

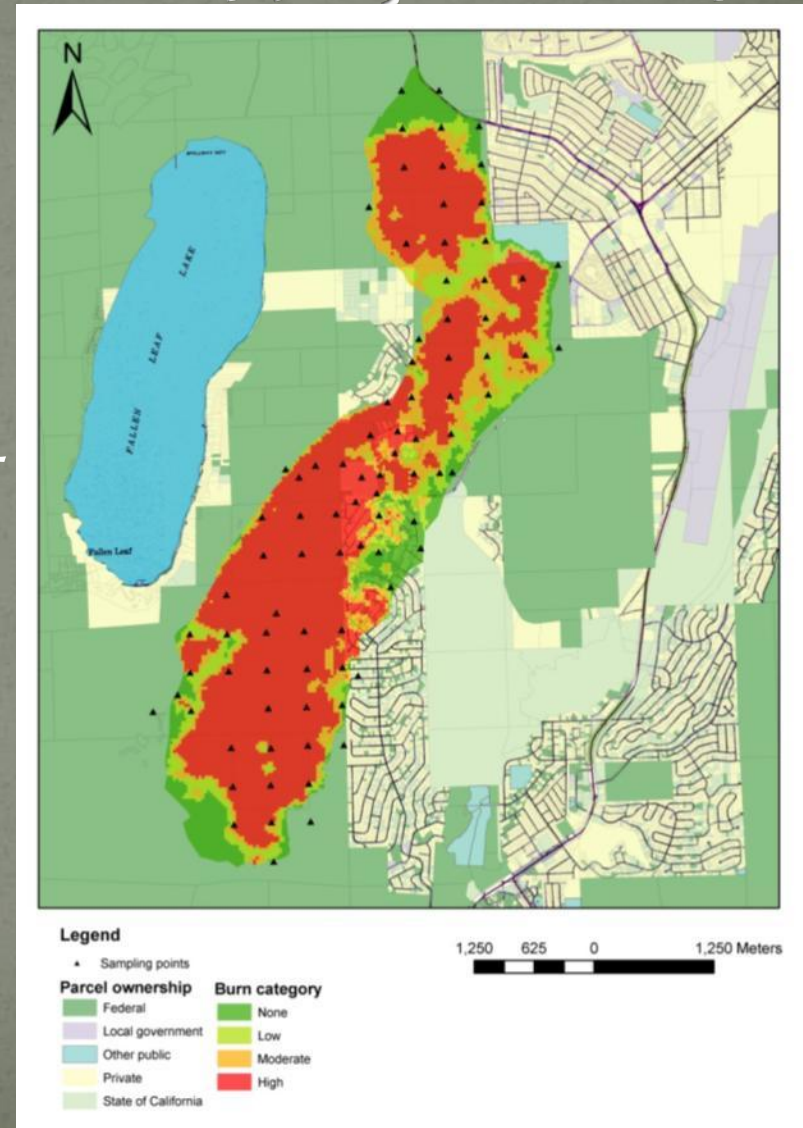
Biodiversity and composition of bird and small mammal communities after the Angora fire

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Angora Fire

June 24-July 10, 2007

- Burned 1,255 hectares
- Burn severity varied due to wind, slope, fuel load, and fire-fighting efforts
- On Wildland-Urban Interface
- Post-fire harvest largely limited to WUI



Fire is the dominant source of natural disturbance

- Modifies forest structure and composition
- Alters arthropod populations
- Creates snags and woody debris

