

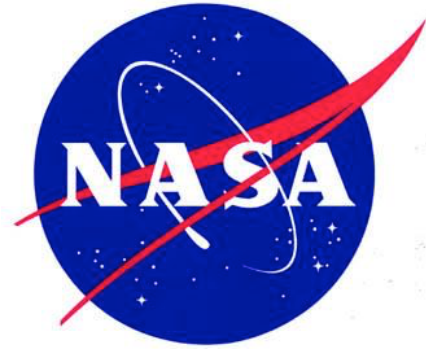
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*Did quaking aspen (*Populus tremuloides*)  
recover following the 2010 Schultz Fire, AZ?*

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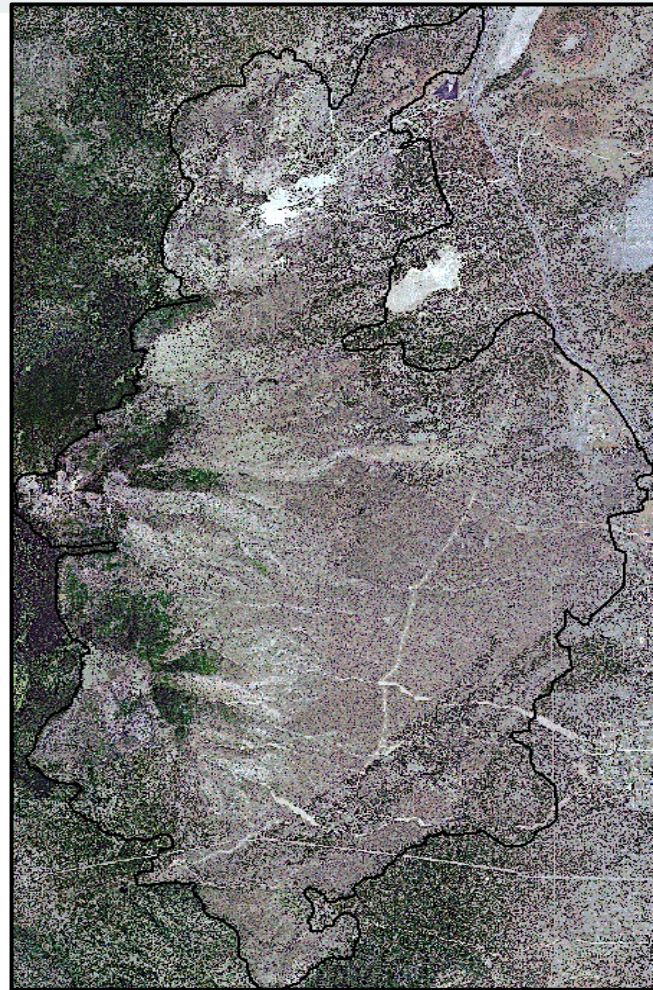
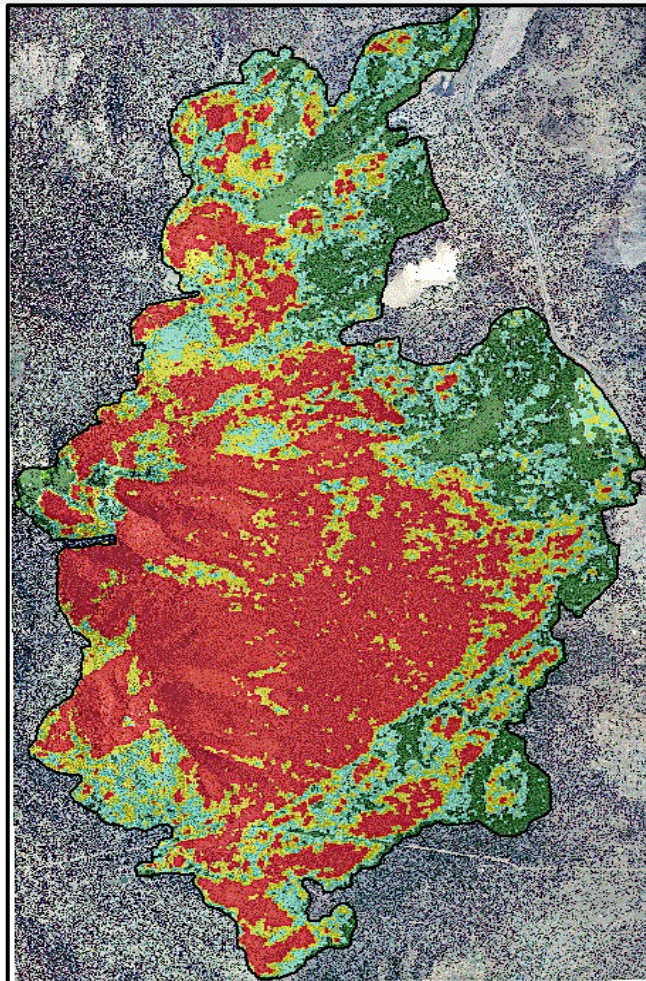




