

Evaluating Climate Change effects on Wildlife



Climate Change effects on Forest Vegetation Why consider it?

- **NEPA Analysis Direction**
 - Project impact on climate change (rare except permitting large energy development)
 - How does the proposed project incorporate expected climate change?
- **Use the best available science.**

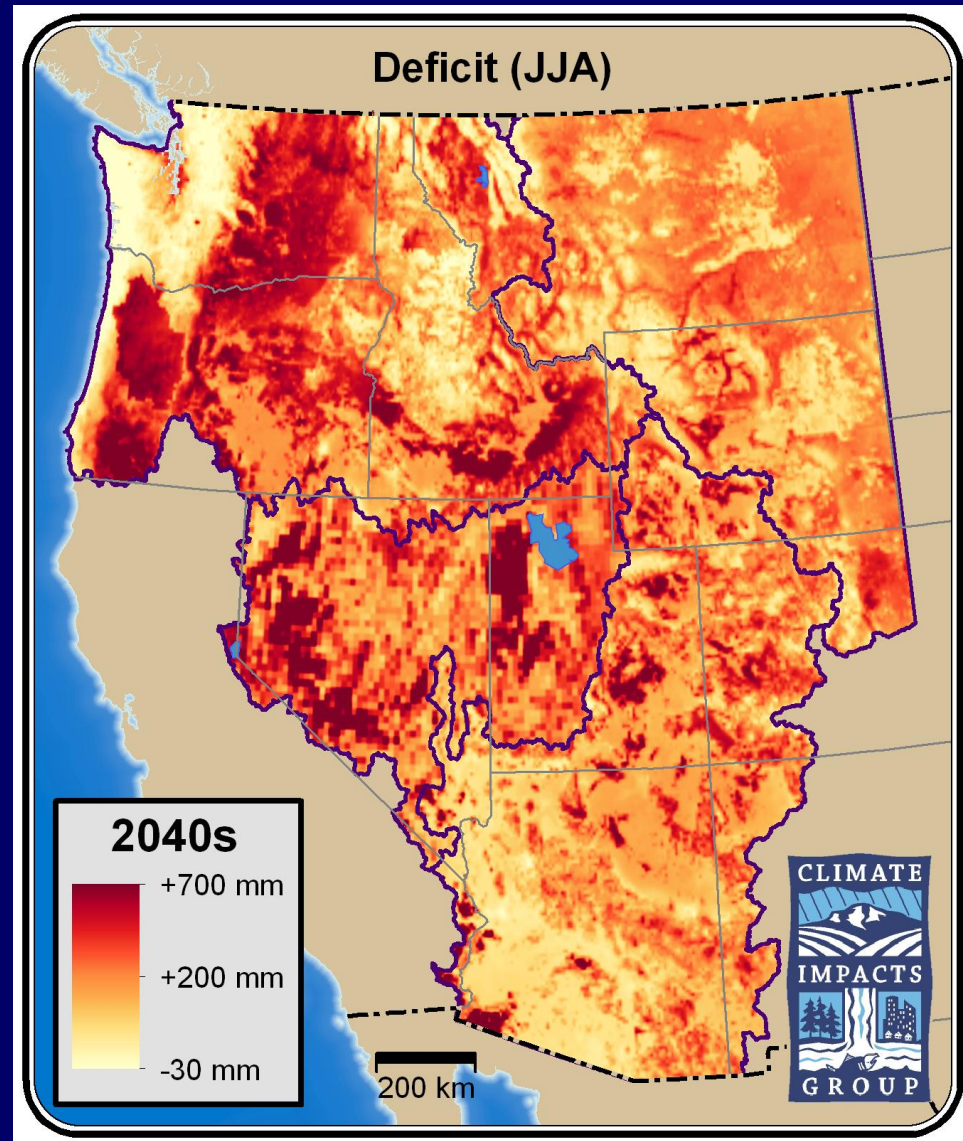
Scale is Always an Issue

Existing reports

- Often did not use downscaled information.
- Often made conclusions on a state or region-wide scale (wildfire, insect activity, etc.)

