

Factors Influencing the Ecology of Greater Sage-Grouse in the Bear Lake Valley, Idaho-Utah



Photo by Tom Prestby

Casey J. Cardinal
M.S., Wildlife Biology

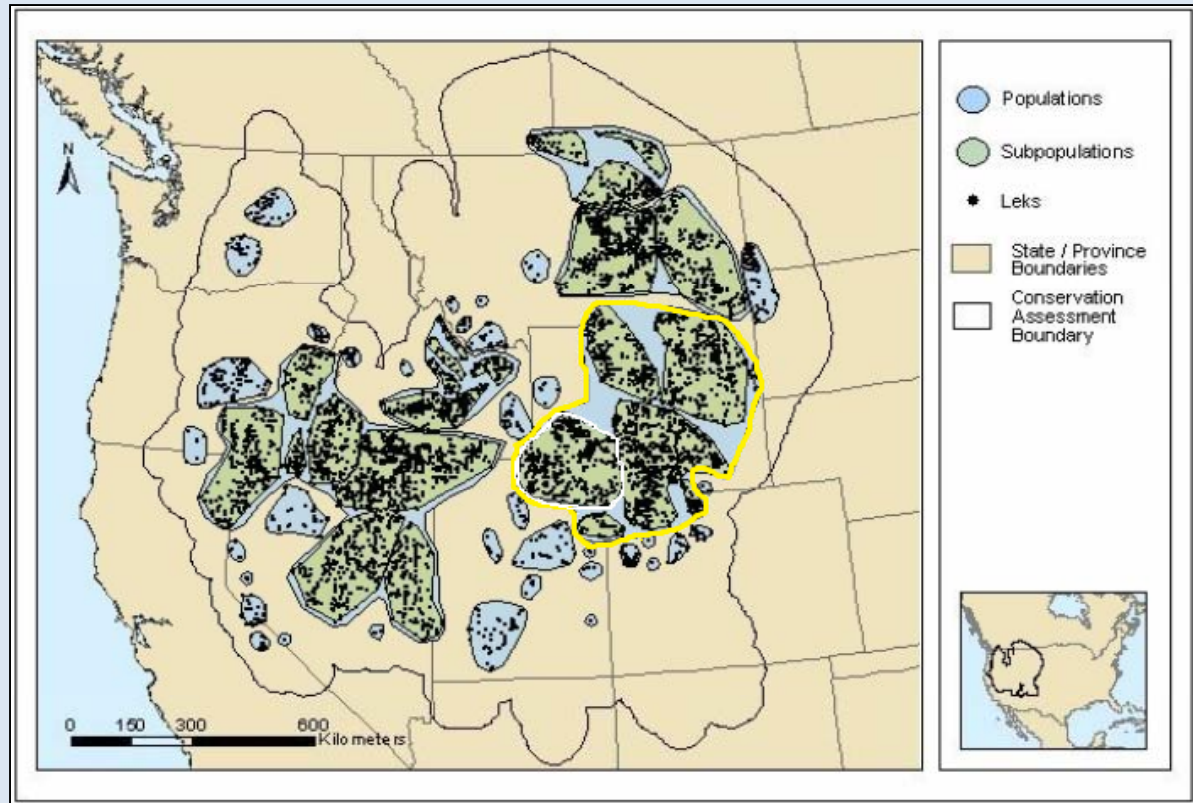
Threats to sage-grouse



Inadequacy of Existing Regulatory Mechanisms

- Sage Grouse are present on lands managed by many different entities
- Current Regulatory Mechanisms include
 - Local land use laws, processes, and ordinances
 - State laws and regulations
 - Federal laws and regulations

Sage-grouse around Bear Lake inhabit the western edge of the Wyoming Basin Population



Adapted from Connelly et al. 2004

Sage-grouse Movements



Bryan Bedrosian

But sage-grouse don't perceive state lines...

- There are differences in sage-grouse management among the three states
 - Hunting
 - Habitat conservation
 - Local working groups often do not span state boundaries

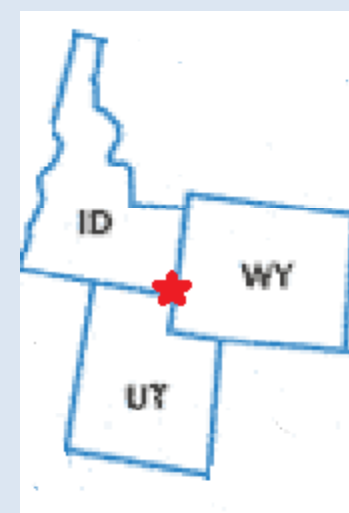
Objectives of this Study

- Describe sage-grouse seasonal distribution and habitat-use patterns
- Determine if any differences observed in movement and habitat-use patterns are related to sex, age class, or land-use patterns.
- Document population(s) vital rates of sage-grouse
- Determine if natural and anthropogenic land-use patterns and activities that fragment sage-grouse habitats contribute to functional habitat loss

