



**Mosaic landscapes: what mixed
severity fires, repeated fires and
the subsequent landscapes tell us
about habitat**

Camille Stevens-Rumann, Penny Morgan

Large wildfires

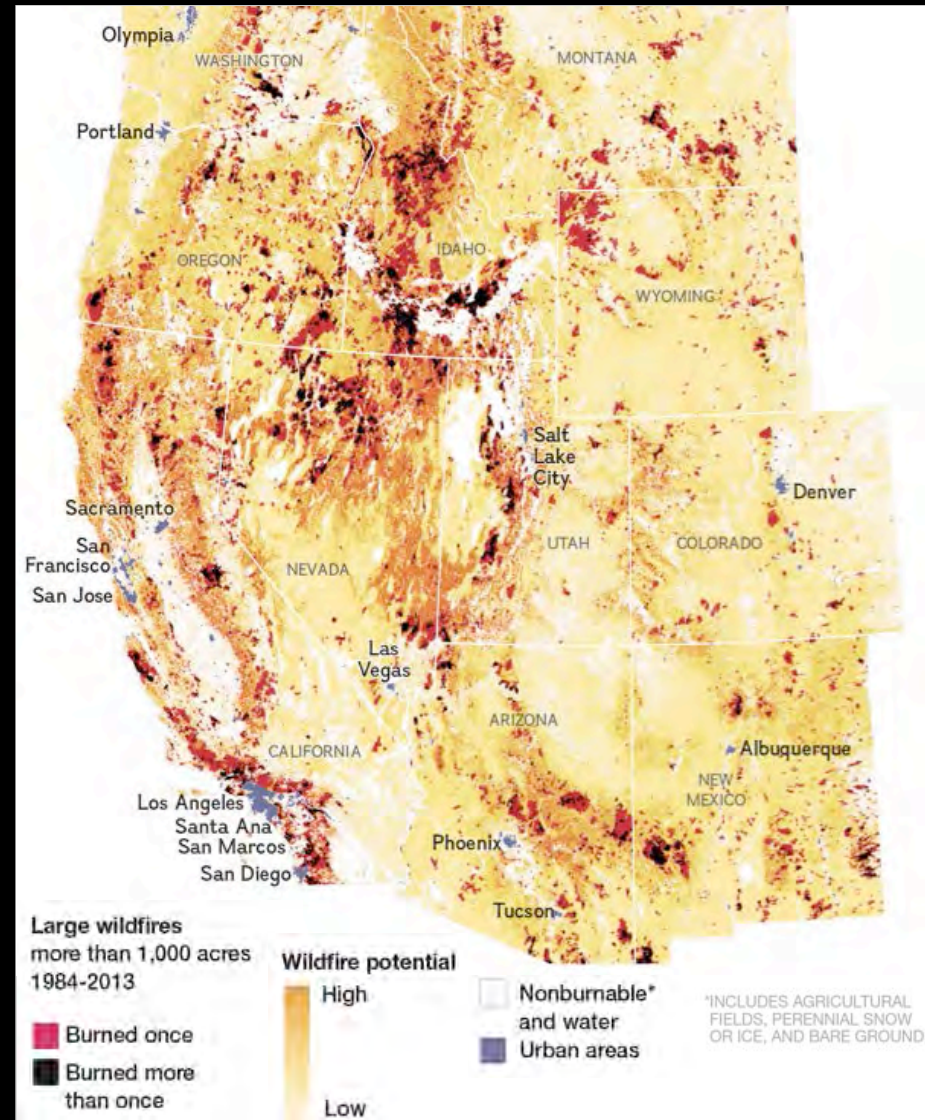
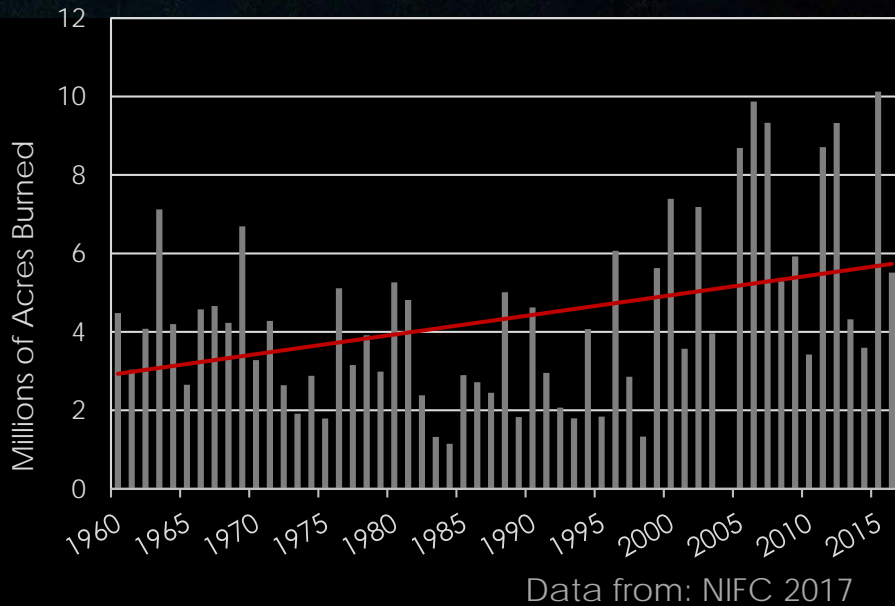
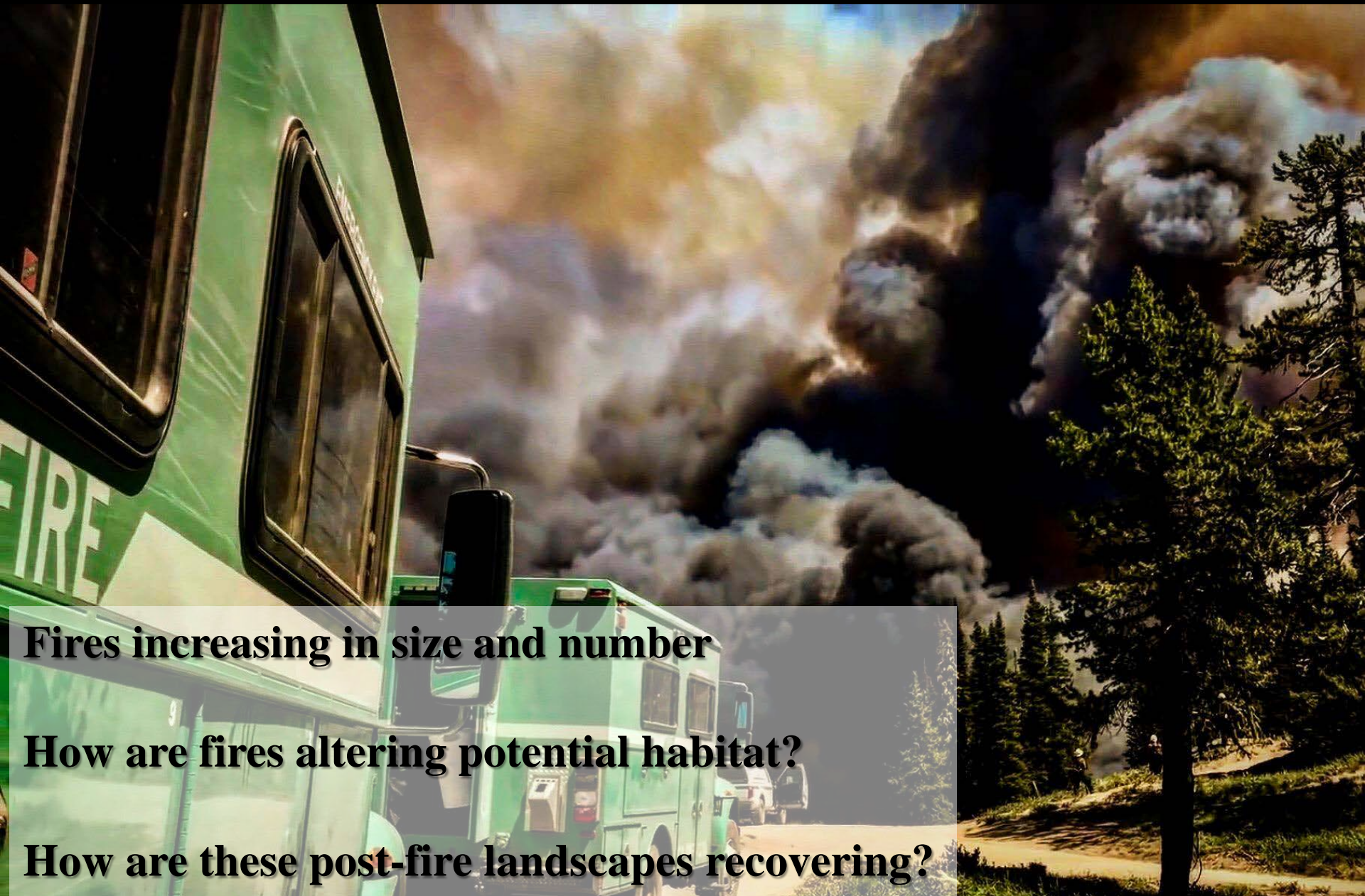


