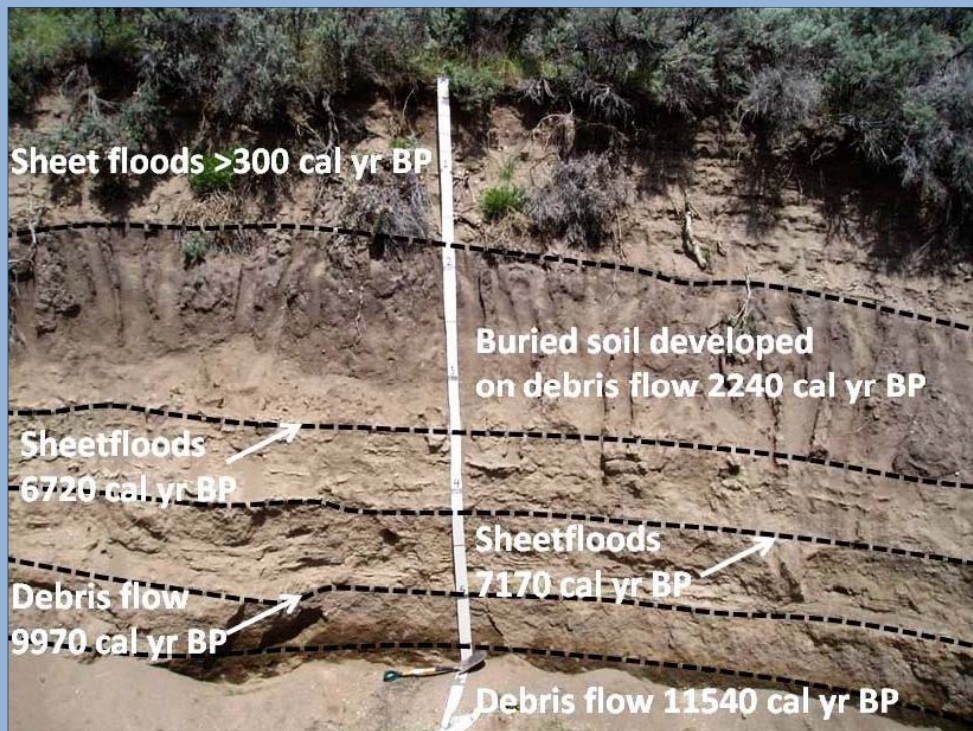


Holocene Climate, Fire and Vegetation at the City of Rocks National Reserve, Idaho

Kerrie Weppner, Jen Pierce, Julio Betancourt

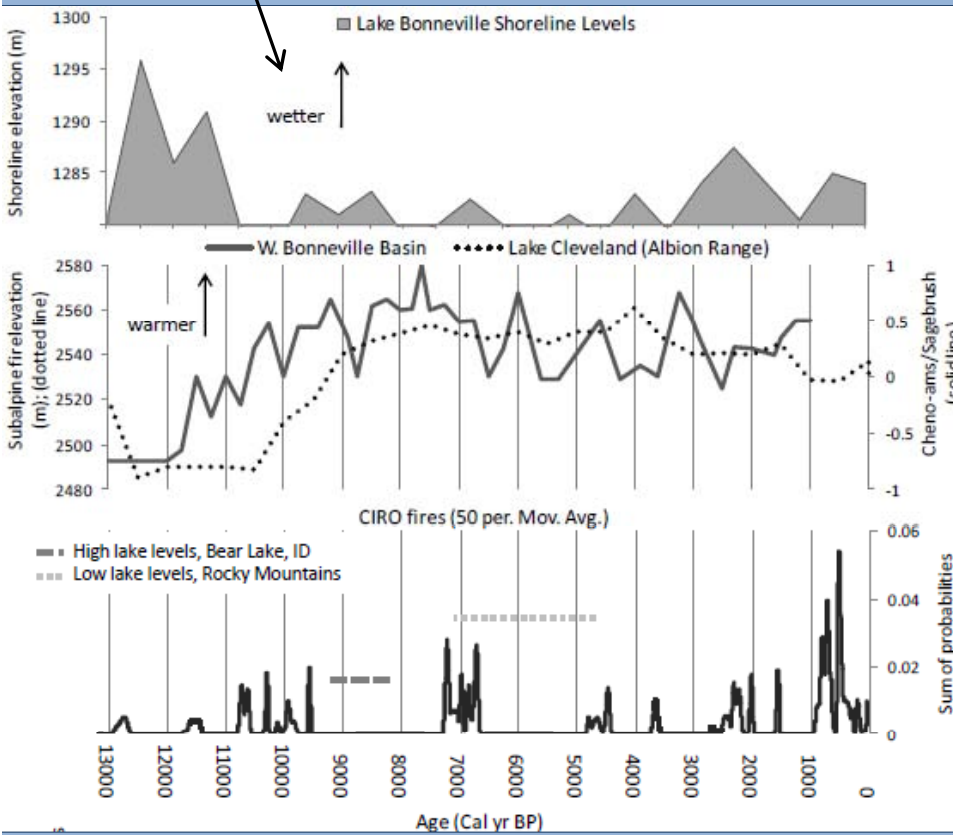
When did fire burn in the past?
Did fires burn during wet or dry conditions?
How does vegetation change influence fire and fire-related erosion?