# Background

- Schultz fire, 2010
  - Catastrophic high severity wildfire, burned over 13,000 acres
  - High mortality, massive flooding events
- *Populus tremuloides*
  - Fire resilient species
  - Adapted to sprout from roots after fire
  - Sudden Aspen Decline (SAD)
- Remote sensing
  - Obtaining information from satellite or aerial data









## Project Goals

- To remotely sense post-fire aspen regeneration, within the Schultz burn scar
- To analyze differential effects of burn severity on aspen regeneration
- To gather data relevant to ongoing change in climate and fire regime
- To create a tool for remote sensing of aspen



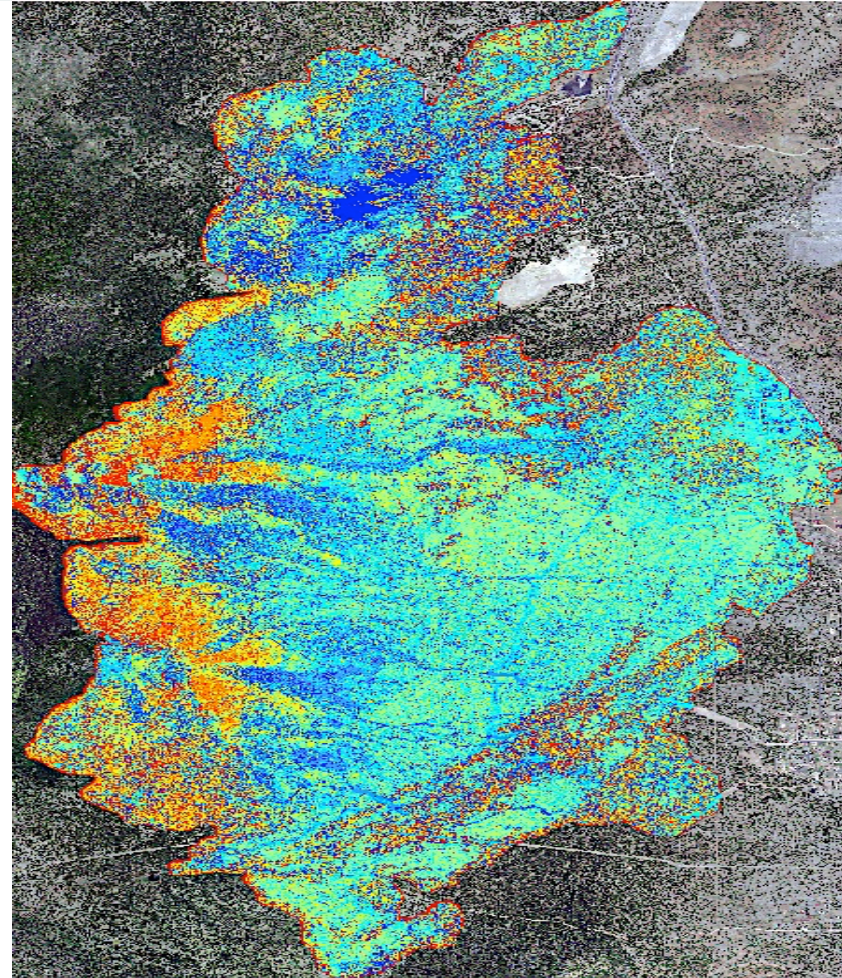


# Hypotheses

1. That aspen will resprout after the Schultz fire, but cover a much smaller area than before
2. That aspen will show higher regeneration densities in low-moderate than in high severity burned areas

# Lab Methods

- Remote Sensing:
  - Normalized Vegetation Index (NDVI)
    - 4-band imagery  
RGB+Near-Infrared
  - Unsupervised Classification
    - ISO Cluster
  - Texture analysis
    - 7x7 pixel crown radius





