

# AGENDA

## WEDNESDAY EVENING, NOVEMBER 5

Home Economics Building, Tri-County Fairgrounds, Bishop, CA

Registration

4:00 - 7:00 PM

Mixer & Poster Session

5:00 - 7:00 PM

- 
- Posters
- Amy Concilio. *Climatic and edaphic drivers of ecosystem invasibility by *Bromus tectorum* L. in the Eastern Sierra Nevada.*
- Jim Lutz. *Describing forests in Yosemite National Park with actual evapotranspiration and deficit.*
- Colin Maher. *The effects of habitat amelioration and herbivory on seedlings of *Pinus longaeva*.*
- Lyra Pierotti. *Aquatic macroinvertebrates in montane and subalpine wetlands: Assemblage structure and influence of habitat type and water flow*
- Jarmila Pitterman. *The hydraulic trade-offs associated with embolism resistance in north-temperate and southern hemisphere conifers.*
- Sean Rovito. *Physiological tolerance and climatic niche of the web-toed salamanders (genus *Hydromantes*) of the Sierra Nevada.*
- 

## THURSDAY MORNING, NOVEMBER 6

### REGISTRATION & PLENARY SESSION

7:00 - 9:35 AM

Home Economics Building

7:00 - 10:00 am Registration

8:00 - 8:05 am Welcome

8:00 - 9:35 am Plenary Session 1: *Climate, Water, and Ice*  
Chair: Connie Millar, USFS, Albany, CA

8:05 - 8:35 HOW WILL CLIMATE CHANGE AFFECT WATER RESOURCES IN THE EASTERN SIERRA?  
DANIEL CAYAN, *UCSD, Scripps Institution of Oceanography and USGS, La Jolla, CA*

8:35 - 9:05 MOUNTAIN HYDROCLIMATOLOGY AT ECOSYSTEM SCALES: WHAT DO WE NEED TO KNOW?  
JESSICA LUNDQUIST, *Dept. of Civil and Environmental Engineering, University of Washington, Seattle, WA*

9:05 - 9:35 CLIMATE AND GLACIERS OF THE SIERRA NEVADA: THE VIEW FROM THE ICE  
DOUGLAS CLARK, *Dept. of Geology, Western Washington University, Bellingham, WA*

9:35-10:00am MORNING BREAK, Home Economics Building

**THURSDAY MORNING CONCURRENT SESSIONS**  
**10:00 - 11:45 AM**

Location	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
<b>Session I</b>	<b>Session I-A Climate Variability &amp; Monitoring</b>  Chair: Andrzej Bytnerowicz	<b>Session I-B Aquatic Systems Responding to Climate</b>  Chair: David Herbst	Not used
10:00 - 10:20	Kelly Redmond. <i>Climate monitoring and trends in the Southern and Central Sierra Nevada.</i>	David Herbst. <i>Planning for the monitoring of biological effects of hydrological changes in Sierra Nevada stream ecosystems to detect the influence of changing climate.</i>	
10:20 - 10:40	Andrzej Bytnerowicz. <i>Distribution of ambient ozone and nitrogenous air pollutants in Sierra Nevada and Owens Valley.</i>	David Herbst. <i>Before and after the deluge: Snowmelt flooding effects on aquatic invertebrate communities of Eastern Sierra Nevada streams.</i>	
10:40 - 11:00	Chris Van de Ven. <i>A range-wide model of nighttime temperature inversion based on hourly temperature data.</i>	Don Sada. <i>Climate change and spring-fed wetlands: Monitoring challenges and anticipated consequences of decreasing recharge.</i>	
11:00 - 11:20	Jim Lutz. <i>Climate, lightning ignitions, and fire severity in Yosemite National Park, California, USA.</i>	Jordan Clark. <i>Temporal changes in the isotope composition of Sierra spring waters: Implications for recent climatic changes and carbon cycling.</i>	
11:20 - 11:40		Bob Jellison. <i>Predicted multi-trophic-level responses of Mono Lake to climate change and water management</i>	

