Plumas-Lassen Administrative Study
Small Mammal Module

Project Leader

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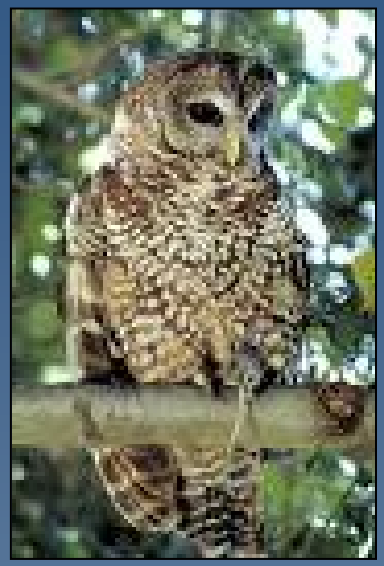
Module Objectives

- Evaluate management effects on small mammals
  - Trends in abundance
  - Develop and test predictive models
  - Habitat associations and spatial organization



Outline

- Module objectives
- Methods and results
  - Long-term grids
  - Landscape transects
  - Biology of focal species
    - Dusky-footed woodrat
    - Northern flying squirrel

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  - Focal species biology
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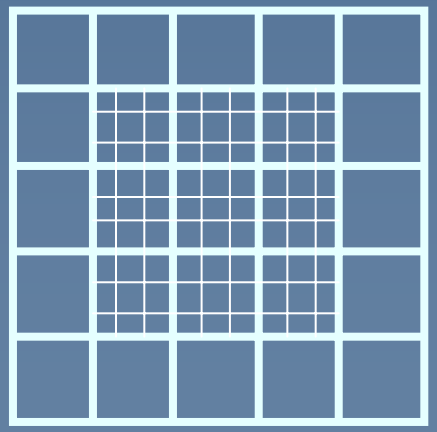
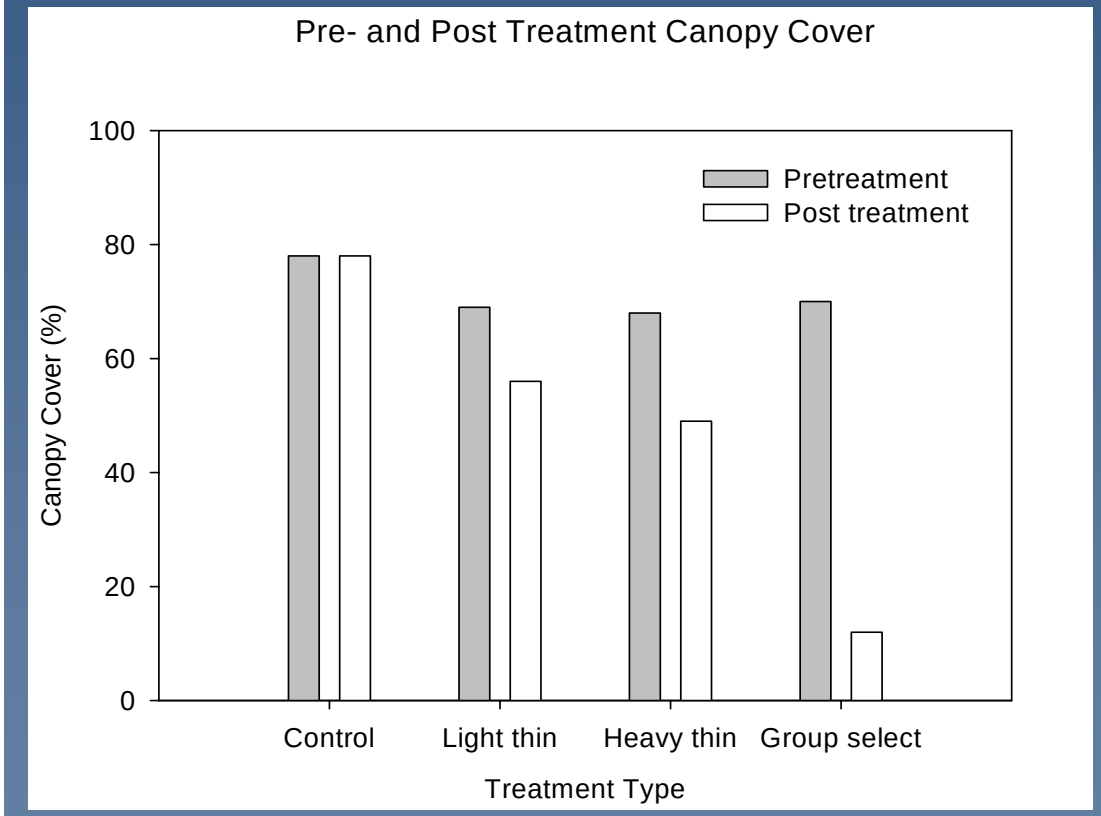
Methods: Long-term Grids

- Trapping array
  - 100 Sherman traps, 10-m spacing
  - 72 Tomahawk traps, 30-m spacing
  - 2.25 ha
- 4 nights
- Sampled biannually



Methods: Long-term Grids



- 21 grids in 5 habitat types
  - Mixed-conifer
  - Mixed-fir
  - White fir
  - Pine-cedar
  - Red fir
- 12 placed in experimental plots
  - 3 control
  - 3 light thin
  - 3 heavy thin
  - 3 group select

