Climate Science Research

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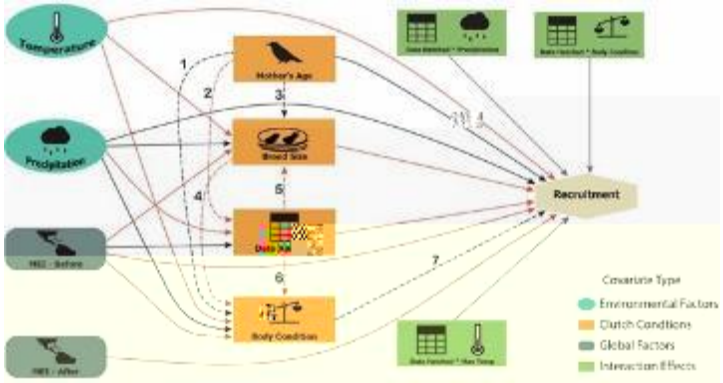
Population Ecology & Science Communication

- Dr. Adele Balmer
- Assistant Professor-in-Residence
- College of Sciences
- Email: adele.balmer@unlv.edu

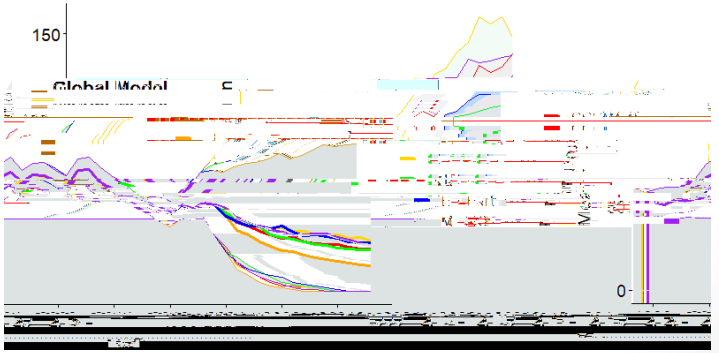
Expertise

- Science Education
  - Evidence-Based Practices
- Population Ecology
  - Population Forecasting
- Animal Behavior
  - Alternative Reproductive Tactics
- Ecological Modeling
- Science Communication
- Science Policy

Hypothesized structural equation model.



Population projections derived from an Integrated Population Model (IPM) and Bayesian Population Viability Analysis (BPVA), based on six general circulation models.



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- Sequence and chemostratigraphy
- Paleogeographic reconstruction
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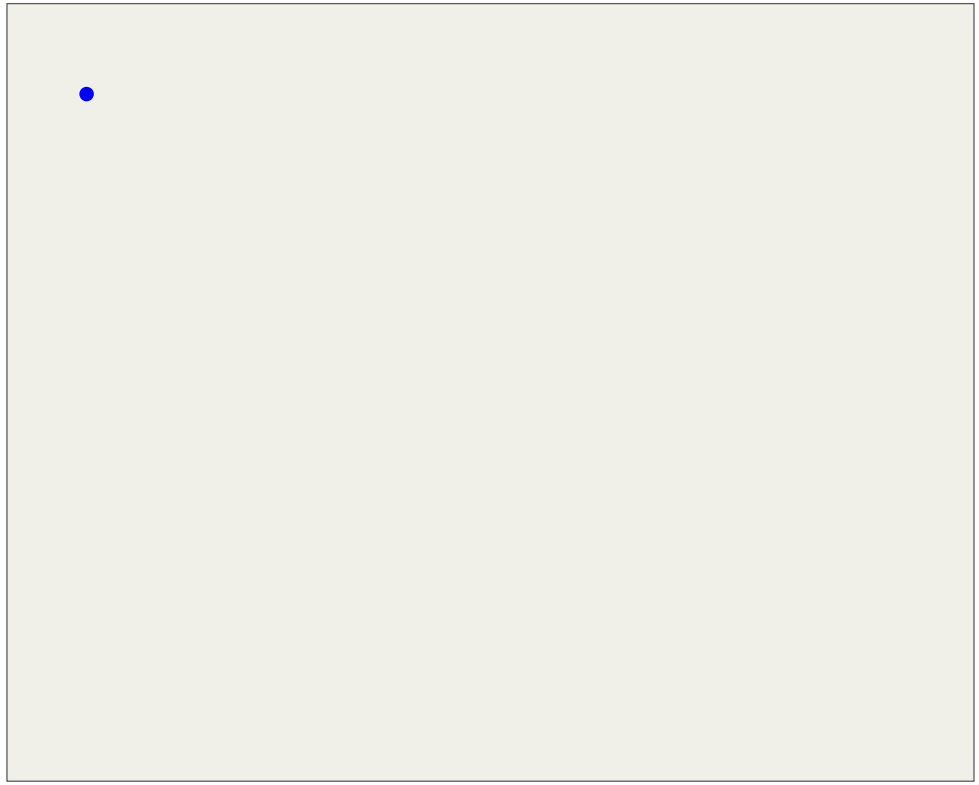