Radiocarbon dating of alluvial charcoal to estimate timing of fire in semiarid pinyon-juniper-limber pine (!) woodland

Compare fire records to paleoclimate records and vegetation reconstruction from woodrat middens

Figure 1: 13,000-yr records



Results

Figure 2: 2000-yr records and PDSI

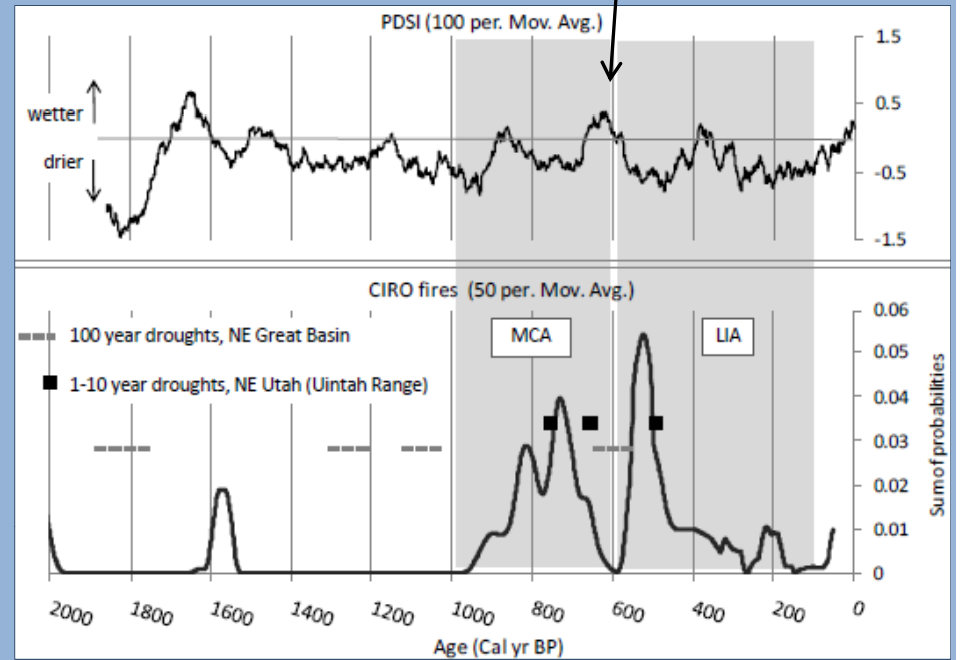
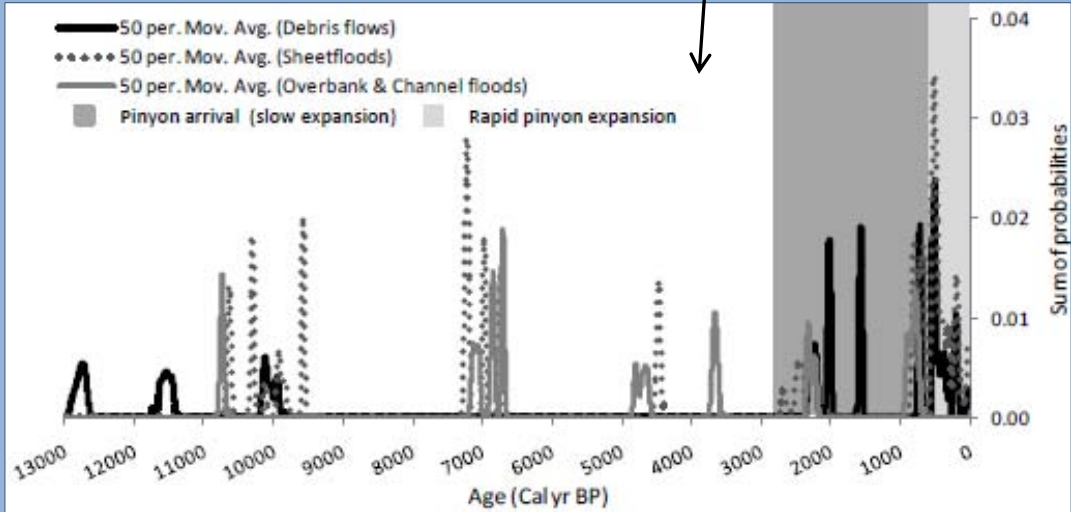