Figure from: National Geographic; Data adapted from Dennison et al. 2014



Fires increasing in size and number

How are fires altering potential habitat?

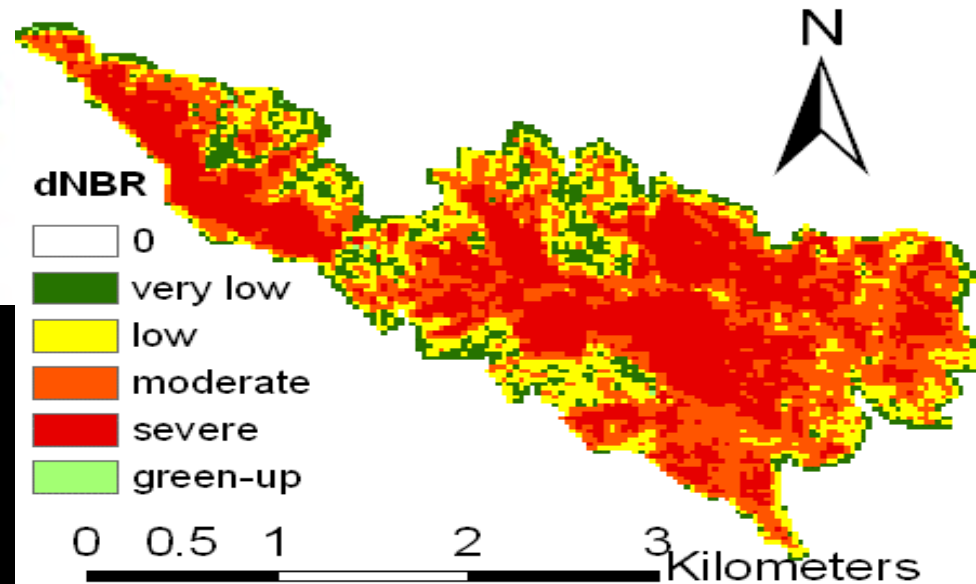
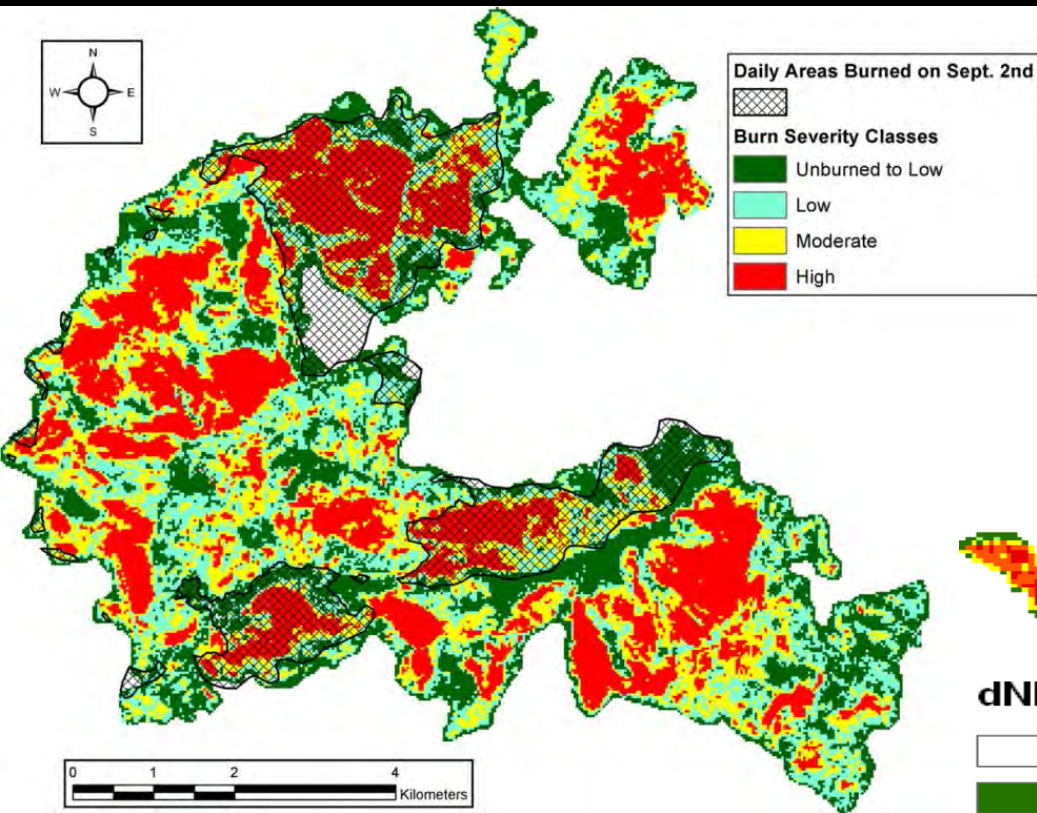
How are these post-fire landscapes recovering?