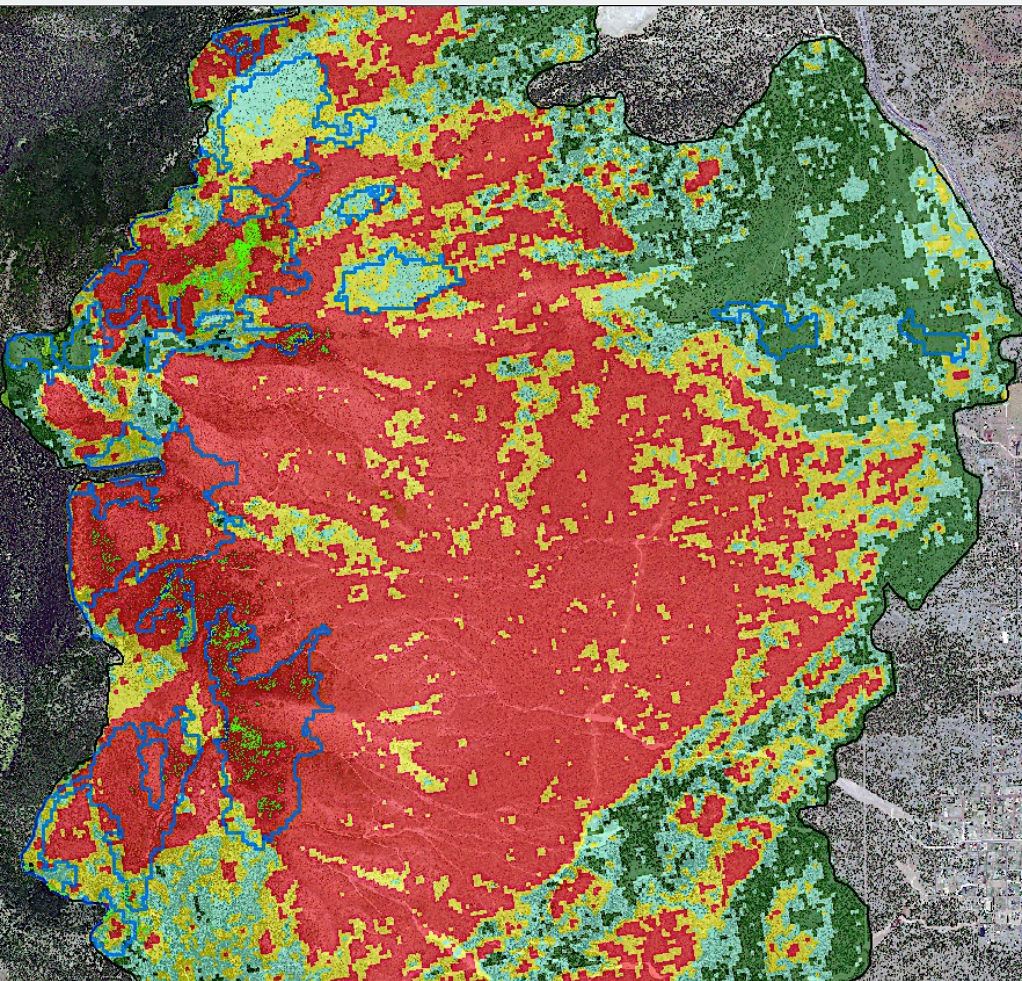
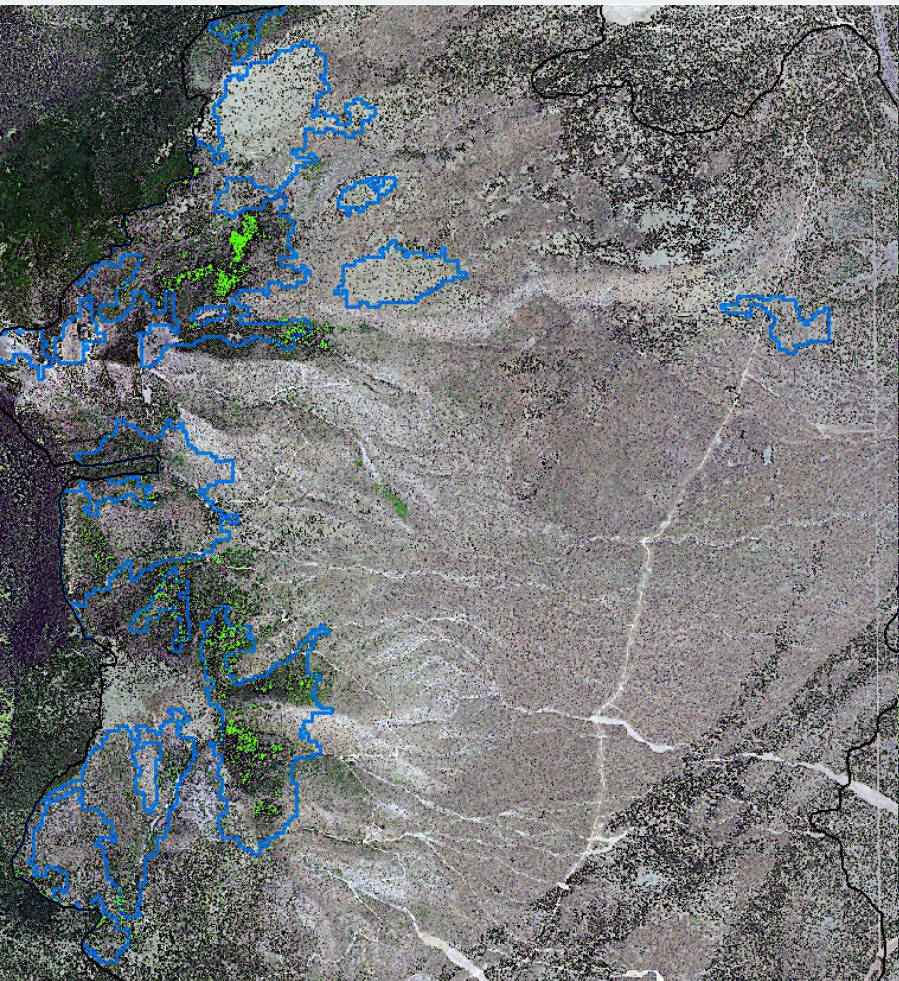
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## Field Methods