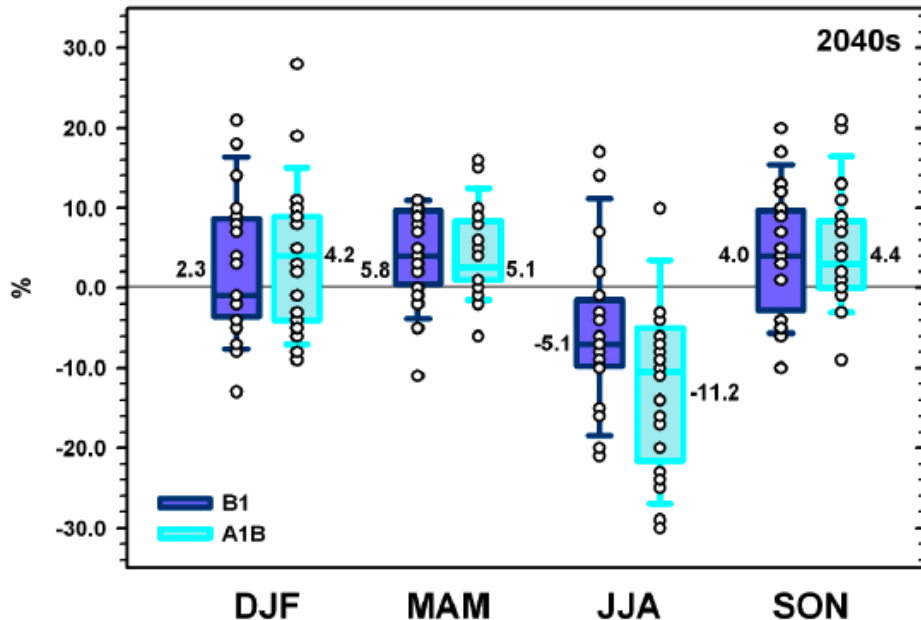
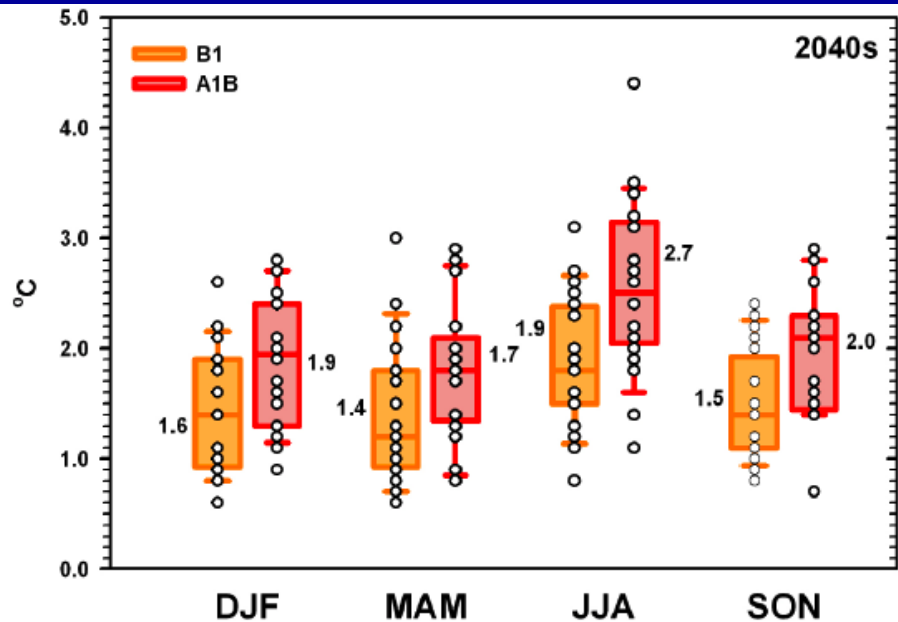
Newer Downscaled Information

- Incorporates topographic effects
- Predicts effects at smaller scale
- More useful for considering how to incorporate into project planning.