Photos: Bob Gray

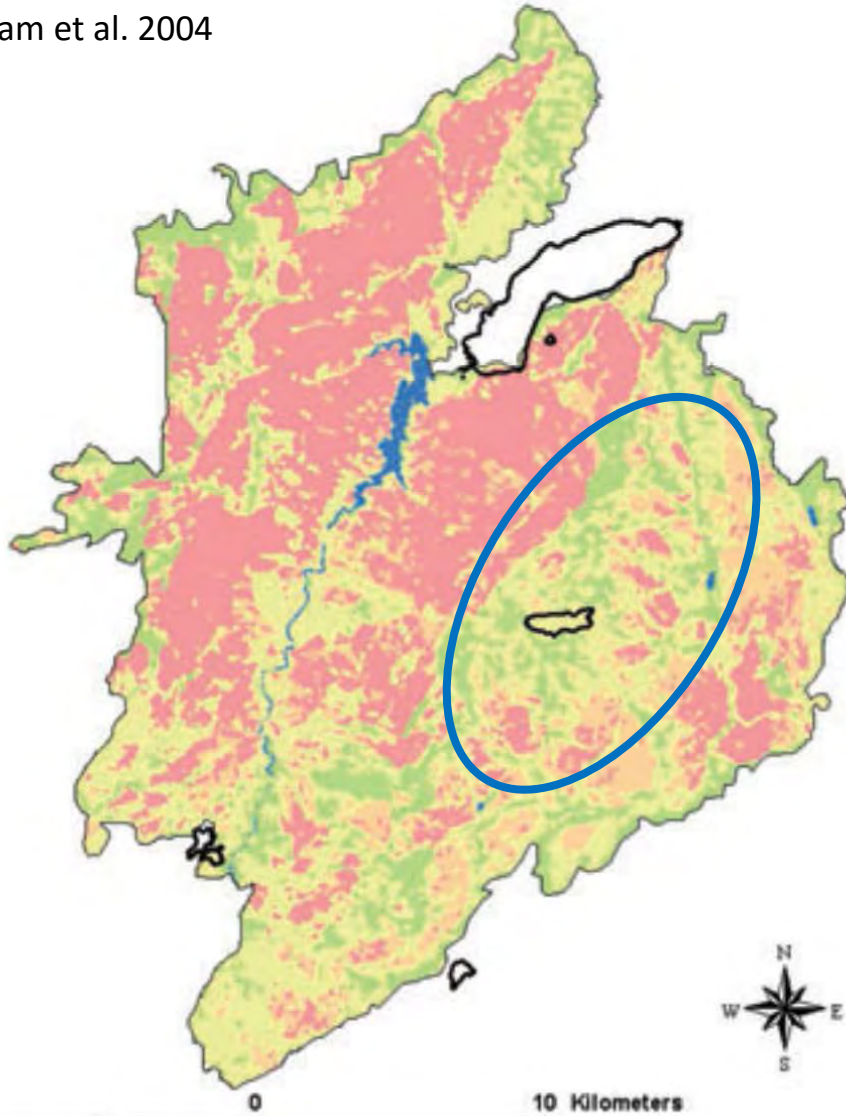
All fires are mixed severity fires

but what does that mean?

