the effect of a large-scale bear-proofing effort on human-black bear conflict  |
| 2:20 – 2:40 PM               | Kate Rusch            | The Estes Valley bear education task force, a community collaboration to improve human and bear Interactions   |
| Room B: Alpine and Subalpine |                       |  |
| 1:20 – 1:40 PM               | Bill Monahan          | Forecasting the potential impacts of climate change, insects, and pathogens on limber pine in Rocky Mountain National Park   |
| 1:40 – 2:00 PM               | Michelle Gibbons      | Alpine restoration of Alpine Ridge Trail in Rocky Mountain National Park   |
| 2:00 – 2:20 PM               | Jozef Sibik           | The effects of grazing on alpine tundra: Intercontinental comparison of the Rocky Mountains (Colorado, U.S.A.) and the Tatras (Slovakia, Europe)                     |
| 2:20 – 2:40 PM               | Amber Churchill       | Alpine moist meadow response to regional gradients of nitrogen deposition in the Rocky Mountains   |
| 2:40 – 3:00 PM               | Break                 |  |
| Room A: Fisheries            |                       |  |
| 3:00 – 3:20 PM               | Chris Kennedy         | History of the fisheries of Rocky Mountain National Park   |
| 3:20 – 3:40 PM               | Scott Herrmann        | Total mercury concentrations in 11 tissues of cutthroat trout from Lake Louise, RMNP, CO, USA  |
| 3:40 – 4:00 PM               | Sierra Love Stowell   | Genomics of inbreeding depression and genetic rescue of the last greenback cutthroat trout   |
| 4:00 – 4:20 PM               | Thomas Detmer         | The effects of introduced fish on invertebrates in lakes of Rocky Mountain National Park, USA  |
| Room B: Air & Water Quality  |                       |  |
| 3:00 – 3:20 PM               | Alisa Mast            | Links between N deposition and nitrate export from a high-elevation watershed in the Colorado Front Range  |
| 3:20 – 3:40 PM               | William Battaglin     | Hormones, pharmaceuticals, pesticides, and other contaminants of emerging concern in water, sediment, and fish from Rocky Mountain National Park, Colorado 2012-2013 |
| 3:40 – 4:00 PM               | Ashley Evanoski- Cole | Upslope air pollution episodes in Rocky Mountain National Park during the Front Range Air Pollution and Photochemistry Experiment (FRAPPE)                           |
| 4:00 – 4:20 PM               | Jill Baron            | The abridged history of Loch Vale watershed research   |

