

ECO BUDDIES

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Scenario: White Pine Blister Rust

Q1: Key System Components

Ecological impacts:

- Decrease in native white pine population
- Other species losing habitat due to decrease in forest dynamics
- Loss of white pines could give opportunities to new invasive species
- Habitat fragmentation
- Sun exposure increased due to loss of tree canopy
- Gooseberry habitat and population increases, which then increases rust prevalence
- Trophic cascade impacts
- Increased risk of wildfires due to dead trees

Economic impacts:

- Loss of timber harvest
- Loss of eco tourism
- Increased hazard trees
- Management costs of hazard tree elimination, water erosion would increase

Aesthetic Impacts:

- Loss of forest aesthetic due to white pine loss
- Potential erosion could cause decreased aesthetic value
- Loss of a certain age of tree could change appearance of forest

Questions that guided us:

- How does the loss of white pine affect the trophic cascade
- How would tourism/recreational visitors be affected by loss of white pines?

Q 2. Building the Model–Which Items in 16 Reasons Helped Guide Us:

- Discovering new questions
- Illuminate core dynamic
- Educate general public
- Reveal the apparently simple (complex) to be complex (simple)
- Discipline the policy dialogue

Group Contributions:

Elizabeth Clark: Potential sources of data: % of white pines infected with rust over a ten year period, % of YOY white pines infected with rust, mortality of YOY and adult white pines over a ten year period, gooseberry bush prevalence over 10 years, trophic cascade effects, increased risk of wildfires, management costs of tree elimination and water erosion.

Lina Clifford: hazard tree effects of rust invasion, increased management costs, educating the public on invasive species ecology with model, increased opportunities for other invasive species to occupy new gap

Laura Haynes: impacts on recreational tourism & ecology, potential data for model building

Jessica Martinez: ecological impacts, potential data for model building, guiding questions

Adrienne Dunk: model structure; resulting questions to drive next model interaction; potential data sources

Model v. 1

Rust introduction → increased white pine loss → increased hazard trees
→ increased forest/trail management costs → change # → alter economic health of region
→ decreased aesthetic value of recreators

Potential sources of data: % of white pines infected with rust over a ten year period, % of YOY white pines infected with rust, mortality of YOY and adult white pines over a ten year period, gooseberry bush prevalence over 10 years, eco tourism traffic over a ten year period, number of hazard trees over 10 years, number of wildfires over 10 years.
Economic data (to assess recreational tourism in/around forests)--number of hotels in area, number of restaurants in area, number of tourists per year or visitors to town per year
Population of red and eastern white pines, gooseberry species, animals over time
Silvoculture demand
Surrounding forests/recreational parks

Resulting questions (#5) from model:

- How do the number of recreators change
- How have the economic outcomes of towns varied compared to areas of white pine loss
- What other factors drive recreation in region
- How does gooseberry production influence economics/tourism