Results: Long-term Grids

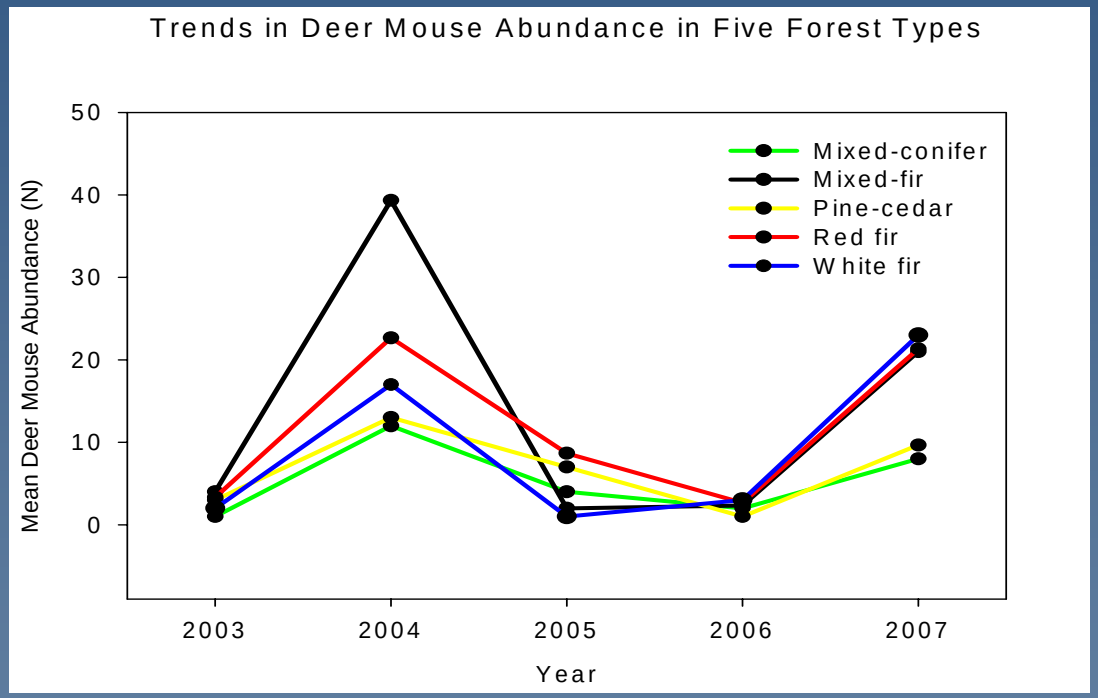
- 2007 marked 5th year of data collection, 1st year of post-treatment data

- In 2007, captured 732 individuals of 10 species
  - Deer mice and chipmunks most common

Results: Trends in Deer Mouse Abundance

Deer Mouse
Peromyscus maniculatus

Brush Mouse
Peromyscus boylii



- Forest type & year explained 93% of variation
- Microhabitat & year explained 69% of variation

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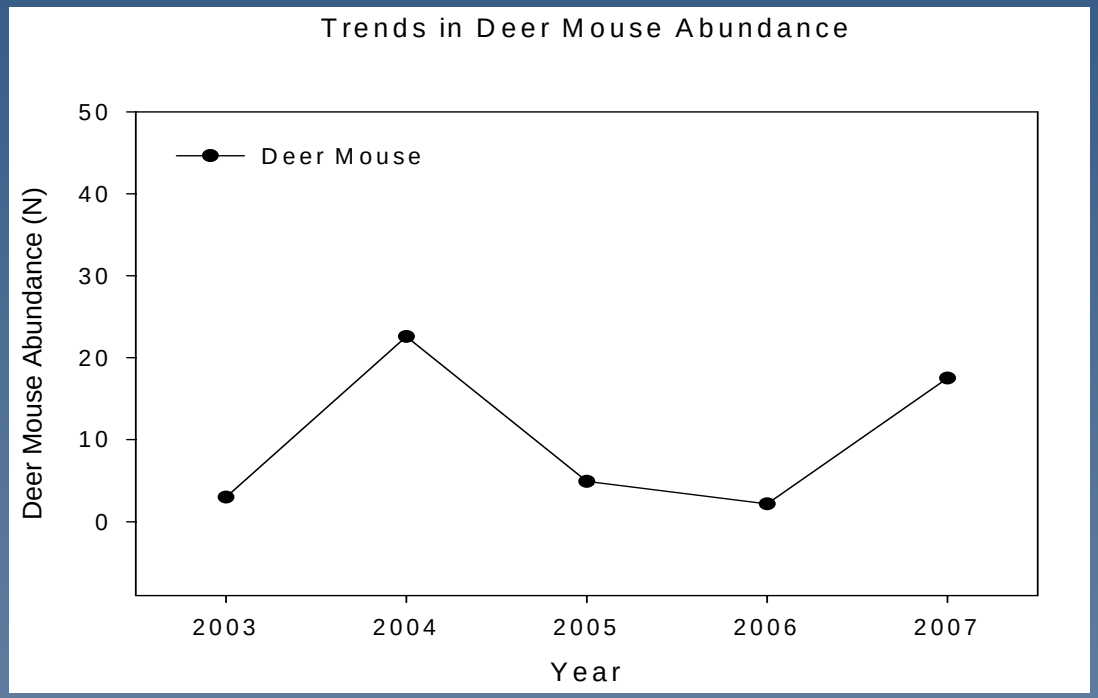