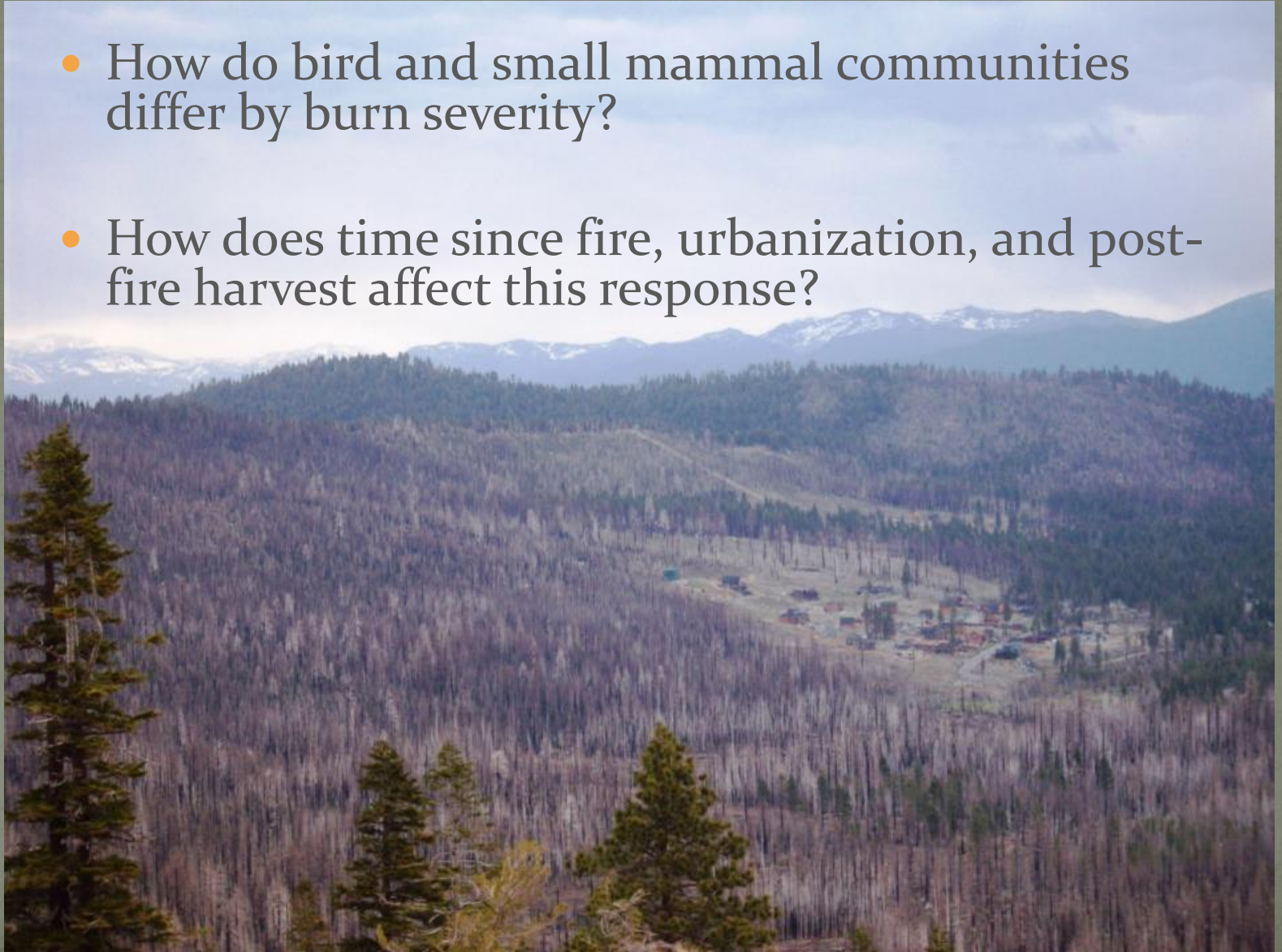


Photo credit: USDA Forest Service

- **Creates, alters, and destroys wildlife habitat**

Questions

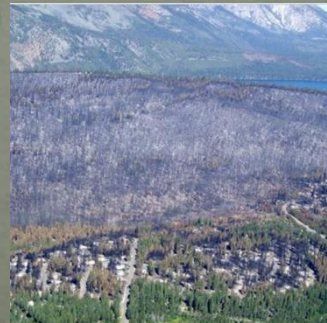
- How do bird and small mammal communities differ by burn severity?
- How does time since fire, urbanization, and post-fire harvest affect this response?



How do species richness and abundance of 36 avian and 11 mammalian species differ?