Climate Science and Paleoclimatology

Matthew S. Lachniet
Professor
Department of Geoscience
Phone 702-895-4388
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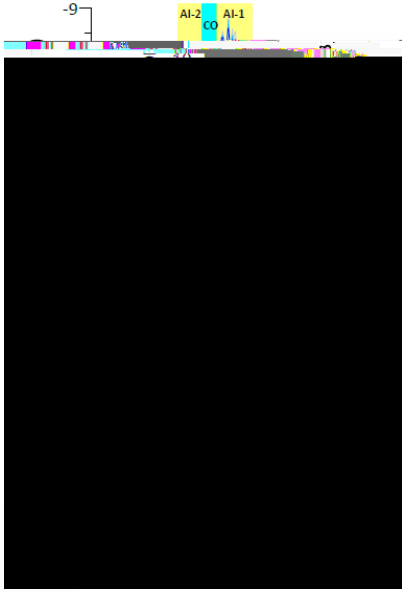
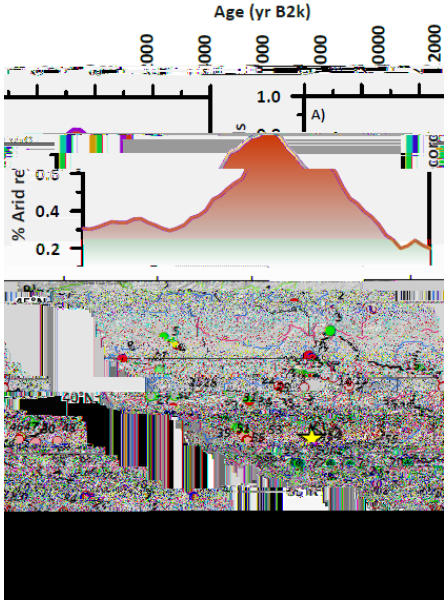
Paleoclimatology

- Study of the causes, timing, and consequences of climate change on timescales ranging from decades to millennia
- Cause of aridity in the Great Basin and Western United States
- Influence of ocean temperatures on precipitation in Nevada
- Cave archives of past climate with sites in Nevada, Mexico, Central America, and elsewhere





Dryland ecology, hydrology and climate dynamics

Dr. Matthew Petrie
Assistant Professor
School of Life Sciences
ph: 702-895-5844
e: matthew.petrie@unlv.edu