**11:45AM - 1:15PM THURSDAY LUNCH BREAK (On your own in Bishop - see map in folder)**

**THURSDAY EARLY AFTERNOON CONCURRENT SESSIONS**  
**1:15 - 3:00 PM**

Location	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
<b>Session II</b>	<b>Session II-A Glaciers and Periglacial Processes</b>  Chairs: Doug Clark & Niki Bowerman	<b>Session II-B Ecological Responses to Climate Change</b>  Chair: Michele Slaton	Not used
1:15 - 1:35	Niki Bowerman. <i>11,000 years of glacier change, Palisade Glacier, Sierra Nevada.</i>	Michele Slaton. <i>Changes in plant communities and ecophysiology along elevation gradients in Inyo County: Biophysical responses to increased temperature.</i>	
1:35 - 1:55	Greg Stock. <i>Timing and magnitude of late Pleistocene and Holocene glaciations in Yosemite National Park.</i>	Sharon Martinson. <i>Indirect effects of climate change on plant-herbivore interactions and community diversity patterns in the eastern Sierra Nevada.</i>	
1:55 - 2:15	Dylan Rood. <i>Glacial chronologies along the Eastern Sierra Nevada from Be-10 surface exposure dating.</i>	Teresa Chuang. <i>Towards a field-based understanding of climate change-induced shifts in tree species ranges.</i>	
2:15- 2:35	Connie Millar. <i>Rock glaciers and related periglacial landforms in the Sierra Nevada, California, USA: Inventory, distribution and climatic relationships.</i>	Rob Klinger. <i>Region-wide density estimates and habitat associations of alpine mammal assemblages in the Sierra Nevada and White Mountains: Implications for modeling species distributions and population persistence under a changing climate scenario.</i>	
2:35 - 2:55	Peter Kirchner. <i>Chemistry, discharge and nutrient contribution of two rock glaciers in the Southern Sierra Nevada Mountains of California.</i>		

**3:00 - 3:30 PM AFTERNOON BREAK - Home Economics Building**

**THURSDAY LATE AFTERNOON CONCURRENT SESSIONS**  
**3:30 - 5:30 PM**

Location	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
Session III	<p style="text-align: center;"><b>Session III-A</b>  <b>Physical Responses: Climate &amp; Glaciers</b></p> <p style="text-align: center;">Chair: Martin Kennedy</p>	<p style="text-align: center;"><b>Session III-B</b>  <b>Alpine Vegetation &amp; Climate</b></p> <p style="text-align: center;">Chairs: Daniel Pritchett &amp; Connie Millar</p>	<p style="text-align: center;"><b>Session III-C</b>  <b>Wilderness Management; Implications for Climate</b></p> <p style="text-align: center;">Chair: Marybeth Hennessey</p>
3:30 - 3:50	Ginger Schmid. <i>Periglacial activity along an elevational gradient of GLORIA sites, White Mountains, California.</i>	Ann Dennis. <i>Gloria Target Regions in the Sierra Nevada and Great Basin; Alpine plant monitoring for global climate change.</i>	Jeff Vail. <i>Wilderness law and policy in a time of climate change.</i>
3:50 - 4:10	Dayna Quick. <i>Aeolian additions: The downwind effects on soil and vegetation in Owens Valley.</i>	Ramona Butz. <i>Patterns of alpine plant species diversity across elevational gradients at four sites in California: Implications for persistence under future climate change projections.</i>	Tom Stephenson. <i>Alpine meadows, Sierra Nevada Bighorn Sheep, and Wilderness: Will climate change impact recovery?</i>
4:10 - 4:30	Margie DeRose. <i>Limitations of absolute age constraints for the Quaternary morainal record in the Eastern Sierra Nevada, California from detailed stratigraphic relationships of the Casa Diablo till.</i>	Jim Bishop. <i>Elevational patterns of alpine/sub-alpine plant distributions in the White Mountains: Anticipating and measuring climate change effects.</i>	Eric Berlow. <i>How can we begin to tease apart local vs. climatic impacts to meadows in the Sierra Nevada?</i>
4:30 - 4:50	David Mrofka. <i>The association between tectonism and preservation of glacial deposits of Cryogenian age (850-630Ma) in southeastern California and their value in accessing correlation schemes for Sierran glacial deposits with Pleistocene climate events.</i>	Rebecca Franklin. <i>Alpine shrub-chronology, a tool for high-elevation ecological monitoring.</i>	Erin Lutrick. <i>Meadow groundwater storage in the Upper San Joaquin watershed, with a focus in the Ansel Adams and John Muir Wildernesses.</i>
4:50 - 5:10	Martin Kennedy. <i>Snowball Earth</i>	Stu Weiss. <i>Up, down, and sideways: Complex responses of plant species to climate change in the White Mountains.</i>	Gary Guenther. <i>Changing climate and wilderness management perspectives.</i>
5:10 - 5:30		Lizzie Wenk. <i>Effects of water availability on alpine tundra seedling germination and establishment in the Sierra Nevada.</i>	

---

## THURSDAY EVENING PUBLIC LECTURE

7:30 - 9:00 PM, November 6

United Methodist Center  
205 Fowler St, Bishop, CA  
(see map in folder)