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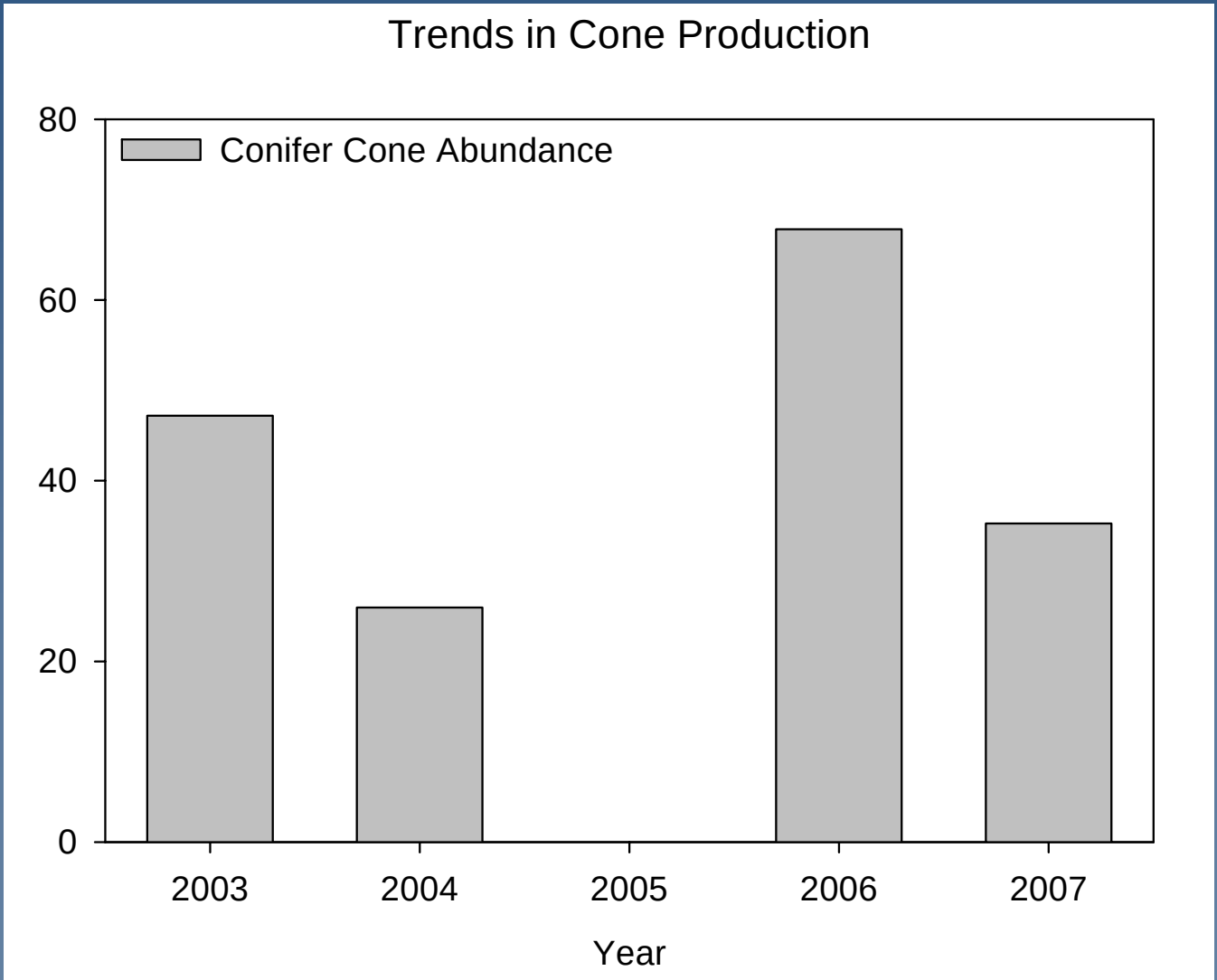
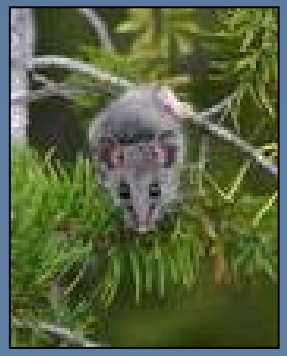
Results: Fall Conifer Cone Production