Expertise:
Vegetation ecology and near

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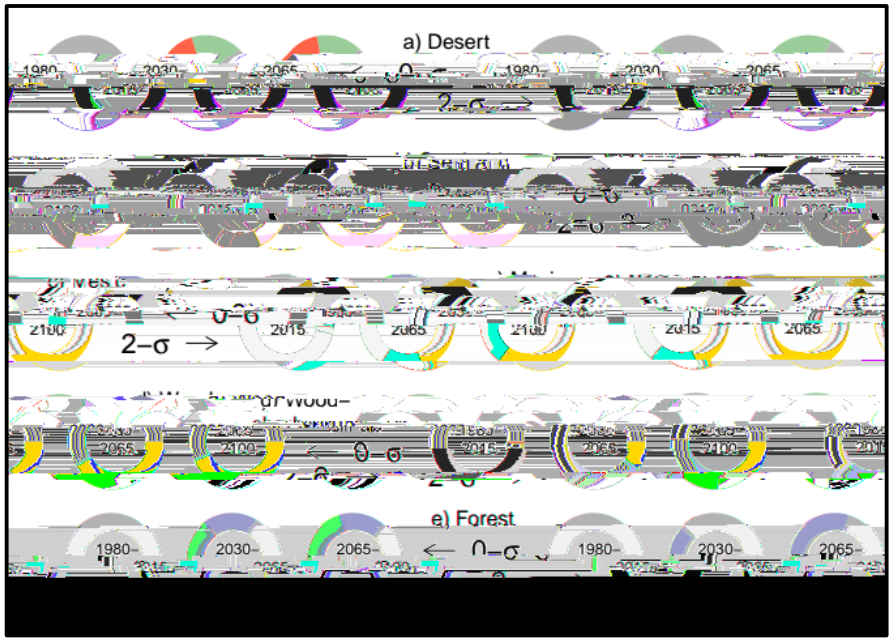
Linking extreme climate events and ecological

Forecasting climate change impacts



Above: Natural forest regeneration may decline substantially throughout the western US in the 21st century. We study how climate, landscape properties, and the stress tolerance of tree populations will shape the future of western forests.

Left: Forecasts for increasing belowground extreme temperature events in a changing climate. We use downscaled climate model projections to forecast the increasing occurrence of moderate (0- 1 D Q G very high (2- 1 H [W U H P H W H P S H U D W X U H throughout multiple depths in the soil profile for ecosystems of the central and western US.

Climate Change; Renewable Energy; Astronomy

Dr George Rhee
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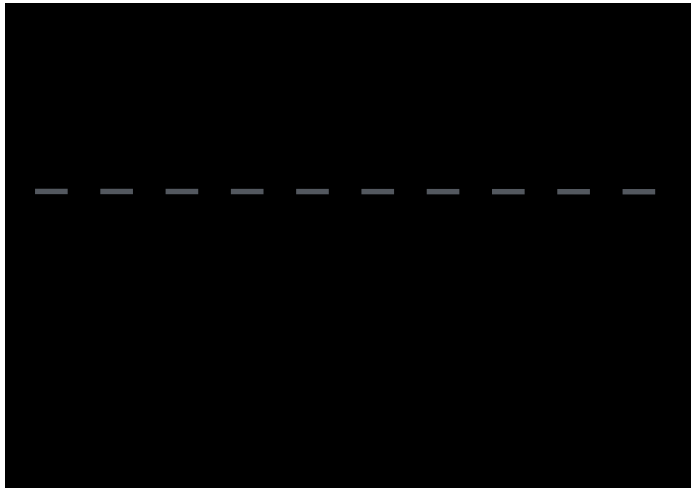
email: grhee@physics.unlv.edu

“Expertise:”
Observational Astronomy/Cosmology
Renewable Energy
Colorado River flow projections

Climate Change

River flow projections using statistics from tree ring data from the upper Colorado River Basin. Gaussian processes with known covariance can be used to predict properties of river flows. Figure shows predictions for Colorado river flow 20152050.



Astrophysics

Interested in:

Dark matter distribution in galaxies inferred from the rotation of neutral hydrogen gas in disks

Properties of galaxies in extreme low density environments (voids)

Measuring the masses of black holes using the variability of the central region in Seyfertgalaxies and quasars. spectral and brigtness measurements

Renewable Energy

Created an online calculator allowing the user to choose supply and demand options to make plans to zero out emissions in Nevada by 2050.