### LOOKING TO THE FUTURE: A CLIMATE STRATEGY FOR LOS ANGELES DEPARTMENT OF WATER AND POWER

DAVID NAHAI

*Chief Executive Officer and General Manager  
Los Angeles Department of Water and Power  
Los Angeles, CA*

Introductions: Frank Powell, Director, UC White Mountain Research Station, Bishop CA  
& Geoff McQuilken, Executive Director, Mono Lake Committee, Lee Vining, CA

---

## FRIDAY MORNING PLENARY SESSION, NOVEMBER 7

8:00 - 9:30 AM

Home Economics Building

8:00 - 9:30 am Plenary Session 2: *Ecosystem Responses to Climate*

Chair: Jeff Holmquist, UC White Mountain Research Station, Bishop, CA

8:00 - 8:30 IMPACT OF A CENTURY OF CLIMATE CHANGE ON MONTANE SMALL MAMMAL AND BIRD  
COMMUNITIES IN CALIFORNIA: THE GRINNELL RESURVEY PROJECT.

STEVEN BEISSINGER, *Dept. of Environmental Science, Policy & Management, University  
of California, Berkeley, CA*

8:30 - 9:00 CLIMATE CHANGE EFFECTS ON HIGH MOUNTAIN FOREST ECOSYSTEMS IN EASTERN  
CALIFORNIA

MALCOLM HUGHES, *Laboratory of Tree Ring Research, University of Arizona, Tucson, AZ*

9:00 - 9:30 ECOSYSTEM CONSEQUENCES OF PRECIPITATION CHANGE IN EASTERN CALIFORNIA

MICHAEL LOIK, *Dept. of Environmental Studies, University of California, Santa Cruz, Santa  
Cruz, CA*

9:30 - 10:00 am MORNING BREAK, Home Economics Building

**FRIDAY MORNING CONCURRENT SESSIONS**  
**10:00-11:45 AM**

Location	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
<b>Session IV</b>	<b>Session IV-A Plant-Animal Interactions &amp; Climate Change</b>  Chair: Jeff Holmquist	<b>Session IV-B Amphibians &amp; Fish</b>  Chair: Kathleen Matthews	<b>Session IV-C Hydroclimatology</b>  Chair: Noah Molotch
10:00 - 10:20	Nancy Grulke. <i>Defining a mechanistic link between stand density, tree drought stress, and susceptibility of Jeffrey pine to bark beetle attack.</i>	Igor Lacan. <i>Interaction of an introduced predator with future effects of climate change in the recruitment dynamics of the imperiled Sierra Nevada Yellow-legged Frog (<i>Rana sierrae</i>).</i>	Noah Molotch. <i>Hydroclimatological trends in snow cover depletion and snow water equivalent inferred over the Modis record.</i>
10:20 - 10:40	Kevin Monteith. <i>Population dynamics of Mule Deer in the Sierra Nevada: Influence of density and climate.</i>	Curtis Miliron. <i>Resource management - Keeping up with change.</i>	Roger Bales. <i>Blended satellite and ground-based snow products for hydrologic prediction in Sierra Nevada basins.</i>
10:40 - 11:00	John Wehausen. <i>Climate change and Desert Bighorn Sheep: The devil is in the details.</i>	Steve Parmenter. <i>The prognosis of endemic fishes complicated by climate change in the western Great Basin.</i>	Sarah Kapnick. <i>Observed climate-snowpack relationships in California and their implications for the future.</i>
11:00 - 11:20	Bill Brostoff. <i>Ecology of cryptobiotic crusts and associated fauna in a seasonally inundated system of pans and playas in the Western Mojave Desert.</i>	Carrie Sendak. <i>Climate change and high-elevation amphibians and reptiles in the Sierra Nevada.</i>	Max Berkelhammer. <i>Storm trajectory and isotopic composition of precipitation modeled and observed for the White Mountains.</i>
11:20 - 11:40	Jeff Holmquist. <i>Anticipated effects of climate change on meadow arthropod assemblages in the Sierra Nevada and White Mountains: Assorted data and tarsal waving.</i>	Kathleen Matthews. <i>Predicted responses of the California Golden Trout to climate change.</i>	Jeff Dozier. <i>Time-space continuity of fractional snowcover in the Sierra Nevada from MODIS.</i>