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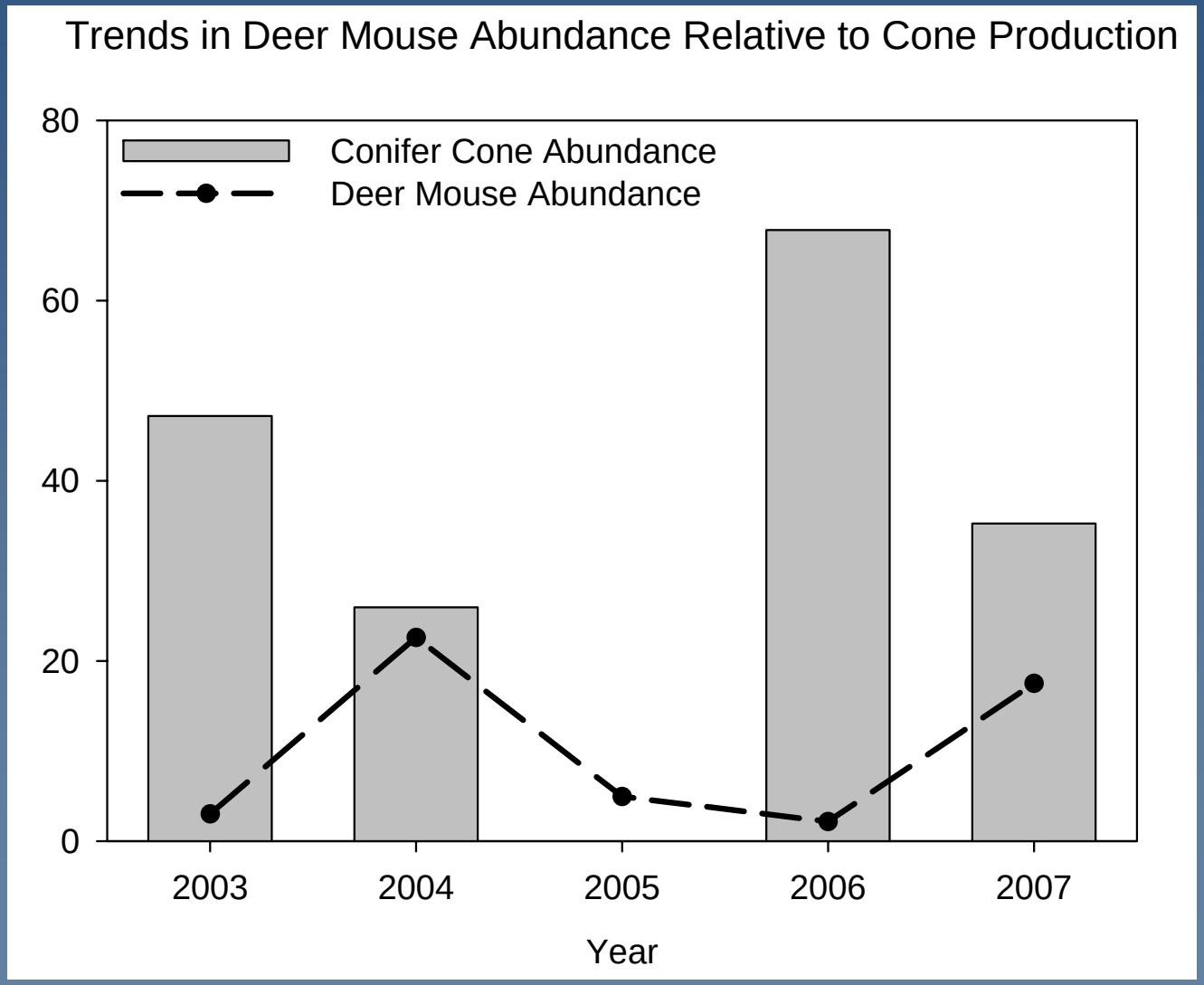
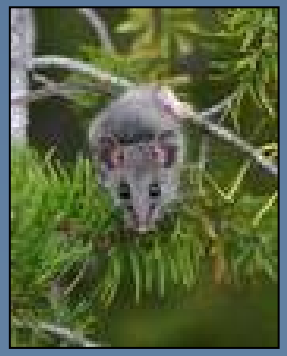
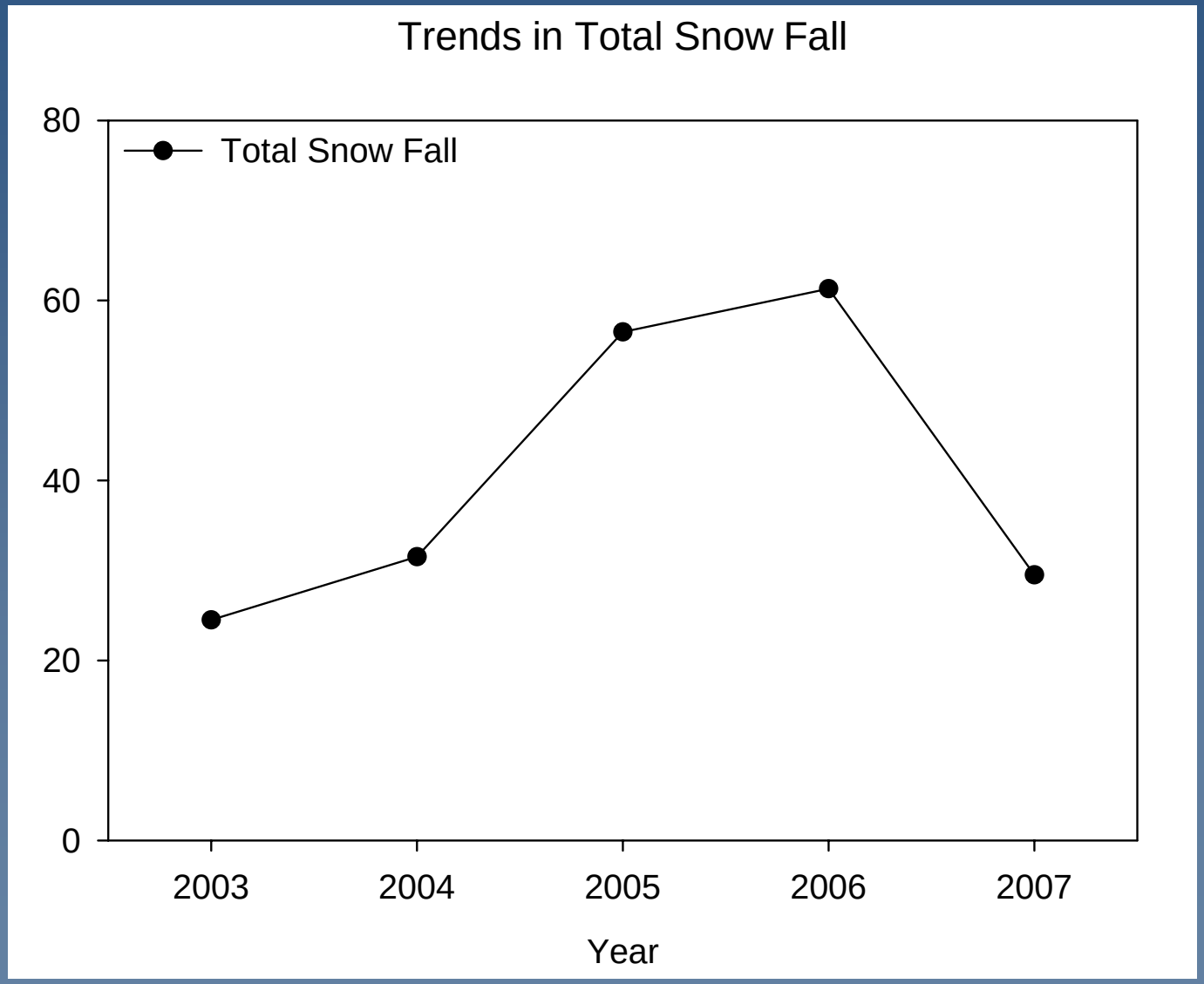