slide shamelessly stolen from: J. Littell

Seasonal Temperature and Precipitation Scenarios for the Pacific Northwest



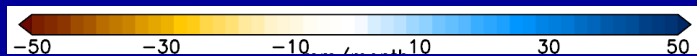
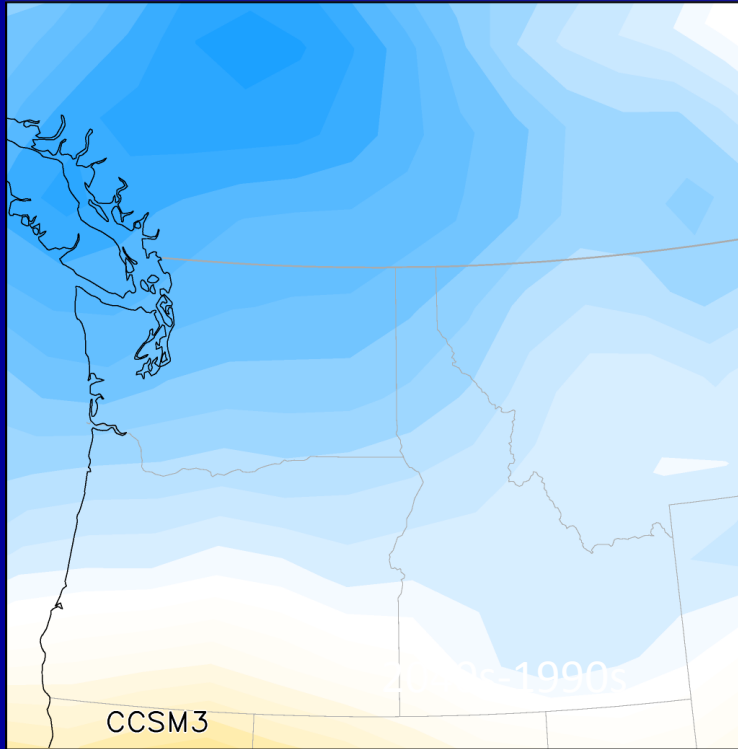
Spatial scale is for the entire PNW. Would there be differences within the large region?

By changing temporal scale, differences in when changes would be strongest. Yearly averages may be less informative.

Most likely increasing precipitation in winter, spring and fall, and decreasing precipitation in summer. Temperature increase predicted to be greatest in summer.

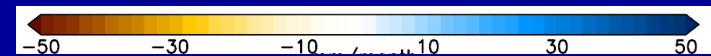
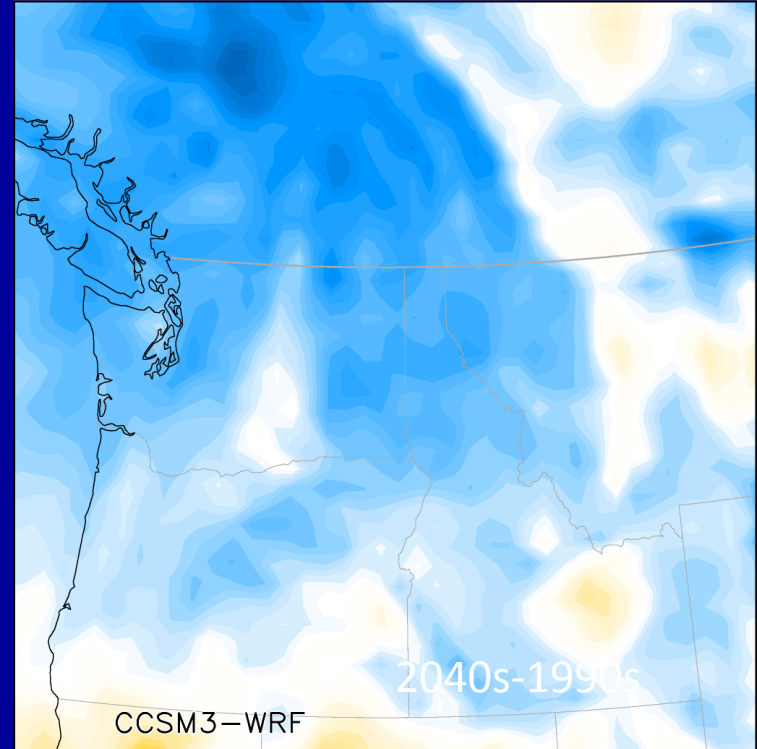
“Dynamical vs Statistical Downscaling” CCSM3