- Field Verification
  - 50 points
- Browsing and Damage
- Density:
  - n-Tree method
  - 10 plots



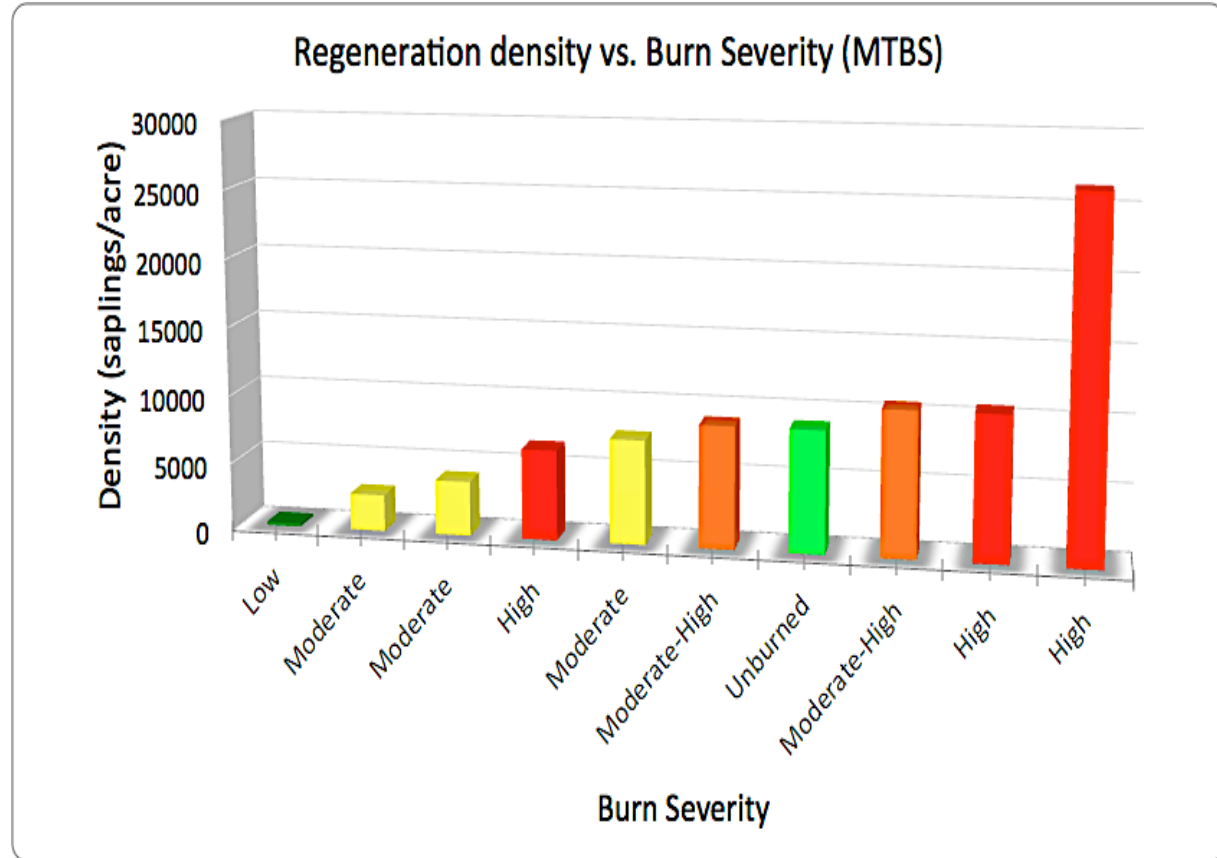






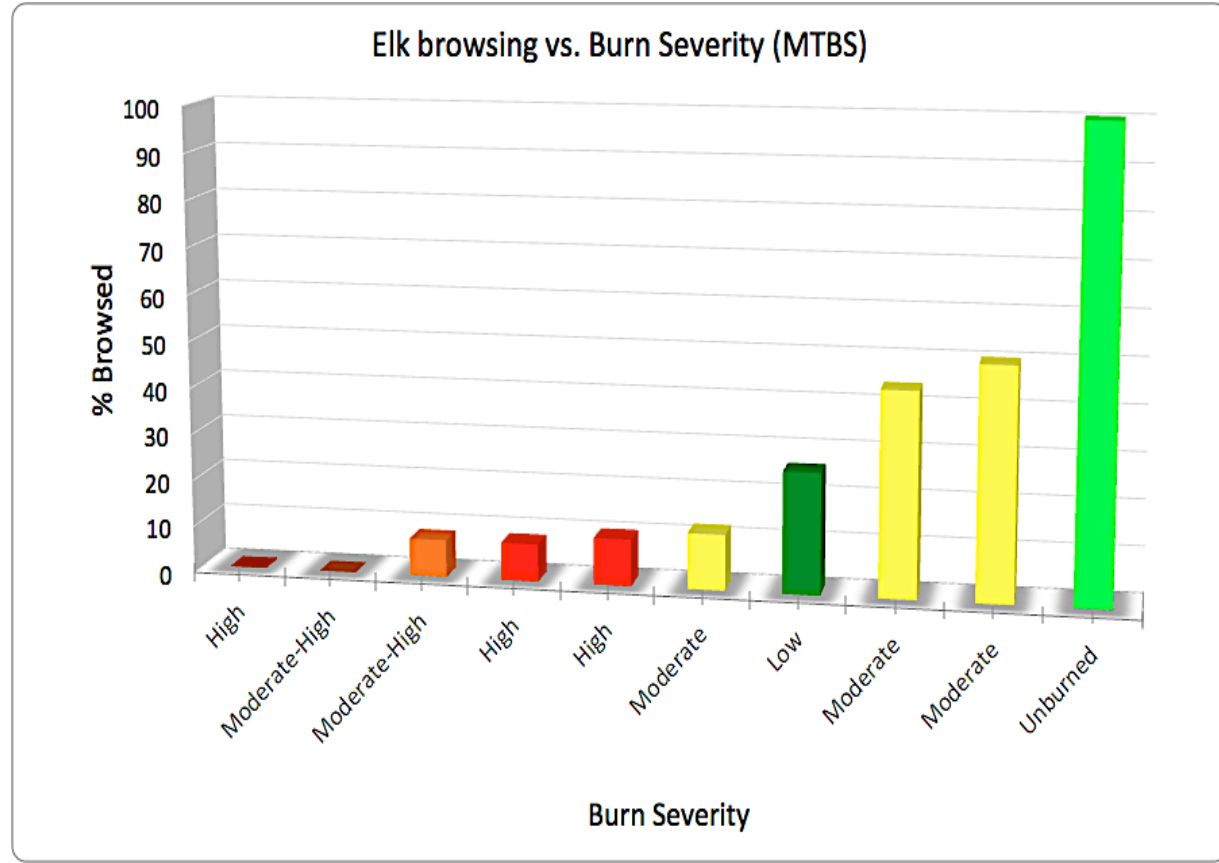
# Density

- Regeneration density shows positive correlation with burn severity
- Contrary to our hypothesis
- But, correlation does not imply causation...



# Elk browsing

- Mild browsing impact in high severity
- High browsing impact in unburned to moderate severity
- Ease of access for ungulates







## Conclusions

- Aspen **IS** regenerating following the Schultz fire
- Regeneration is denser in high severity burned areas than low-moderate
- Remotely sensed aspen regeneration covers roughly 130 acres; as compared to near 2,000 acres reported in 2004
- Overbrowsing by ungulates heavily affects aspen suckers
- Ongoing investigation to remotely sense 2010 pre-fire aspen



## Acknowledgements

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**Thank you!**  
**Any questions?**