Target Journal: Forest Ecology and Management

Working Title: Understory plant community is taxonomically and functionally distinct five years after high severity fire.

Abstract (250 Word Max)

Keywords (1-7 words)

Introduction

1. High severity fires are increasingly common across forests of the western US.
   1. Dry western forests evolved to frequent, low-severity
   2. Century of mismanagement and climate lead to over-stocked forests and higher severity fires
   3. Recent research ([Coop](https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/eap.2725), Guiterman, Falk) suggests that unusually severe fire may cause alternative successional trajectories in forested ecosystems.
   4. We examine functional and taxonomic response of the understory plant community across a fire severity gradient to understand the consequences of differing fire severity on understory recovery
2. High Severity fires are becoming more common; consequence for understory
   1. Evidence of higher severity fire across west
   2. Consequences of higher severity for biodiversity
      1. Loss of sensitive species
      2. Favoring thermophilic species
      3. Diversity maximized in historic-matching fire regimes
3. Fire effects act in a trait-based way
   1. Fire as a trait filter
      1. fire effects differ across severities, selecting for different traits
         1. Resprouting, dispersal, ruderality
      2. May shape ecosystem type conversion
         1. Community assembly mechanism: facilitation or inhabitation
         2. Combined with lack of recruitment
      3. Specific trait-strategies explained
         1. Fast economics traits (ruderality)
         2. Dispersal (wind dispersal favorability)
         3. Resprouting, especially woody resprouting
            1. Increased soil heating at higher severity is going to torch the shit out of shallow or smaller roots.
4. We leverage community and trait-based data collected five years following a mixed-severity fire in a ponderosa pine ecosystem to ask
   1. Does taxonomic community composition differ across the severity gradient
      1. Predict: yes
   2. Does functional composition differ across the severity gradient
      1. Predict: yes
   3. Do differences in communities across the gradient differ in dispersal, growth, or regeneration traits?
      1. Predict yes, favoring wind dispersal/smaller seed mass, higher SLA and height (fast economics) and woody resprouters.

Methods

Results

Discussion