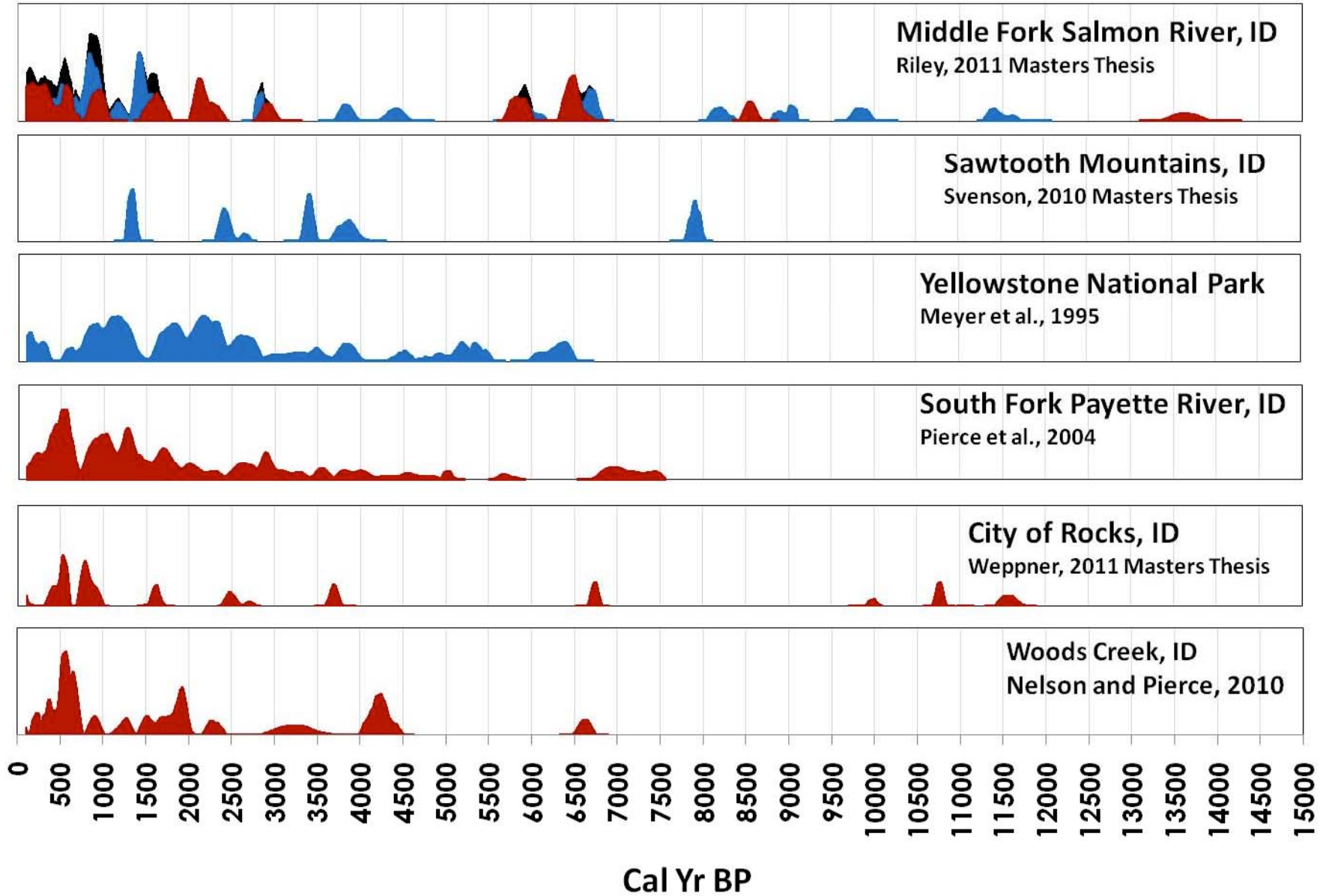
Figure 3: Type of fire-related erosion and timing of pinyon arrival and expansion