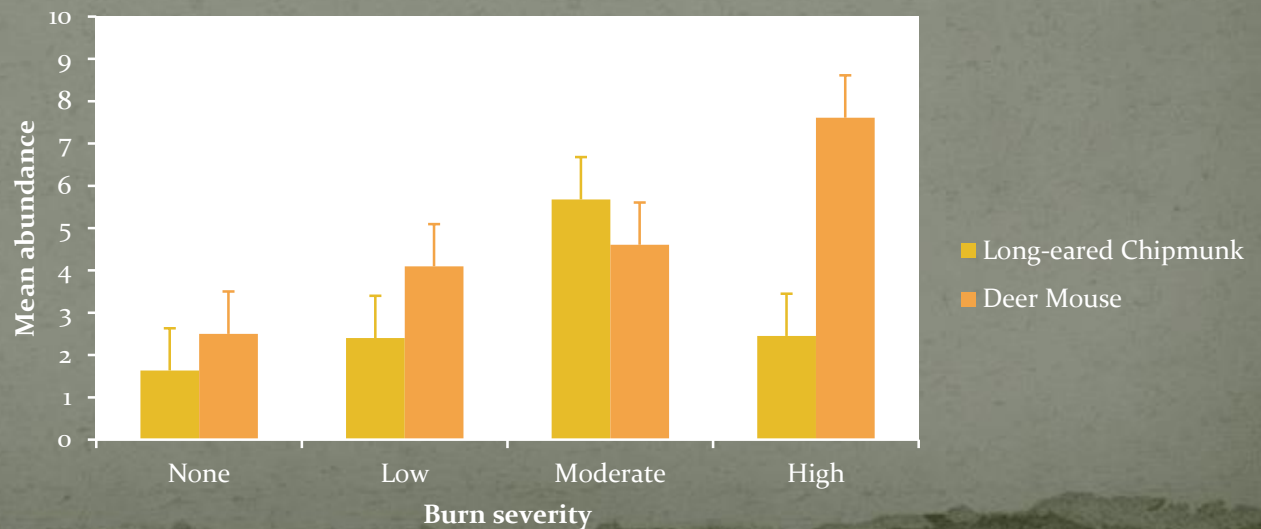
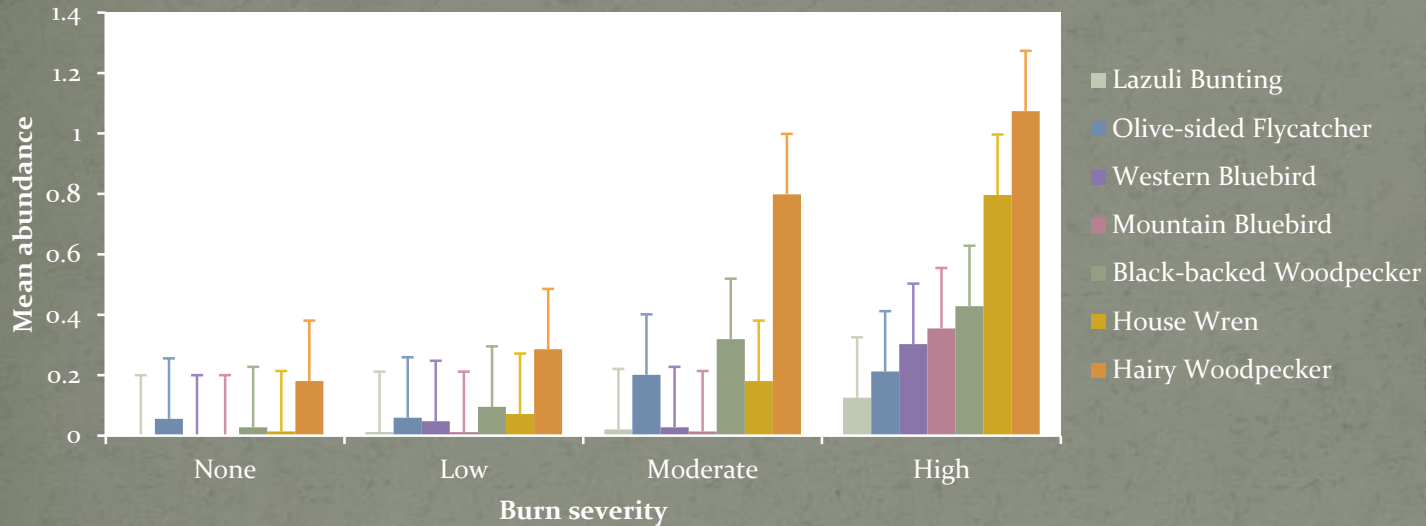


