

# Black Bear Relocation as a Method to Reduce Elk Calf Predation in the Great Smoky Mountains National Park



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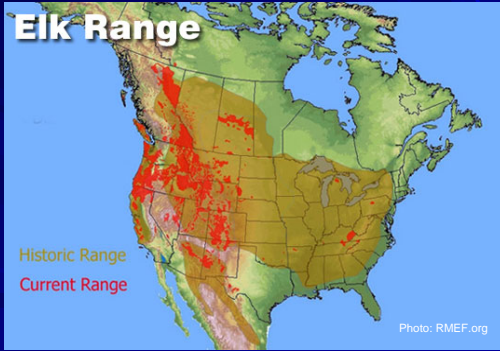
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## Introduction

### Elk Range



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## Introduction



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## Introduction

- Experimental Elk Release
  - 2001: 25 Elk Released
  - 2002: 27 Elk Released
  - 2003: 0 Elk Released

Target Number: 75–90  
Actual Release: 52

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## Introduction

- Monitoring
  - Calves radio-collared and monitored daily
  - Mortality sites investigated
    - Bear predation leading known cause of neonatal mortality
- Experimental phase extended
  - 2-3 year extension

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## Introduction

- Predator management initiated
  - 2006: 13 bears trapped and relocated
- Possible reasons for high predation
  - No previous exposure to black bears
  - GSMNP high bear density
  - Lack of fire regime



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## Justification

- Goal of Release: Establish a permanently viable elk population in GSMNP
- Largest barrier: Low calf recruitment



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## Justification

- National Park Service Management Plan
  - Continued trapping and relocation
  - Lack of post-release monitoring



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## Objectives



- Bear trapping and translocation
- Radiolocations
  - Dispersal patterns
  - Homing tendencies
- Examine calf survival rates

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## Hypotheses

- Translocating bears from Cataloochee Valley creates a temporary decrease in bear density, thereby decreasing elk calf mortality due to predation
- Translocated bears will return to Cataloochee

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## Hypotheses

- Homing movements allow ample time for calf growth
- Significant increase in recruitment and decrease in extinction probability

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## Study Area



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## Methods

### ■ Culvert Traps



### ■ Foot Snares

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## Methods

### ■ Radio-Collars

- Cotton spacer
- Mortality switch



### ■ Transport

- Hard-Release



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## Methods

### ■ Calf Monitoring

- Expandable collars
- 3x / day
- Mortalities investigated



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## Methods



- Aerial telemetry  
- Monthly



- Ground-based telemetry  
- Daily

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## Methods

- Post-trapping monitoring
  - Bait station survey
  - Remote cameras
  - Sightings and fecal collection

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## Preliminary Results

- 2001-2005: 0 bears translocated
  - 22 of 32 calves surviving to one-year (69%)
- 2006: 13 bears translocated
  - 11 of 13 calves surviving (85%)
  - Unknown bear return (  $\geq$ 23%)
- 2007: 12 bears, 13 translocations
  - 12 of 16 calves surviving (75%)
  - $\geq$ 40% bear return (as of 11/1/07)

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## Further Considerations



■ Increased fire regime

■ Calving Behavior



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## Acknowledgements

- Dr. Joe Clark, USGS: Southern Appalachian Branch
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- Rocky Mountain Elf Foundation
- University of Tennessee: Department of Forestry, Wildlife, and Fisheries
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