## Poster Presentations

| Presenter              | Title  |
|------------------------|--|
| Tracey Baldwin         | The National Ecological Observatory Network at Rocky Mountain National Park  |
| Karen Barton           | Just listen: Connecting youth to nature using soundscape research  |
| Ashley Bobowski        | Citizen science at RMNP: A teenager's perspective  |
| Katie Bobowski         | Mercury at Rocky Mountain National Park: Why we should care?   |
| Daniel Bowker          | Challenges in obtaining quality atmospheric deposition samples in the Loch Vale watershed, Rocky Mountain National Park, CO, USA                                 |
| Kelly Bricker          | Bear Lake Road trailhead visitors of Rocky Mountain National Park, USA   |
| Vic Claassen           | Rainfall capture and plant-available moisture on disturbed granite substrates  |
| Natalie Day            | Geomorphic control on nitrogen uptake and transient storage in Rocky Mountain National Park  |
| Geoff Elliot           | Rocky Mountain Conservancy – Conservation Corps and the next generation of public land stewards  |
| Andrew Evans           | Nitrogen and anion behavior in alpine tundra soil, Rocky Mountain National Park  |
| Colleen Flanagan Pritz | Decadal trends in fish Mercury concentrations and comparison to health criteria, Rocky Mountain National Park, USA   |
| Amy Goodrich           | Reestablishment of vegetation on disturbed high mountain lakeshores following dam removal, Rocky Mountain National Park, USA                                     |
| Sara Hamsher           | The diatom (Bacillariophyta) genus <i>Nitzschia</i> Hassall in Rocky Mountain National Park  |
| Jason Janke            | Variability of annual and monthly soil temperature along Trail Ridge Road, Rocky Mountain National Park: 2008 to 2014  |
| Kateryna Lapina        | Ozone bioindicator gardens: An educational tool to raise awareness about the northern Colorado Front Range ozone pollution and its effects on living systems     |
| Bridget Livers         | Instream wood loads, channel complexity, and ecological potential in forested, headwater streams under alternative stable states in Rocky Mountain National Park |
| Laura Lutz- Zimmerman  | Identifying natural resource constraints and opportunities for alternative recreation sites to the Bear Lake Corridor, Rocky Mountain National Park, USA         |
| Andrew Martin          | The genetic legacy of more than a century of stocking trout: a case study in Rocky Mountain National Park, Colorado, USA   |
| Annette Patton         | Upland processes and controls on September 2013 mass movements, Rocky Mountain National Park, CO   |
| Jason Price            | The chemical weathering of Calcium-bearing bedrock minerals in the Loch Vale watershed, Rocky Mountain National Park: Climatic warming and phosphorous dynamics  |
| Charlie Repath         | Grand ditch breach restoration: Phase 1  |
| Holly Rogers           | Piscicide effects on invertebrates in high-elevation lakes and streams: Establishing baseline  |
| Russ Schumacher        | Understanding and predicting meteorological conditions associated with high nitrogen deposition in Rocky Mountain National Park                                  |

| Presenter            | Title   |
|----------------------|---|
| E. William Schweiger | Long term monitoring of an imperiled resource in Rocky Mountain NP; the vitals wetlands   |
| Nicholas Suftin      | Geologic, biogeomorphic, and hydrologic controls on floodplain organic carbon retention in mountainous headwater streams of the Colorado Front Range, USA   |
| Jennifer Taylor      | Know your AQ: citizen-science air pollution monitoring & air quality education in Rocky Mountain National Park  |
| Buck Unsderfer       | Rare earth element enriched Pegmatite in Rocky Mountain National Park   |
| Gregory Wann         | Long-term reproductive success of white-tailed ptarmigan along Trail Ridge in Rocky Mountain National Park  |
| Pam Wegener          | Storage and flux dynamics for an active beaver meadow in the North Saint Vrain Creek, Rocky Mountain National Park, CO  |
| Tyler Williams       | The Implications of the Clark's nutcracker's ( <i>Nucifraga columbiana</i> ) use of space, foraging behavior, and caching behavior for limber pine ( <i>Pinus flexilis</i> ) metapopulation dynamics under multiple disturbance regimes |
| Sydney Wilson        | End member mixing analysis: source contributions to Andrews Creek, Rocky Mountain National Park, USA  |
| Shane Wright         | Groundwork Denver Green Team: Exposing urban youth to opportunities within nation parks   |

## Keynote Address

# **Thinking like a Planet: “The Long Now” and the Changing Role of Science and History in the National Parks**

Dr. Mark Fiege

Public Lands History Center / Colorado State University

Wallace Stegner Chair of Western American Studies / Montana State University



National parks face unprecedented problems stemming from rapid transformations in the global environment. In response, managers, researchers, and citizens are re-envisioning the purpose of research in the parks and the uses to which the sciences, history, and related disciplines can be put. My presentation will reflect on the past, present, and future of research in the national parks and the ways in which scientists, humanists, and their colleagues are reimagining parks as benchmarks of environmental quality, places of ecological work and experimentation, and sites at which to rethink the very nature of time and change.

## Conversation Café



*Join us for thoughtful discussions on some of Rocky Mountain National Parks' hot topics including:*

Climate Change

Wilderness

Fisheries

Visitor Use and Experience

Wildlife Management

Next Generations

Disturbances