**11:45AM - 1:15 PM LUNCH BREAK (On your own in Bishop, see map in folder)**

## FRIDAY EARLY AFTERNOON CONCURRENT SESSIONS 1:15 - 3:00 PM

Location	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
Session V	<p style="text-align: center;"><b>Session V-A Climate-Ecosystem Feedbacks</b></p> <p style="text-align: center;">Chair: Rob Klinger</p>	<p style="text-align: center;"><b>Session V-B Whither Treeline? Subalpine Forests &amp; Climate</b></p> <p style="text-align: center;">Chairs: Connie Millar &amp; Malcolm Hughes</p>	<p style="text-align: center;"><b>Session V-C Biophysical Monitoring</b></p> <p style="text-align: center;">Chairs: Linda Mutch &amp; Angie Evenden</p>
1:15 - 1:35	Frank Powell. <i>Time domains of biological responses to global environmental change.</i>	Malcolm Hughes. <i>A process-based modeling approach to the interpretation of high-elevation tree-ring records in the Western United States.</i>	Linda Mutch. <i>Developing a long-term monitoring program in Sierra Nevada network National Parks.</i>
1:35 - 1:55	Steven Schwarzbach. <i>Examining potential implications of global climate change and migratory bird movement on the spread of two zoonotic diseases - West Nile Virus and H5N1 Highly Pathogenic Avian Influenza.</i>	Andy Bunn. <i>Ancient bristlecone pine distribution and growth in the White Mountains of California: A spatial analysis.</i>	Andi Heard. <i>A new lake monitoring program in Sierra Nevada parks.</i>
1:55 - 2:15	Rob Klinger. <i>Modelling alternative alpine vegetation states resulting from climatic shifts and feedbacks from plant-animal interactions.</i>	Adelia Barber. <i>Five millennia of population dynamics in a high altitude population of bristlecone pine.</i>	Stella Moss. <i>Integrated bird monitoring in the Eastern Sierra: Methods and applications.</i>
2:15- 2:35	Rob Klinger (for Matt Brooks). <i>Interactions between fire and plant invasions under a warming climate in the Sierra Nevada bioregion.</i>	Jeff Garcia. <i>The effect of mammalian and avian seed-dispersers on long-lived bristlecone pines.</i>	Jim Lutz. <i>Twentieth-century decline in large-diameter trees in Yosemite National Park, California, USA.</i>
2:35 - 2:55	Susan Roberts. <i>Climate change effects on predator/prey interactions: How can we conserve persistence and resilience in a murky sea of idiosyncrasy?</i>	Connie Millar. <i>Complex responses of subalpine forests to climate change in the Eastern Sierra Nevada and Western Great Basin.</i>	Kelly Redmond. <i>Climate information needs for the National Park Service, Southern Sierra Nevada.</i>

**3:00 - 3:30 PM AFTERNOON BREAK, Home Economics Building**

**FRIDAY LATE AFTERNOON CONCURRENT SESSIONS**  
**3:30 - 5:10 PM**

Location	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
Session VI	<p style="text-align: center;"><b>Session VI-A</b>  <b>Species Vulnerabilities and Extinction Risks under Changing Climates in Western North America</b></p> <p style="text-align: center;">Chair: Steve McLaughlin</p>	<p style="text-align: center;"><b>Session VI-B</b>  <b>Ecological, Physiological, and Genetic Responses to Climatic Gradients</b></p> <p style="text-align: center;">Chair: John Smiley</p>	<p style="text-align: center;"><b>Session VI-C</b>  <b>Devil's Postpile National Monument as a Refugium under Changing Climates</b></p> <p style="text-align: center;">Chair: Deanna Dulen</p>
3:30 - 3:50	Steve McLaughlin. <i>Extinction and speciation in the North American flora in response to Quaternary climate changes.</i>	John Smiley. <i>Predator responses to climate-induced shifts in prey distribution: Ecology and behavior of the hunting wasp <i>Symmorphus cristatus</i>.</i>	Deanna Dulen. <i>Challenges and opportunities for managing Devils Postpile National Monument during changing climates.</i>
3:50 - 4:10	Erik Beaver. <i>Roles of climatic mechanisms of stress in the increasingly rapid collapse of American Pikas (<i>Ochotona princeps</i>) from the Great Basin.</i>	Nathan Rank. <i>Relationship between Sierra Nevada climate variability, genetic variation in native insect populations, and effects of environment and genetics on population dynamics.</i>	Frank Gehrke. <i>Climate monitoring at Devils Postpile.</i>
4:10 - 4:30	Connie Millar. <i>Geographic, periglacial, and climatic relationships of American Pika (<i>Ochotona princeps</i>) in the Eastern Sierra Nevada and Western Great Basin.</i>	Elizabeth Dahlhoff. <i>Physiological mechanisms driving responses to environmental change in an Eastern Sierra willow beetle.</i>	Marie Denn. <i>Field-mapped wetlands at Devils Postpile National Monument.</i>
4:30 - 4:50	Peggy Moore. <i>Rethinking rare species persistence: What framework best provides for assessing risk and prioritizing management?</i>	John Skillman. <i>Do C3 and C4 plants respond the same way to climate change? Insights from comparative studies with the C4 grass <i>Muhlenbergia richardsonensis</i> at high elevation in California's White Mountains.</i>	Sue Burak. <i>Preliminary water chemistry investigations, Upper San Joaquin and Dry Creek Watersheds.</i>
4:50 - 5:10	Holly Alpert. <i>Impacts of soil water availability on two co-dominant Eastern Sierra conifers.</i>	Sean Schoville. <i>Population genetics, distributional modeling and climate change in Sierra Nevada alpine butterflies.</i>	Jim Upchurch. <i>Integrated management for climate in the eastern Sierra Nevada.</i>