Statistical



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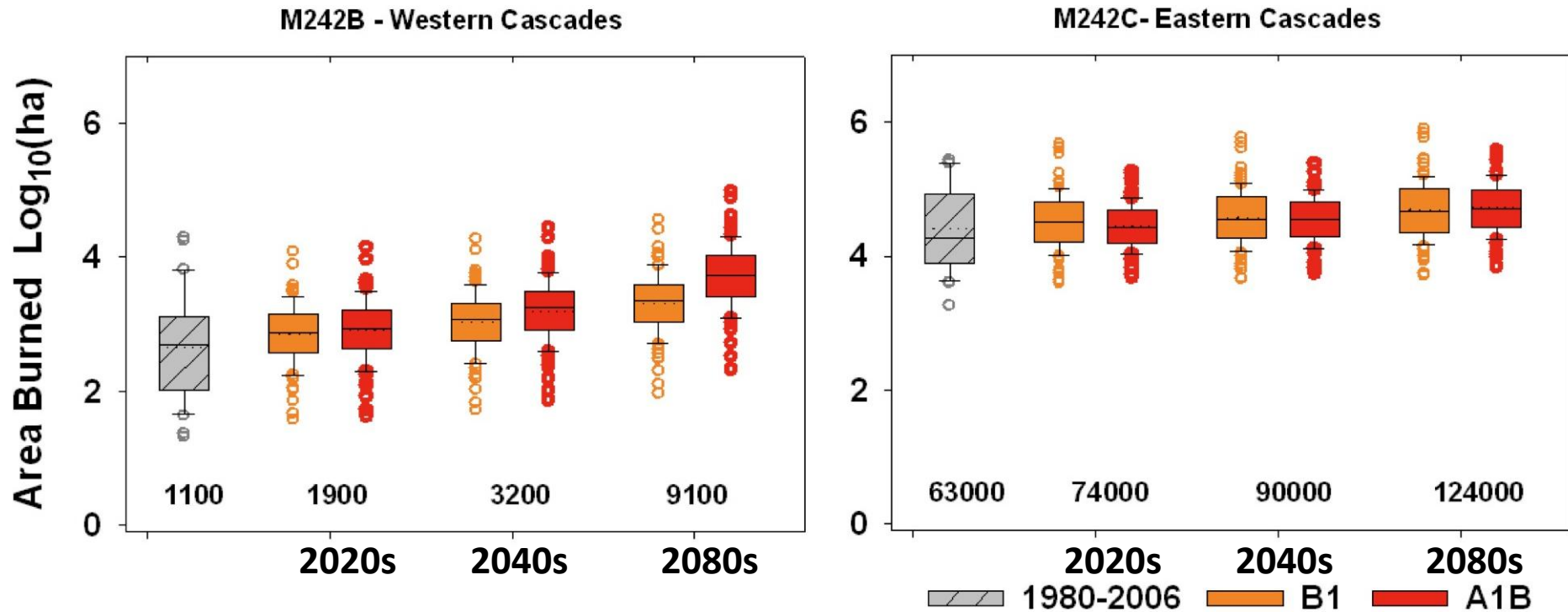
Dynamical



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Dynamical downscaling redistributes the precipitation changes from the global models in a more physically realistic way (Salathè et al. 2010)

