Conifer Seedling Mapping using Drone Data

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❖Background:

- ❖ Post-disturbance regeneration in coniferous forests requires spatial distribution of seedlings.
- ❖ We evaluated the capability of high resolution low cost drone images to locate and assess the structure of conifer seedlings in the post burned scars.

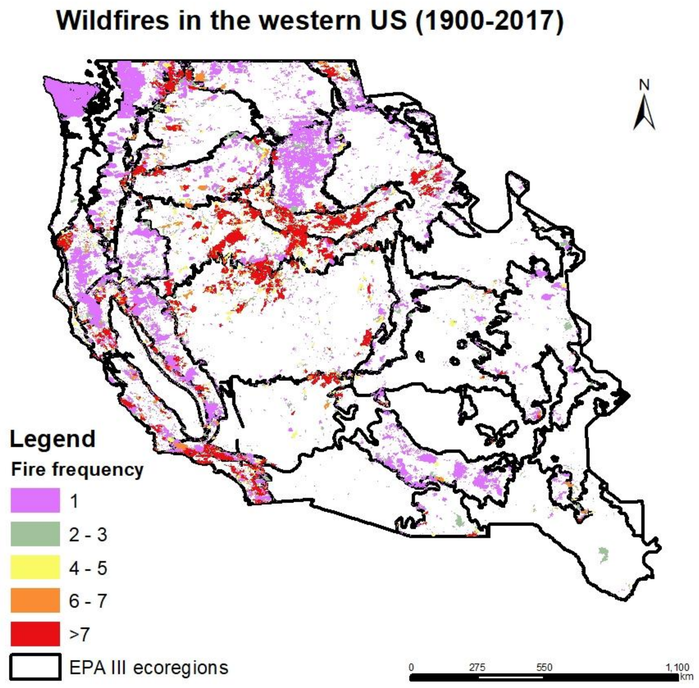

Figure 1: Wildfires in the west during 1900-2017 with frequency of reburns across EPA level III ecoregions.

Figure 2: Snapshot from Hayman fire (2002) landscape taken in 2022

❖Methods:

Figure 3: Phantom 4 pro drone image collection from burned sites

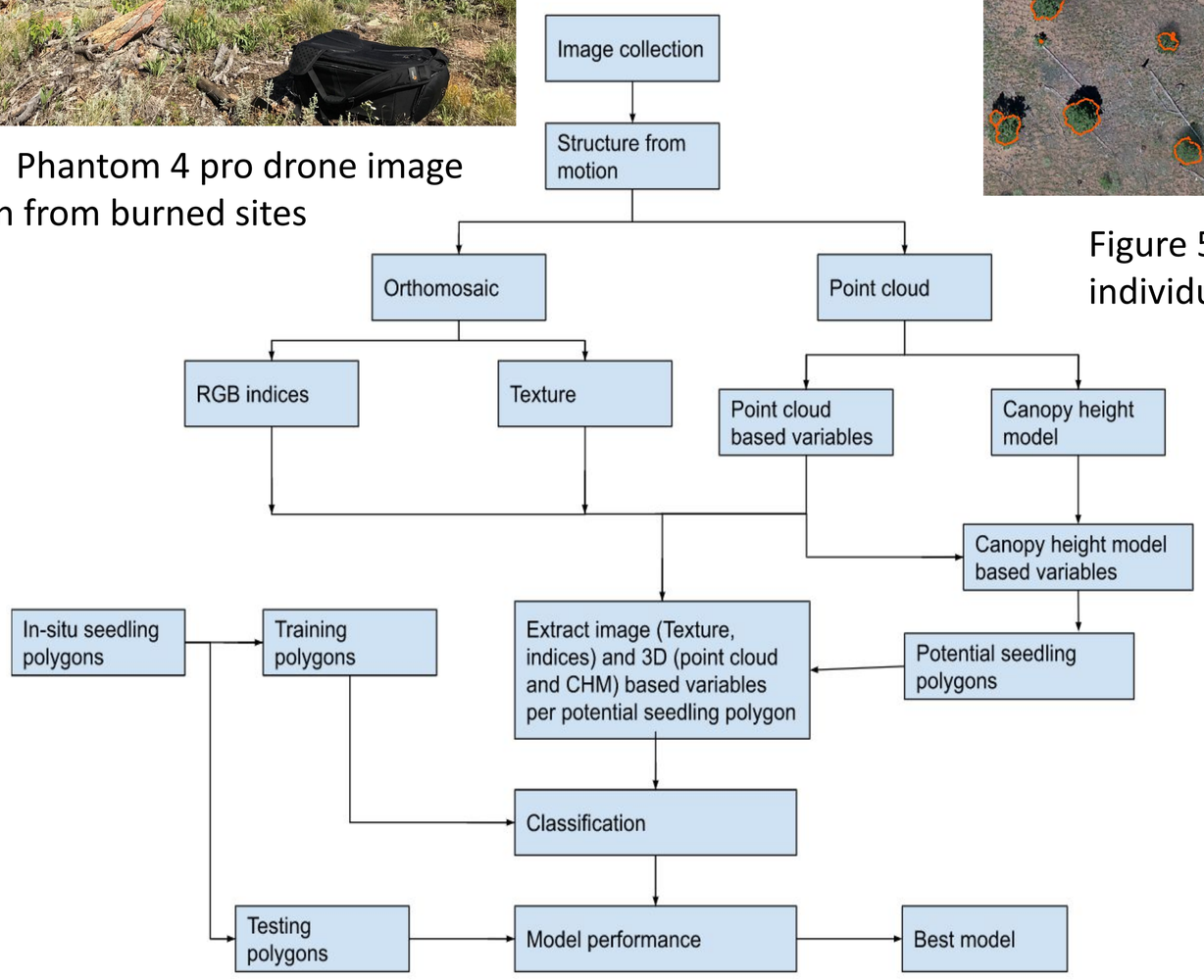

Figure 4: Methods to drive postfire recovery seedling presence and structural metrics from high-resolution drone data.

Figure 5: Delineation of individual seedlings

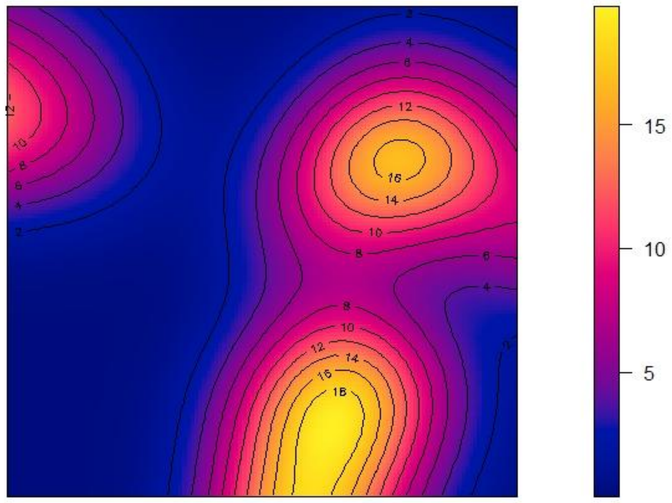

Figure 6: Spatial density of seedling distribution

❖Results and Conclusions

High resolution drone images can isolate individual conifer seedlings as small as 0.5 m diameter from similar sized shrubs as well as from other vegetation (grass, trees) and non vegetation (ground, rocks, and dead trees) classes allowing us to;

1. **Prioritize sites for management intervention**
2. **Model postfire recovery and ecosystem transformations**
3. **Evaluate microsite impacts on regeneration**