Results: Annual Snow Fall



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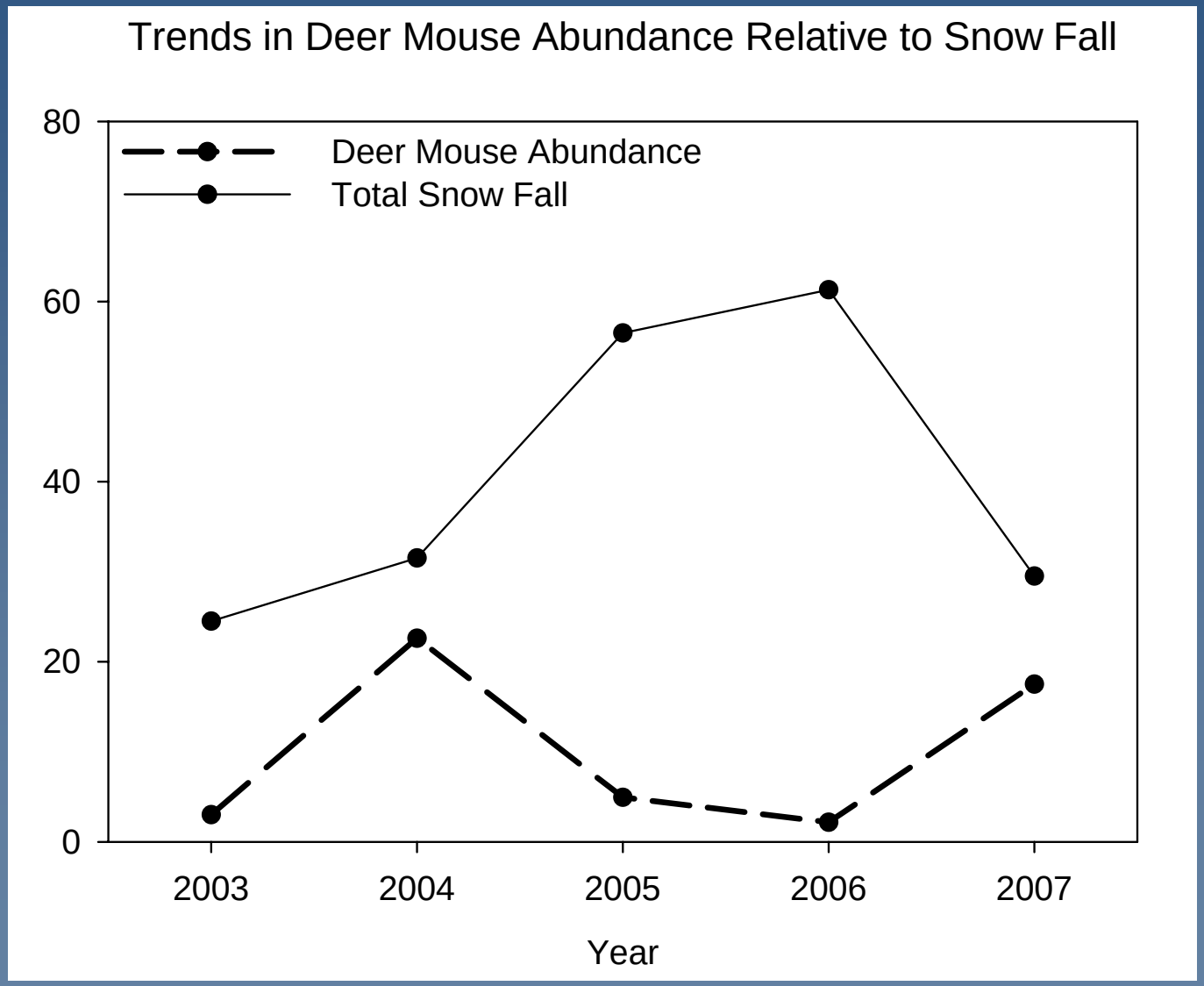