2008 2009 2010

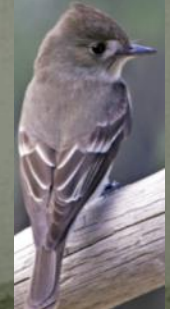
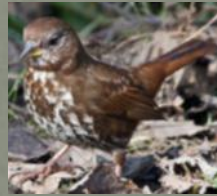




Species-level response: burn severity

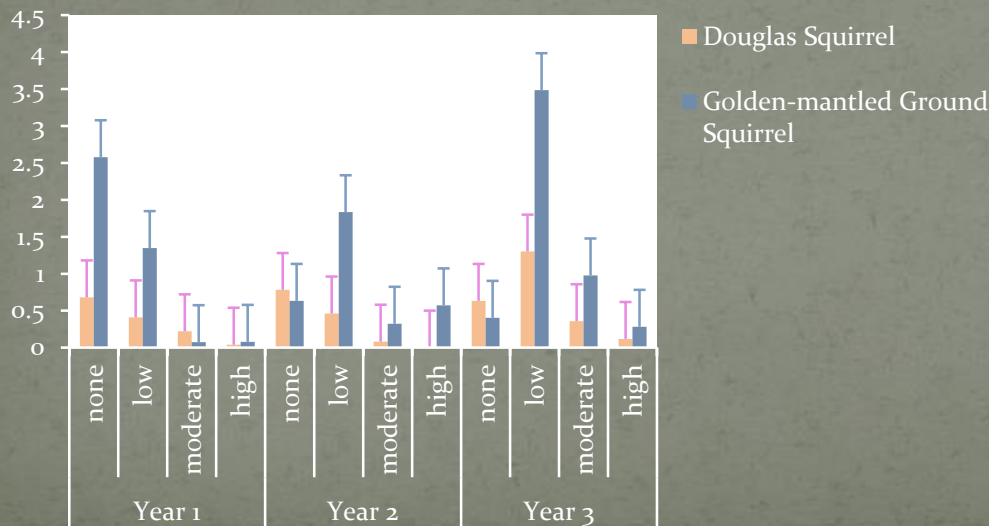


Species-level response: burn severity



Species-level response: time since fire

- Six species of birds and eight species of small mammals increased in abundance after first year
- Several species had highest abundance in second year
- No significant difference between burned and unburned by year three



Effects of post fire harvest



- Harvest was limited
- No species had lower abundance in treated sites
- Five bird and one small mammal species had higher abundance in treated sites
 - None were fire-specialists

Effects of development

- Several fire-adapted species had slower “recovery” in urban sites
- Four species “recovered” more quickly in urban areas