---

**FRIDAY NIGHT**  
**Banquet & Keynote Lecture**  
**Home Economics Building**

6:00pm No-Host Bar  
6:30pm Dinner

8:00-9:00pm Keynote lecture

**LATE HOLOCENE TUFA FORMATION AT MONO LAKE –  
THE CLIMATE CONNECTION**

**Scott Stine**  
*California State University- East Bay, Hayward, CA*

Introduction: David Herbst, UCSB, Sierra Nevada Aquatic Research Lab,  
Mammoth Lakes, CA

---

**SATURDAY MORNING PLENARY SESSION, NOVEMBER 8**  
**8:00 - 9:30 AM**  
**Home Economics Building**

8:00 - 9:30 am **Plenary Session 3: *Management Responses to Climate:  
Adaptation & Mitigation***

Chair: John Smiley, UC White Mountain Research Station, Bishop, CA

8:00-8:30 **IMPLICATIONS FOR PRESENT AND FUTURE MANAGEMENT FROM PAST GREAT BASIN  
CLIMATE AND VEGETATION CHANGE**

ROBIN TAUSCH, *USDA Forest Service, Rocky Mtn Research Station, Reno, NV*

8:30-9:00 **ADAPTIVE MANAGEMENT; OPPORTUNITIES AND CHALLENGES IN MANAGING ECOSYSTEMS  
UNDER CHANGING CLIMATES**

PETER STINE, *USDA Forest Service, Sierra Nevada Research Center, Davis, CA*

9:00-9:30 **STRATEGIC APPROACHES OF THE NATIONAL PARK SERVICE FOR ADAPTING TO CLIMATE  
CHANGE**

LEIGH WELLING, *USDI National Park Service, Fort Collins, CO*

**9:30 - 10:00 AM MORNING BREAK**

**SATURDAY MORNING CONCURRENT SESSIONS**  
**10:00 AM - 12:00 PM**

Session	HOME ECONOMICS BUILDING	CHARLES BROWN BUILDING	PATIO BUILDING
<b>Session VII</b>	<b>Session VII-A Adaptation Policy &amp; Institutional Responses to Climate Change</b>  Chair: Marion Gee	Room not used	<b>Session VII-C Mono Basin Restoration; Climate Effects and Implications</b>  Chairs: Greg Reis & Lisa Cutting
10:00 - 10:20	Greg Dallas. <i>Mammoth Mountain Ski Area's response to global warming.</i>		Frances Spivy-Weber. <i>Mono Lake, restoration, and changing climate.</i>
10:20 - 10:40	Liz van Wagtendonk. <i>Improving meadow health in the face of climate change.</i>		Dave Martin. <i>Climate change effects on restoration processes and endpoints in the Mono Basin.</i>
10:40 - 11:00	John Andrew. <i>California climate adaptation strategy: Water-sector strategies.</i>		Peter Vorster. <i>Climate change and the Mono lake water balance: Implications for implementing the Mono Lake Water-Rights Decisions.</i>
11:00 - 11:20	Nate Seavy. <i>Bird conservation, resource management, and climate change.</i>		Greg Reis. <i>Peak flow forecasting and management of Mono Lake's tributaries.</i>
11:20 - 11:40			Justin Hite. <i>Climate change and California Gulls at Mono Lake, California.</i>
11:40 - 12:00			Stella Moss. <i>Long-term monitoring in riparian habitats in the context of climate change.</i>

**CEREC Adjourns at Noon**

**Optional Field Trip Sunday, Nov 9 to the White Mountains and Ancient Bristlecone Pine Forest (by advance reservation)**