

# **Changes in Management Perception: Responses to the Mountain Pine Beetle Outbreak**

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# Study Background

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- Long-term research on risk perception is largely lacking
  - Longitudinal understandings of insect-related risk perceptions poorly understood
- Need for more research into human dimensions of insect outbreaks
- How do these perceptions and environmental changes coincide with management preference or acceptance, if at all?



# Study Background

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- Builds upon 2006-2007 research conducted in the region
    - 165 key informant interviews
    - Mail surveys to 4100 households (39% response rate)
    - Secondary biophysical and socioeconomic data analysis
  - Key findings
    - Trust in management and industry
    - Forest risk concerns
    - Community context matters

## Study Communities

Breckenridge

Dillon

Frisco

Granby

Kremmling

Silverthorne

Steamboat Springs

Vail

Walden

# Study Context

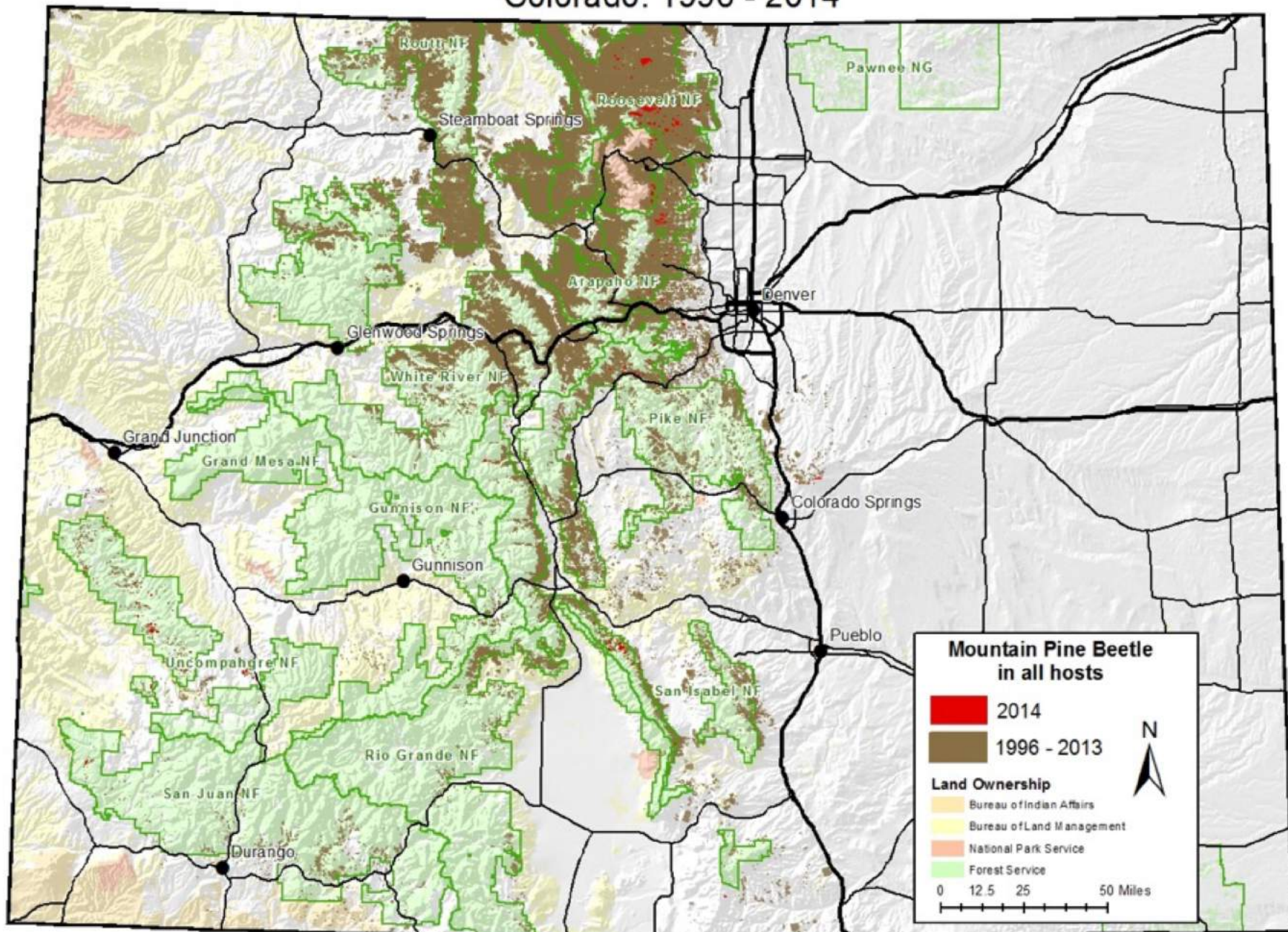
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- Mountain Pine Beetles (MPB), or *Dendroctonus ponderosae*, are native to Colorado, but a number of factors allowed species to flourish, including:
  - warmer winters and
  - dense, single species forests
- The MPB outbreak has affected ~3.4 million acres in Colorado since 1996
- Since 2011, rates of infestation have decreased substantially