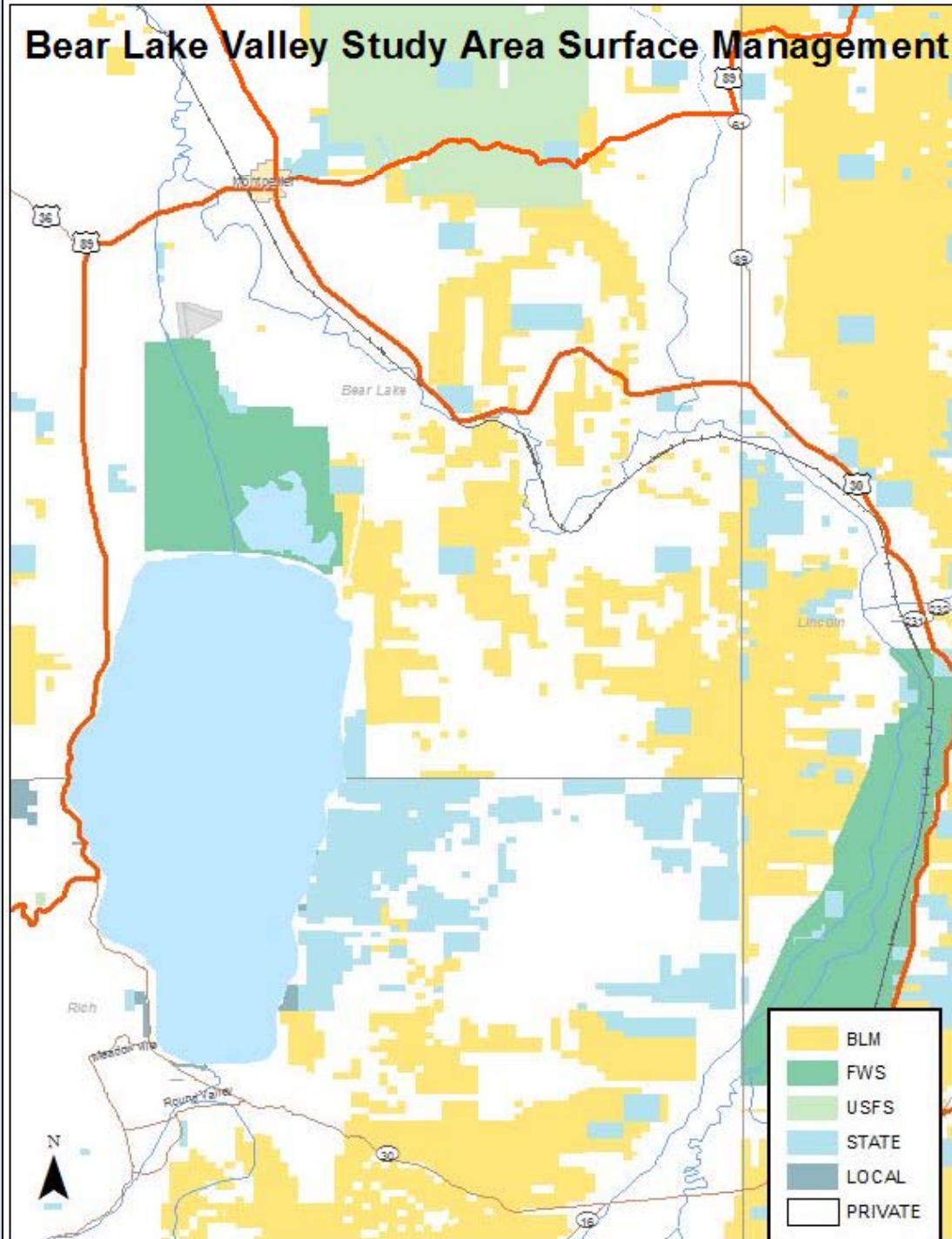
Bear Lake Valley Study Area



Landsat Imagery



Bear Lake Valley Study Area Surface Management



Methods

Radio Collar Deployment

Up to 80 Collars will be on Air Each Season

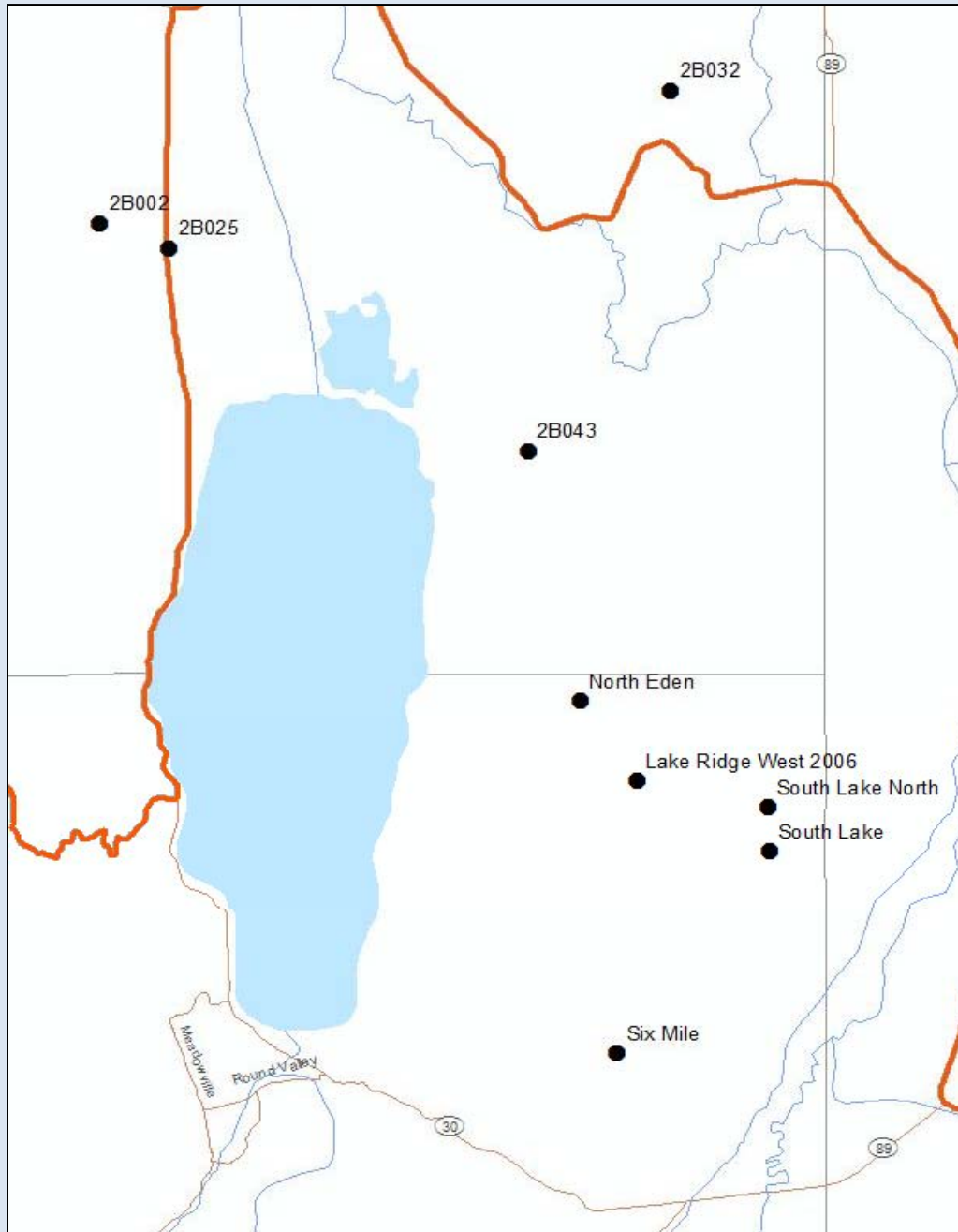
Distribute evenly by Age, Sex, and State



Photo by Lisa Cross



Photo by Jeremy Baumgardt



Leks on the Bear Lake Valley Study Area

Objective: Determine differences observed
in movement, seasonal distribution, and
habitat-use patterns
Bird Locations