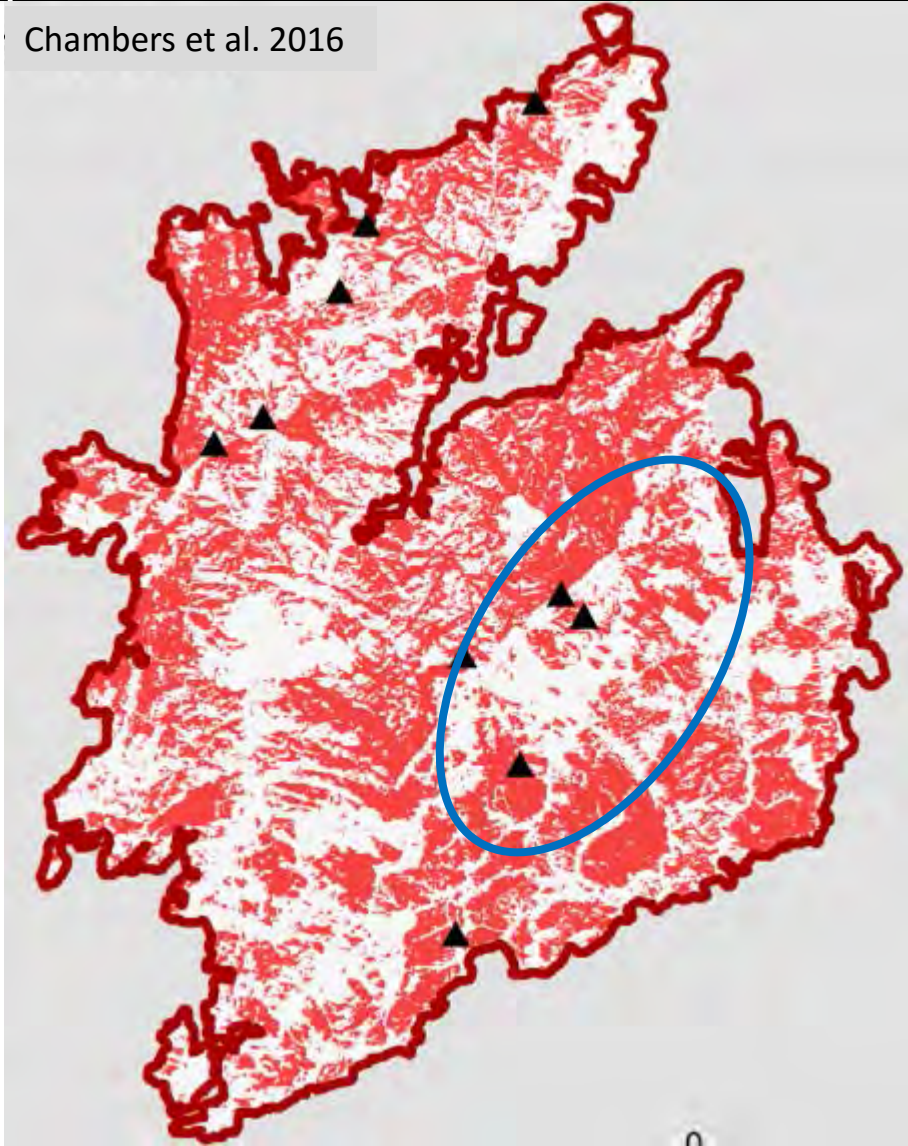


Assessing the meaning of mixed severity fires

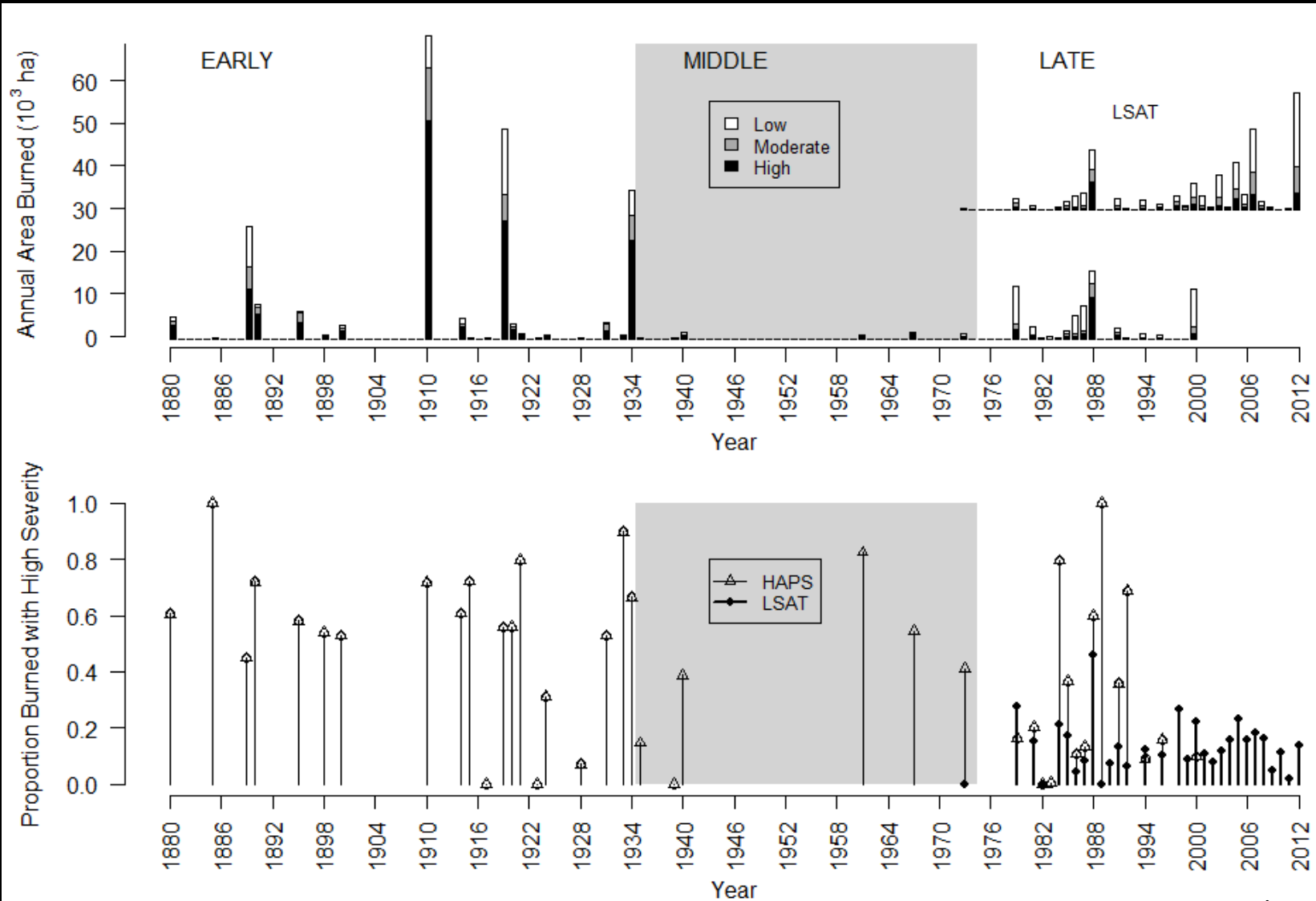
Graham et al. 2004



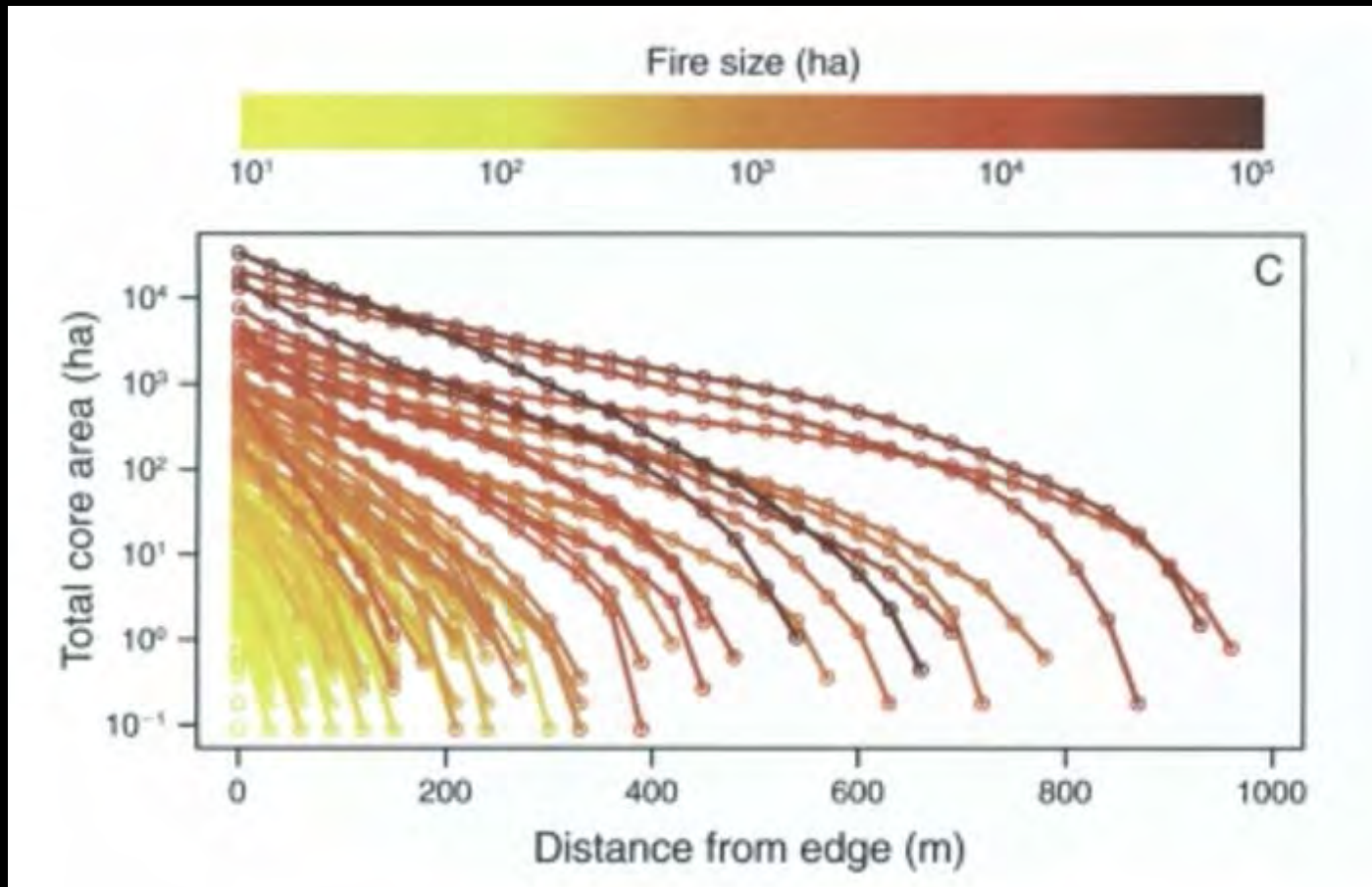
Chambers et al. 2016



Patch size (Northern Rockies)



Patch size (Pacific Northwest)



An aerial photograph of a mountain valley. The landscape is a mosaic of different forest types and colors, indicating varying stages of recovery from a fire. Dark green coniferous forests are interspersed with lighter green areas, possibly regenerating forests or grasslands. A prominent light-colored, sandy or rocky path or gully runs through the center of the valley. The mountains in the background are rugged and partially covered in forest, with some rocky outcrops visible. The sky is clear and blue.

How do forests recover from
mixed severity fires

Post-fire recovery (Rockies)