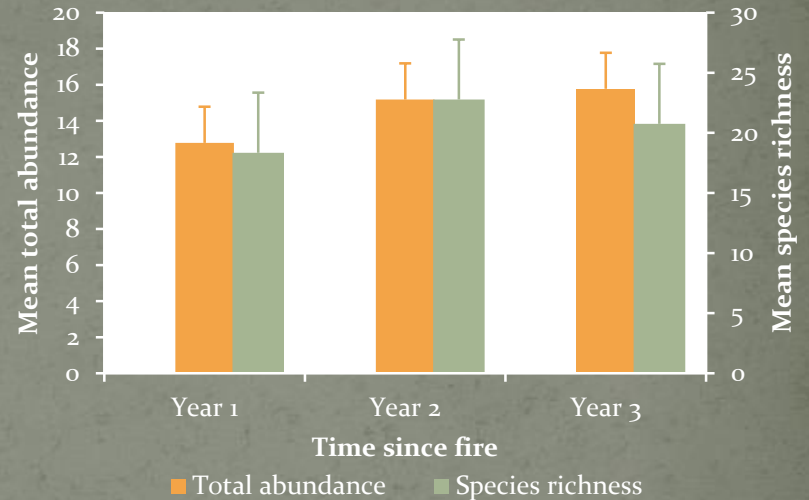
Conclusions- species level

- Majority of birds and small mammals responded positively or neutrally to increasing burn severity
- Fire specialists did not exhibit a decreasing year effect
- Most species increased over time
- Species that rely on live trees for foraging or nesting sites likely to decline with increasing burn severity

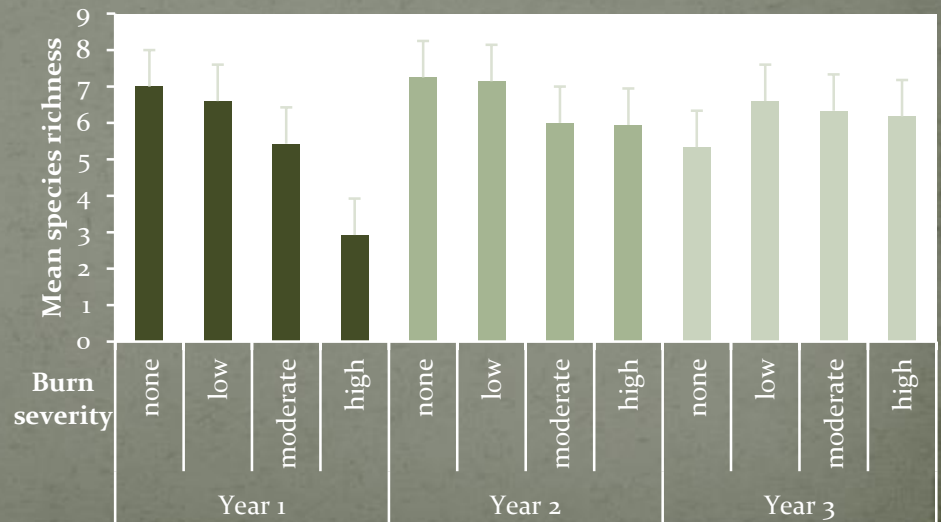
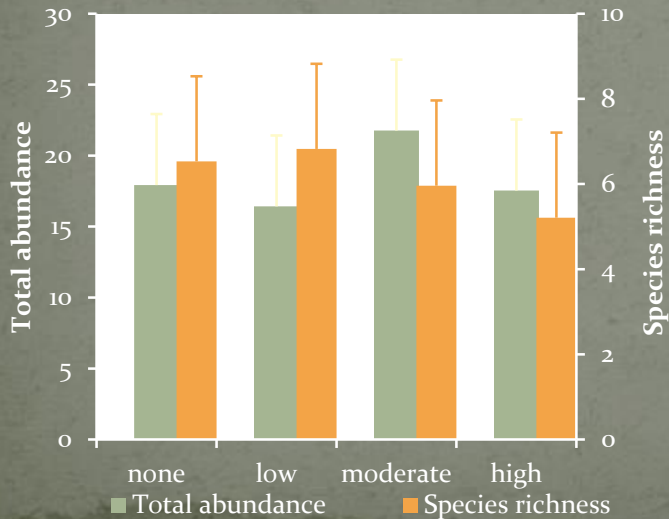


Community-level response

Birds



Small mammals



Conclusions: community level

- Species richness of birds was highest in sites that burned at high severity
- Species richness of small mammals was highest in low burned sites
- Richness of small mammals equal in year three for high and unburned



Conclusions



- Harvest in urban areas may have less of an impact on fire-dependent species
- Burned urban and wildland sites do not support similar communities
- Severely burned sites provide habitat for many species
- Burned areas support a wide variety of birds and small mammals especially at larger time and spatial scales

Acknowledgements

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- University of Montana

Photo credits: Naturepicsonline

Field surveys