Telemetry

- Spring and Summer
- Fall
- Winter



Objective: Document population(s) vital rates of sage-grouse

Nest, Brood, and Survival Monitoring



Objective: Describe sage-grouse
habitat-use patterns

Vegetation Measurements

- Nests
- Broods



Objective: Describe sage-grouse
habitat-use patterns

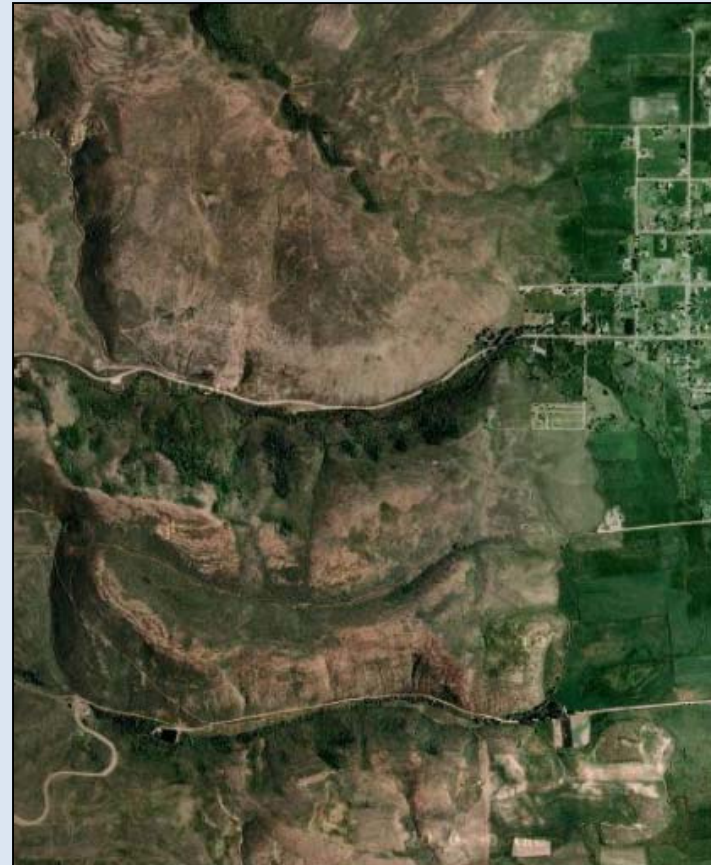
Land Cover Classification



Objective: Determine if there is
functional habitat loss

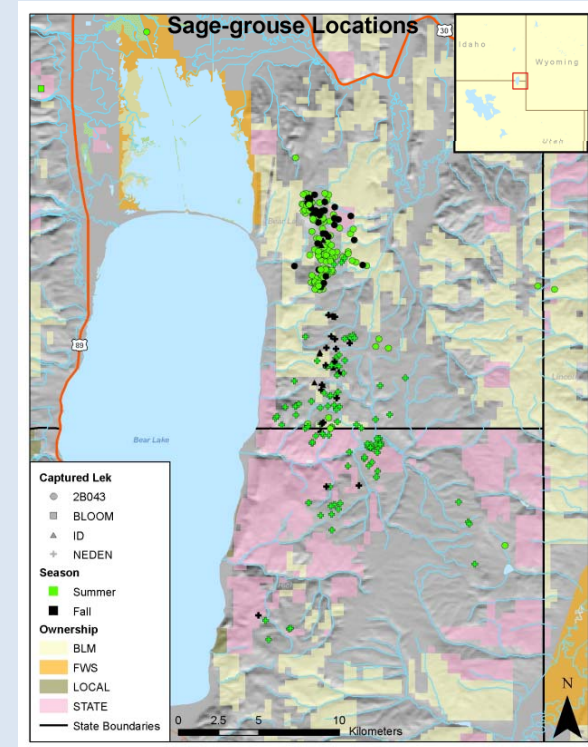
Habitat Fragmentation Measurements

- Habitat Isolation
- Patch Size
- Edge Effect



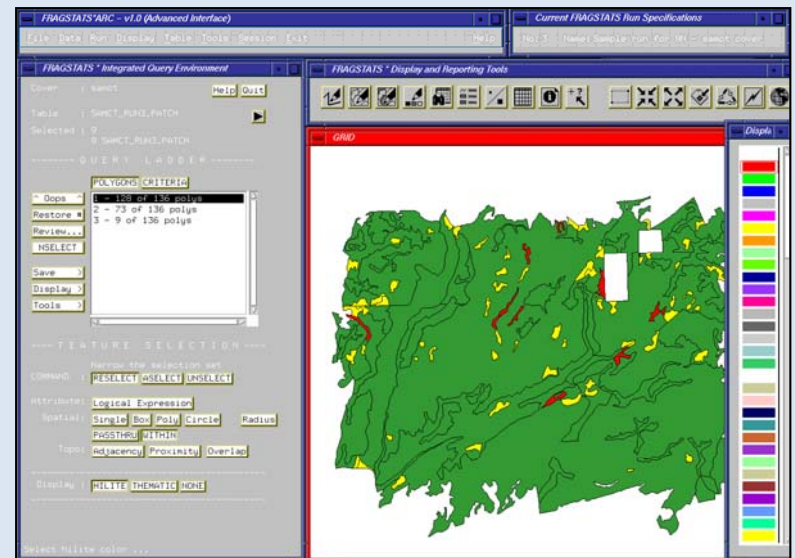
Statistics

- Movement Differences
 - Home Range
 - Analysis of Variance
 - 3-Way Factorial
- Vital Rates
 - Survival
 - Kaplan-Meier
 - Nest and Brood Success
 - Descriptive analysis



Statistics

- Nest and Brood Monitoring
 - Logistic Regression
- Habitat Fragmentation Index
 - Fragstats



Management Implications

- Tri-State Management Plan
- Define the core use areas of valuable habitat for sage-grouse



Acknowledgements

Advisors: Terry A. Messmer and Jack W. Connelly

Committee Member: John A. Bissonette



East Idaho Uplands
Sage-Grouse Local Working Group

Rich County Coordinated
Resources Management Working
Group

Questions