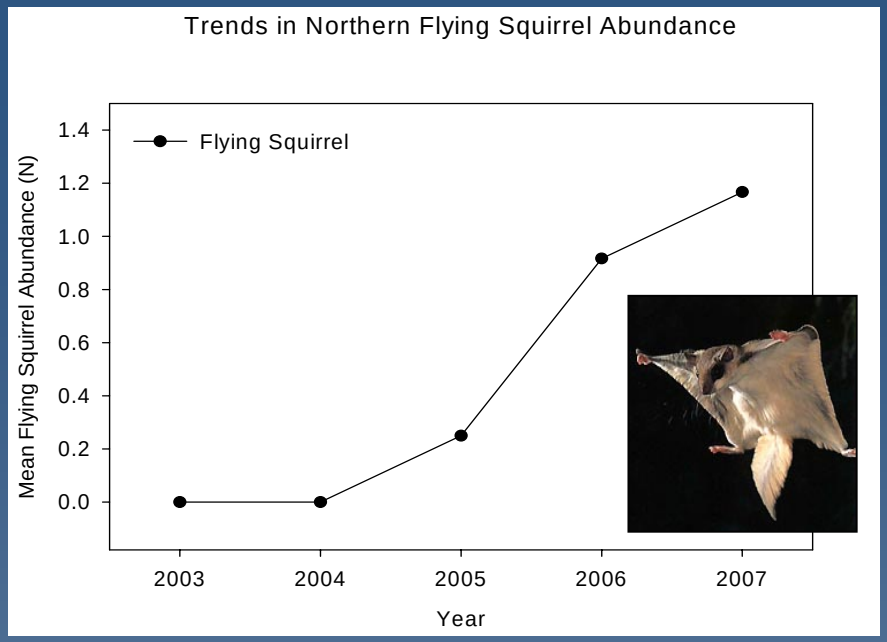
Results: Trends in Deer Mouse Abundance

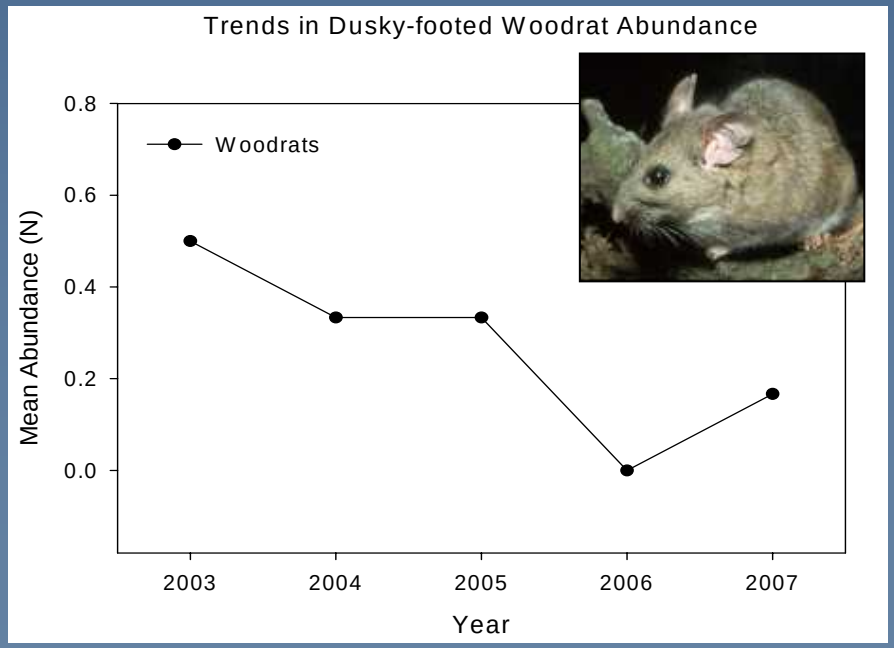
Deer Mouse
Peromyscus maniculatus

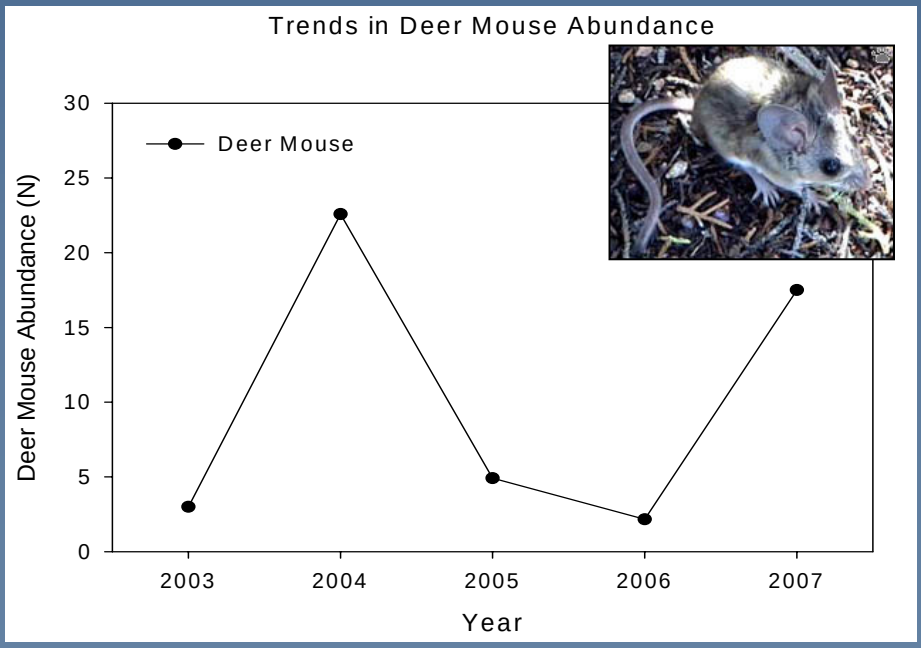
Trends:

- Forest type
- Microhabitat
- Year
  - Winter severity
  - Fall cone production

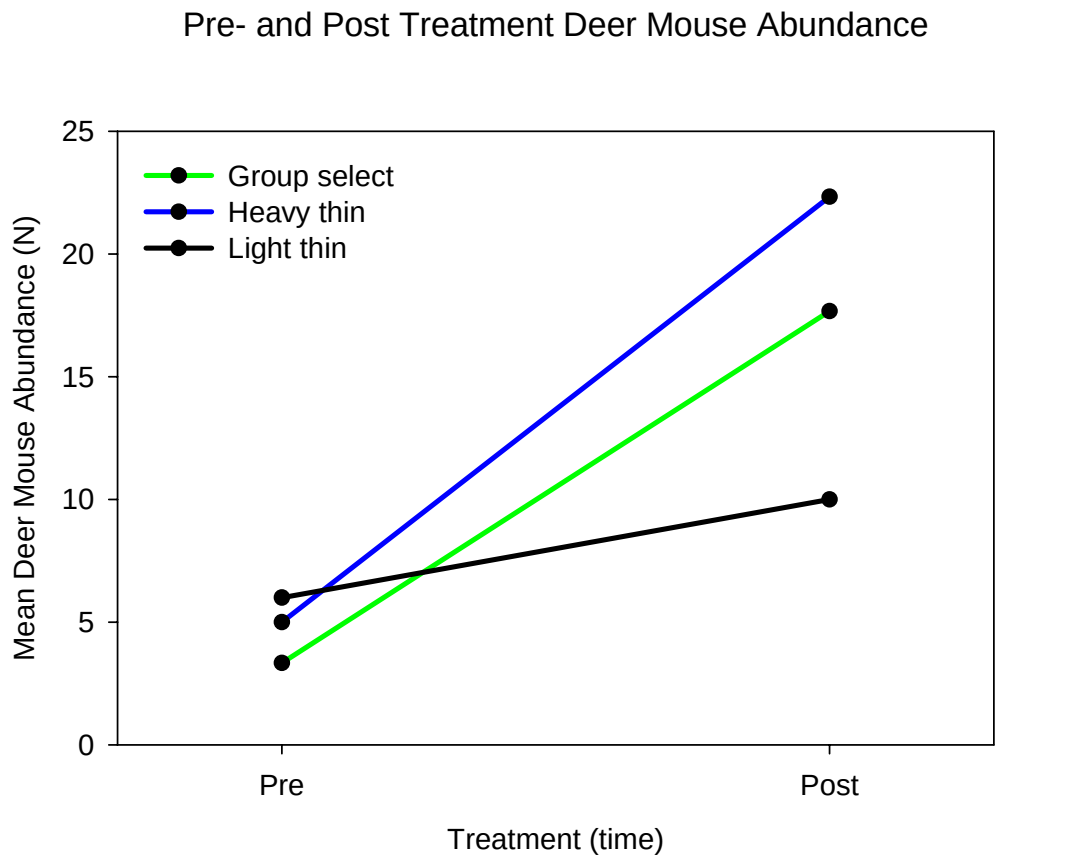
Results: Trends in Abundance







Results: Impacts of Treatments on Deer Mouse Abundance



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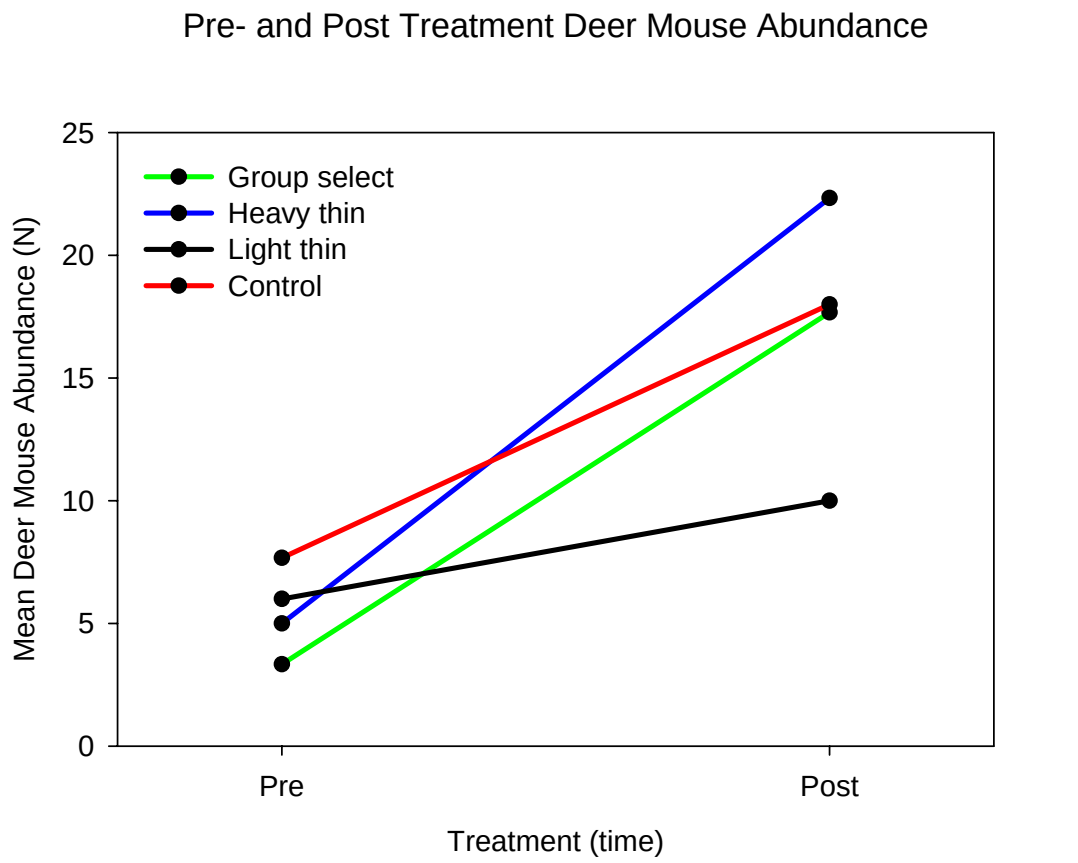

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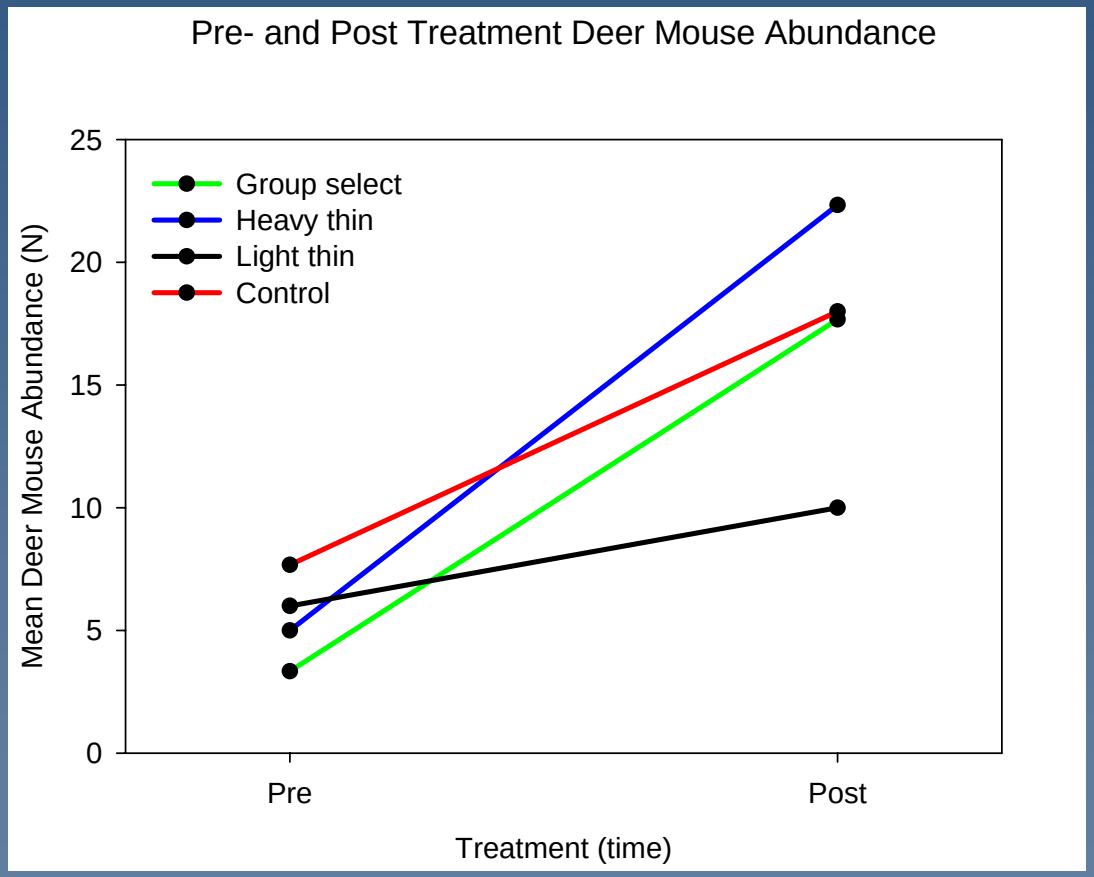

- Need to continue monitoring efforts for 2-5+ yrs post-treatment to effectively measure treatment effects