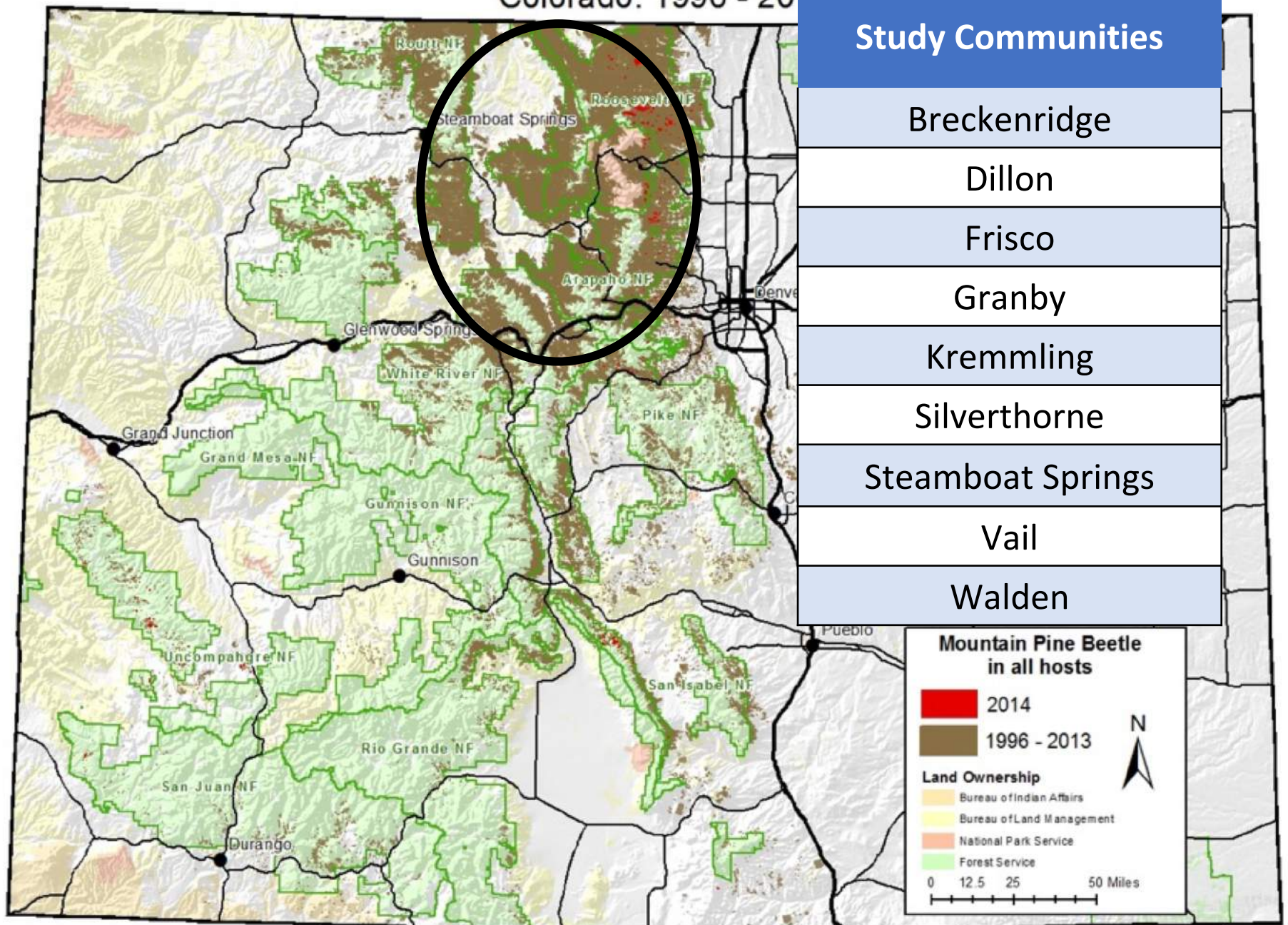
# Mountain Pine Beetle Activity in All Hosts