Fig 1: Increased fire during millennial-scale wet conditions
 Fig 2: Fires burned during brief drought following wet intervals
 Fig 3: Debris flow and fire frequency increased with pinyon arrival

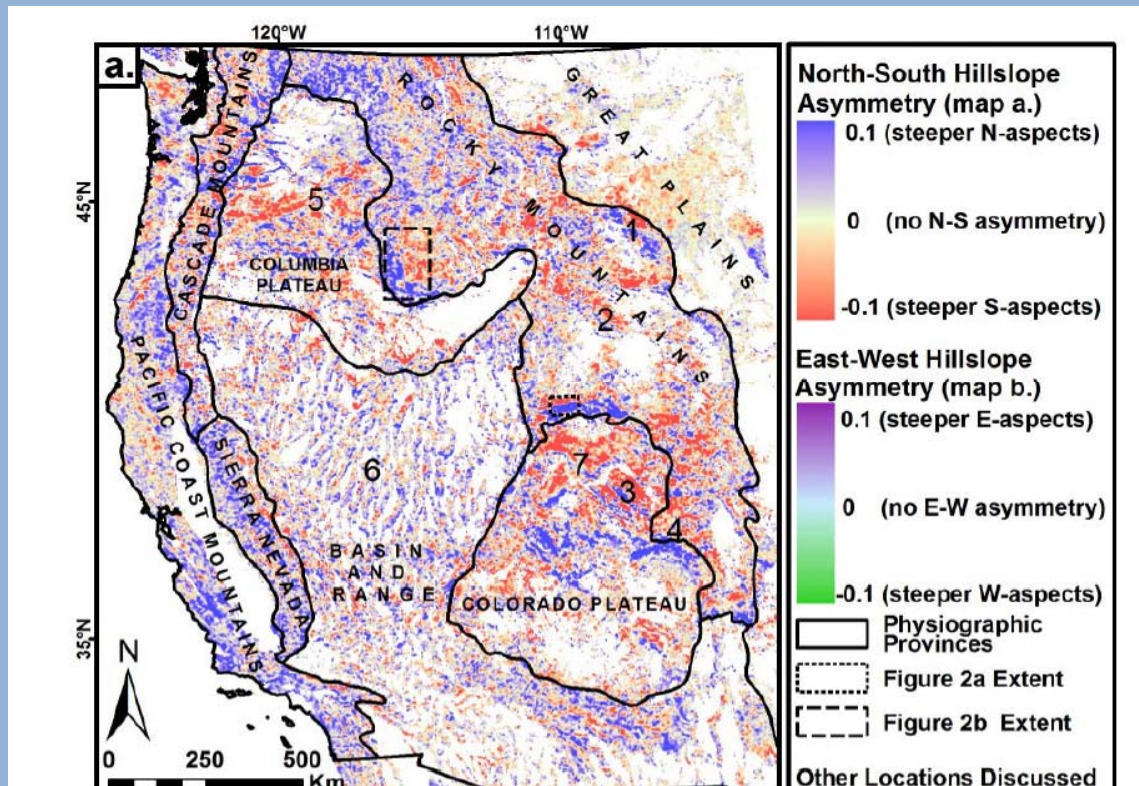


- Xeric low elevation ecosystems (sagebrush steppe, grasslands, xeric conifers)
- Mesic high elevation ecosystems (lodgepole pine, subalpine)

Relative Fire Probabilities



Hillslope asymmetry—how does it relate to climate? Mike Poulos, Boise State



- Valley asymmetry spatial distributions implicitly constrain possible drivers, furthering our understanding of how hillslope-scale feedbacks among tectonics, lithology, climate, hydrology, soils, ecology, and geomorphology affect the broader landscape.
- **IN REVIEW FOR GRL**
- Michael J. Poulos, Alejandro N. Flores, Shawn G. Benner, Jennifer L. Pierce