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  - Focal species biology
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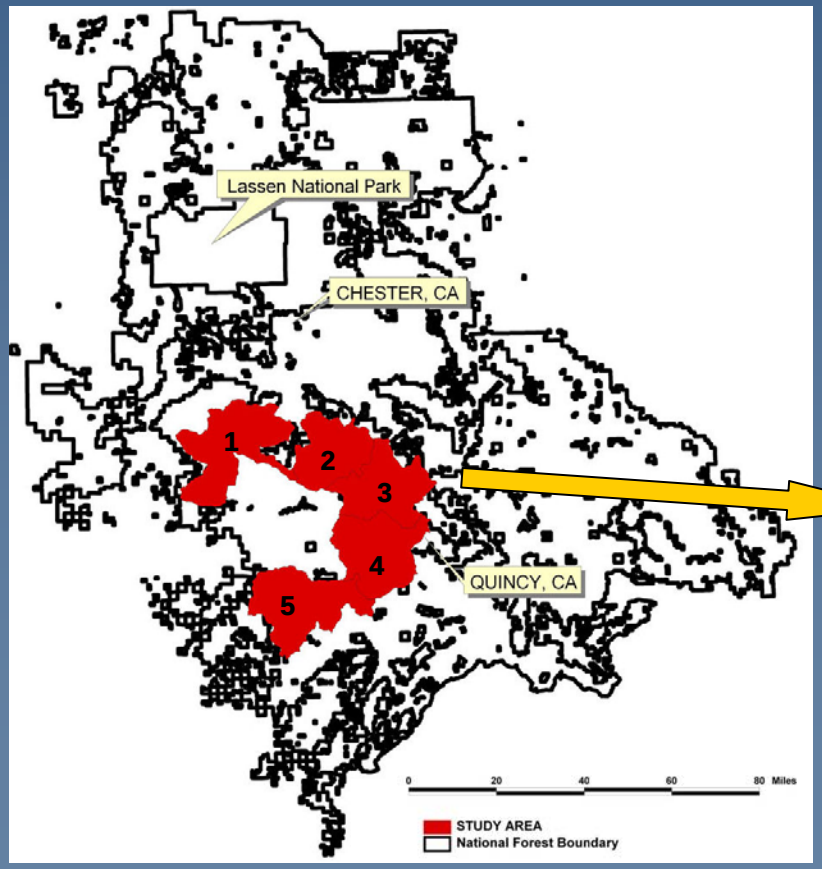
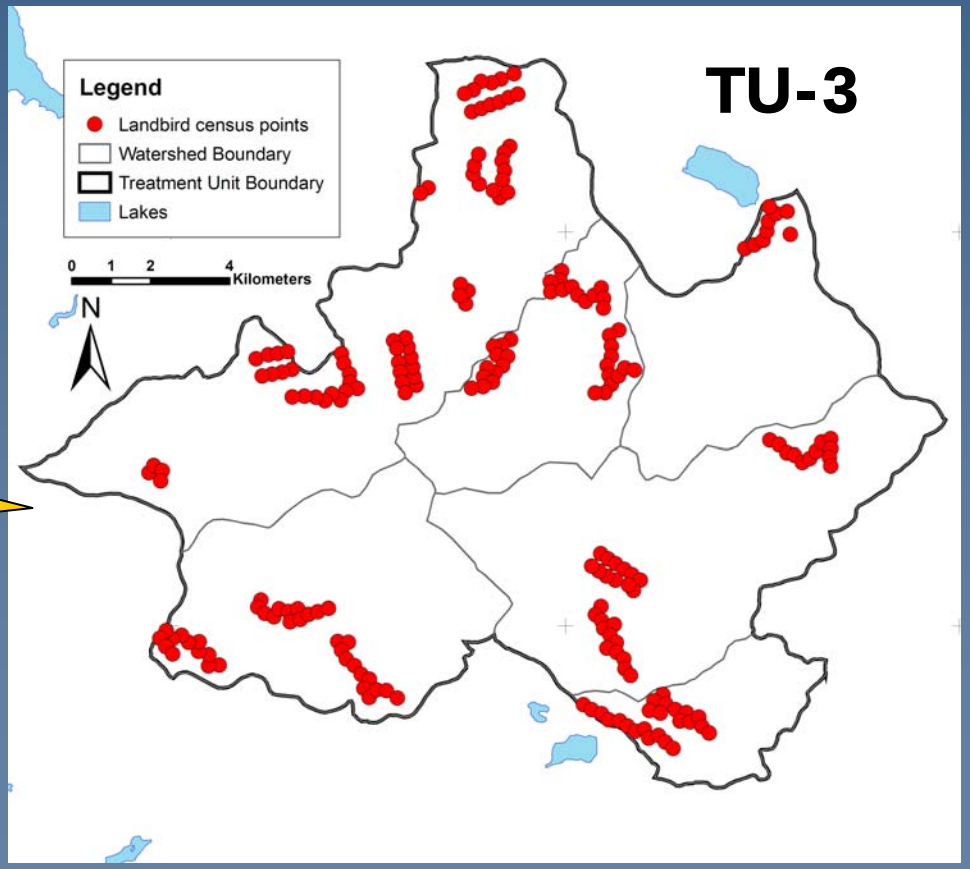
Methods: Landscape Transects





Methods: Landscape Transects

- Placed in various forest types throughout Plumas National Forest
- Trap design
  - 4 points, 3 traps at each point
  - 50-m spacing, 0.25 ha
- 2 sessions, 4 nights

Results: Landscape Transects

- 2007 marked 2nd and final year of data collection

- Captured 2,513 individuals of 14 species at 367 census points across 4 treatment units

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Focal Species:

Dusky-footed woodrats
Neotoma fuscipes

Natural History

- Semi-arboreal, nocturnal rodent
- Oak specialist
- Build “houses”
- Used for:
  - Food storage, nurseries, & protection
- Built:
  - Ground, cavities &limbs of trees

Objectives

To determine habitat associations

- Forest type
  - Relationship with California black oak
- Microhabitat
  - Tree and ground house site selection and use

To determine spatial organization

- Home range
- Overlap

Results: Habitat Associations of Woodrats

- ↑ oak density = ↑ woodrat density
- Ground house sites:

  ↑ large logs, ↑ large stumps, and ↑ slope
- Tree house sites:

  large oaks, large snags
- House use:

  ↑ use of tree houses in the fall

Results: Woodrat Home Range

- Home range size was 1.2-3.8 ha (3.0-9.4 acres)
- Lack of overlap indicates territoriality
- Relative to other populations:

  ↑ home ranges, ↓ woodrat density

  - Forage availability?
  - Suggests home ranges likely to be ↑ in winter when resources are scarce