A Very Brief

Paleo Vegetation History

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Northwest California

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Collaborators

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Piecing Together a Picture of Vegetation History

- **Sediment Cores** > 10,000s yrs
  - Pollen, Charcoal, Fossils

- **Tree-rings** ~ 100s to 1,000s
  - Ring width, Ring density, Isotopes, Fire scars

- **Written Records** ~ 150 yrs
Stratigraphy
Pollen

Abies

Chamaecyparis

Aesculus

Pinus

Sequoia
Charcoal
Paired Basins
Holocene Vegetation History

>14,000 ybp
Holocene Vegetation History

>14,000 ybp

12,000 ybp
Holocene Vegetation History

>14,000 ybp

12,000 ybp

10,000 - 7,500 ybp
Holocene Vegetation History

- >14,000 ybp
- 12,000 ybp
- 10,000 - 7,500 ybp
- 7,500 - 4,500 ybp
Holocene Vegetation History

>14,000 ybp

12,000 ybp

10,000 - 7,500 ybp

7,500 - 4,500 ybp

2,150 - 1,000 ybp
Climate and Vegetation Are Always Changing

Just sometimes faster than other times
Basins Did Not Have The Same Long-term Trends

Some were quite stable in terms of species composition – others not.
July 45°N Insolation Anomaly
Pacific Northwest Climate History

Modern Climate
Cooler and wetter than B & P (LIA)
Drier than before & present (MCA)

Cooler & wetter than before

Warmer and drier than before & present

Cooler & wetter than present

Inferred vegetation (forest dominants)

<table>
<thead>
<tr>
<th>Ultramafic substrate</th>
<th>Non-ultramafic substrate</th>
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</thead>
<tbody>
<tr>
<td>Pinus jeffreyi/Quercus/Cupressaceae</td>
<td>Abies/Tsuga/Pseudotsuga</td>
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Briles et al. 2011
Long-term Stability

Ultramafic sites appear to be more stable.
What Next?

Extend work into North Coast Range, Cascades & northern Sierra Nevada

Focus On Last 4000 yrs
Mt. Hemlock

Douglas-fir
Thank You!