Future area burned in ecosections



- Western Cascades: 8-fold increase
- Eastern Cascades: 2-fold increase

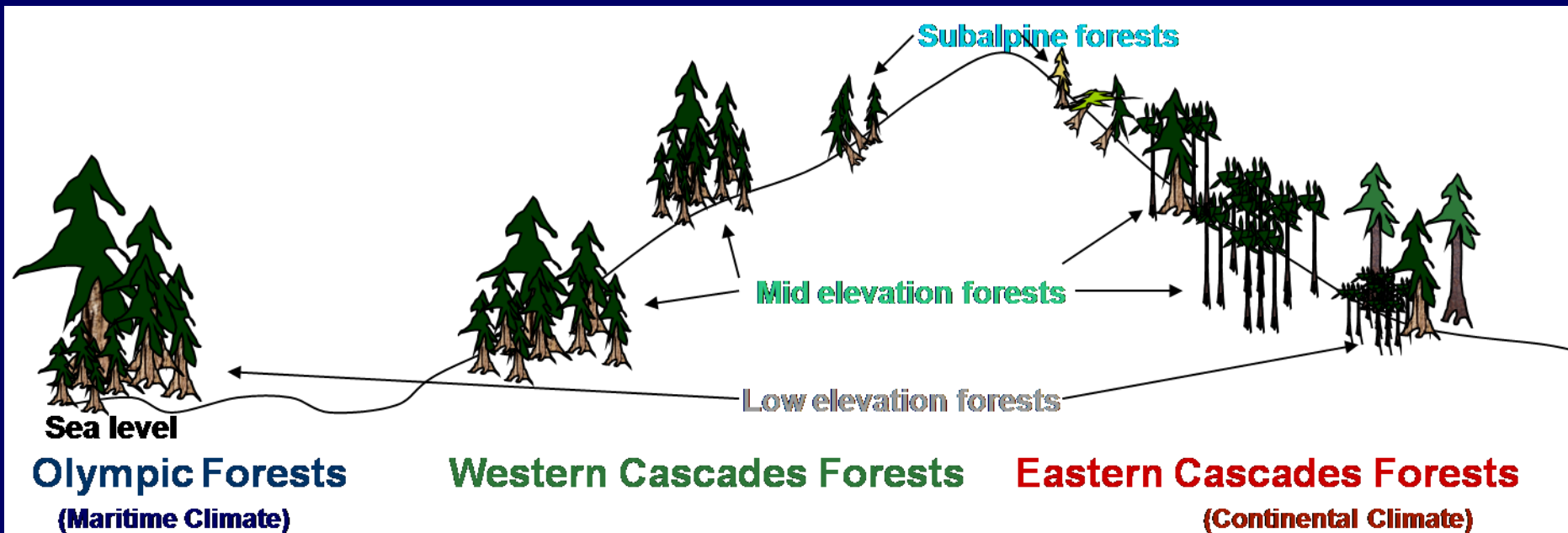
Climatic change and tree growth

Subalpine forests → *growth increase*

Mid elevation forests → *growth depends on precipitation*

Dry low elevation forests → *large growth decrease*

Wet low elevation forests → *growth increase or decrease*



Low to Mid-elevation forests

- Depends largely on Precipitation.
- Small impacts to wildlife habitat
- Rate development of forest structure.
- May be shorter time in early seral stages following disturbance.
- Uncertainty, but habitat effects small either way.



Mountain Hemlock Forest and Parkland

- Because of shorter duration snow pack, expect more forest expansion into non-forest habitats.
- But may also result in more wildfire too.
- Based on the available information, these forest zones are likely to have the biggest impact on wildlife on the MBS.

Reduction in wolverine habitat

Reduced area of late spring snow will decrease available habitat.



Expect Reduced Habitat area for other Early-seral associated wildlife



- Goats, bears, and marmot habitat area could be reduced if fire does not compensate for forest expansion.
- Habitat area for marten and woodpeckers will likely increase.

Is there consensus?

Currently there is no one source where analyses of climate change impacts to natural resources can be found.

It would be very helpful to have provincial “white-papers” that were developed from PNW, the RO, or special teams and have these analyses updated as necessary.

But,

- Everyone I know has a big but. (Pee-wee Herman 1981)

Questions?