## Colorado: 1996 - 2014



# Mountain Pine Beetle Activity in All Hosts

Colorado: 1996 - 20



# Research Objectives

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1. Explore the dynamic relationship between risk perception and action in response to the MPB outbreak
2. Better comprehend how individuals and communities respond to changing understandings of the risks they face
3. Understand change over time as it relates to their experiences with hazards, perceptions of the risks they face, and what people are/n't doing in response to the beetle outbreak
4. Assess if there are key factors that influence how residents and local leaders understand changing forest conditions



## Data Collection Methods

- Mail surveys to >4,000 households, including the original 2007 respondents
- Media analysis of five local and regional newspapers between 2006-present pertaining to MPB
- Secondary socioeconomic and biophysical data analysis
- 4-5 Community forums throughout north-central Colorado throughout late 2018 and 2019
- 54 key informant interviews with city/county officials, forest managers, fire fighters, members of local groups/organizations, and residents

# Findings

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- Increasing convergence in acceptance and/or support of proactive forest management as a result of the MPB outbreak – a social license for management
- Importance of community context in understanding relationships between residents and forest managers as well as management practices
- Notable management constraints that prevent proactive forest management



# Social License for Forest Management

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- Calls for mitigation since outbreak
  - Increased following major fires
- Decrease in social barriers for management
  - Although community concerns exist
  - Visual aspects/aesthetics



*"I would say that there's more of an acceptance of forest management now than there has been. **I would say the beetle kill has given the social license to once again actively manage the forest.** When I first started in forestry, I came in really at the peak of the pine beetle. I was working with a lot of foresters that had worked in the area since the '80s. They basically had not been able to get anything done forest management-wise really until the beetles came. Then all of a sudden it was like, "You need to get this done yesterday." **There was a pretty heavy swing with the beetle that now we need to do something about this.** That was the social license."*

**—Informant, Vail**

# Community Context Matters

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- Relationships between residents, industry and forest managers
  - Perceptions of industry and land managers
  - Historical acceptance of/opposition to management and industry
  - Perceptions of residents' voices being valued and included in management decisions



*“But I do think that they do a good job of listening to everyone’s concerns and weighing their options and figuring out what is gonna be best. And in my mind that’s all you can ask for.”*

**–Informant, Frisco**

*“We feel that they have public hearings because the law requires them to have public hearings. But it has no impact or influence on decisions at all.”*

**–Informant, Walden**

# Management Constraints

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- General acknowledgement of USFS constraints in managing forests
  - Resource constraints
  - Bureaucratic hurdles
  - Balancing concerns within and among communities
  - Educating and re-educating



***“There's only so much you can do if there's not money there. You look at some of the national ... I mean, you look at all the forest fires this year and how many billions of dollars are being spent on fighting forest fires, it leaves very little money for prevention. But it's kind of that two-fold, like you can start trying to focus more on prevention and let more fires burn or you're trying to protect houses and spend all the money and leave very little to try and start defending and that kind of thing, or protecting neighborhoods. I don't think there will ever be a time where the two catch up.”***

**–Informant, Summit County**

# Overview

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- Once contentious management options have become less polarizing within north-central Colorado communities, although resident concerns exist
- Community context matters in understanding residents' feelings about forest managers and management
- Reported recognition of federal management constraints, though unclear how prevalent this is



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- Community members and stakeholders

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