Seed Availability



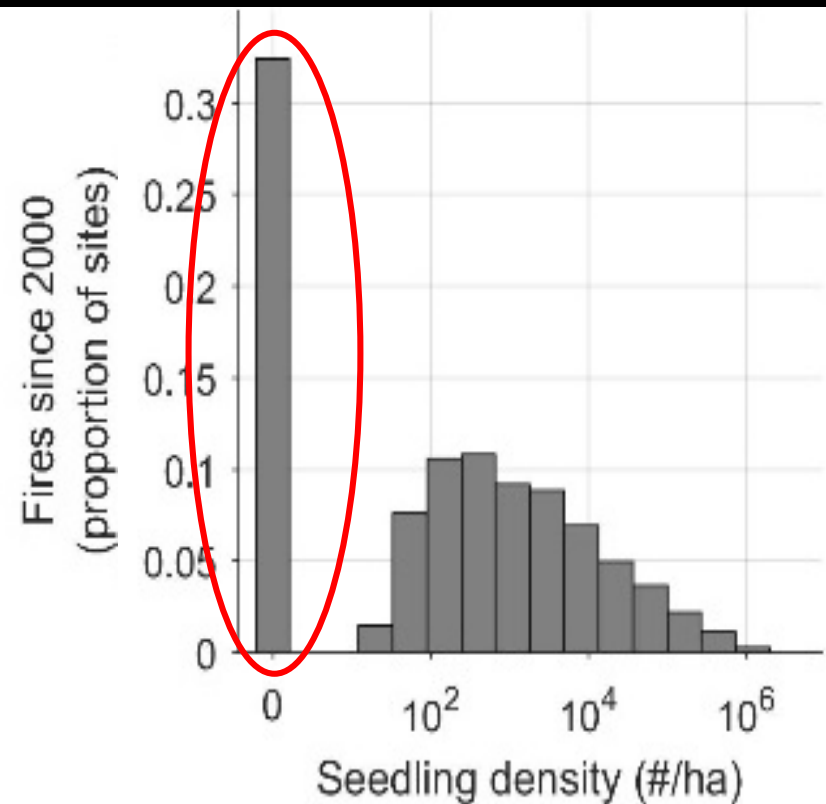
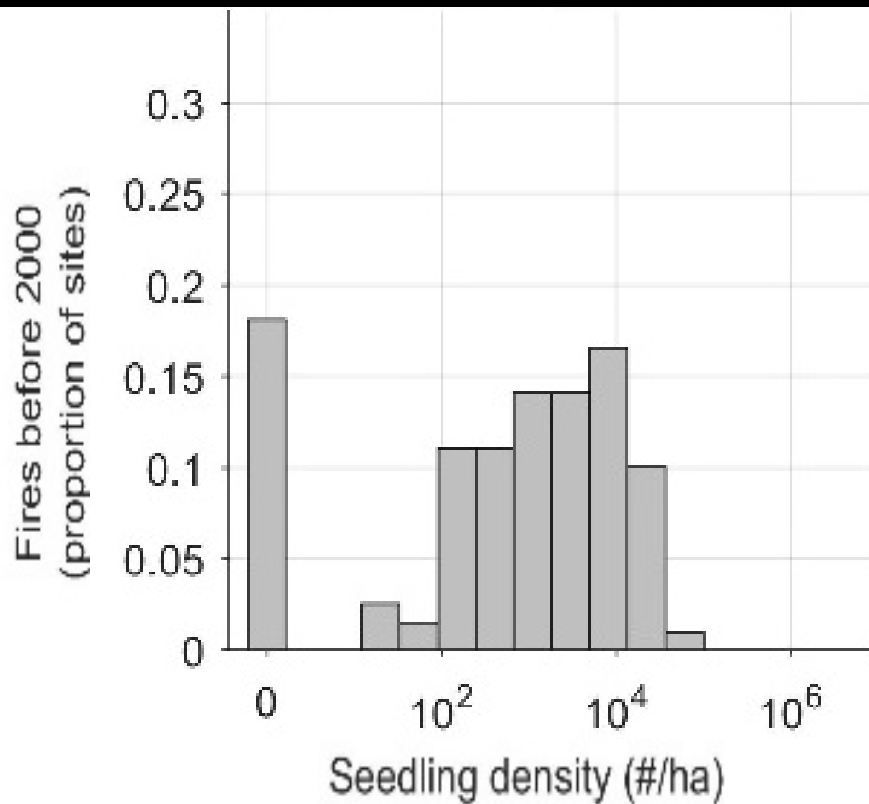
Average climate



Post-fire climate



When will these burned area be suitable again?



Post-fire recovery (Pacific Northwest)

- Only 8% of trees establishment within 20 years
- Limited regeneration \neq persistent shrublands.
- Continuous regeneration through many decades post-fire
- Past forest development appears resilient



Freund et al. 2014, Tepley et al. 2014



Repeated fires: improving or diminishing habitat?



(a)

1998



Creating resistant landscapes with fire

- Mosaic landscapes improve the ability to suppress fires and for fires to burn less severely
- Proportion of area burned severely
- Size of high severity patches
- All burned areas may not serve well as habitat
- Wildfire use may serve to promote conducive habitat and reduce risk of detrimental high severity fires

Questions?

