Comparison of Sagebrush-Obligate Songbird and Sage-grouse Trends: Assessing Sage-Grouse Core Areas and Umbrella Species

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Background

- Umbrella Species Concept
  - Promotes conservation of one species for benefit of many
  - Similar spp. respond to habitat Δ in similar manner
  - Relies on high correlation of focal spp. with an ecosystem
  - Protection of large areas

Background

- Sagebrush-obligate songbirds and sage-grouse
  - Declines throughout sagebrush habitat
  - Sage-grouse identified as an umbrella species
- Wyoming's Sage-grouse Core Area Policy
  - Conservation strategy aimed to protect large areas
  - Focus on restricting development
  - Strongly correlated with breeding habitat and annual habitat to a lesser degree

Factors Influencing Sage-grouse

Objectives

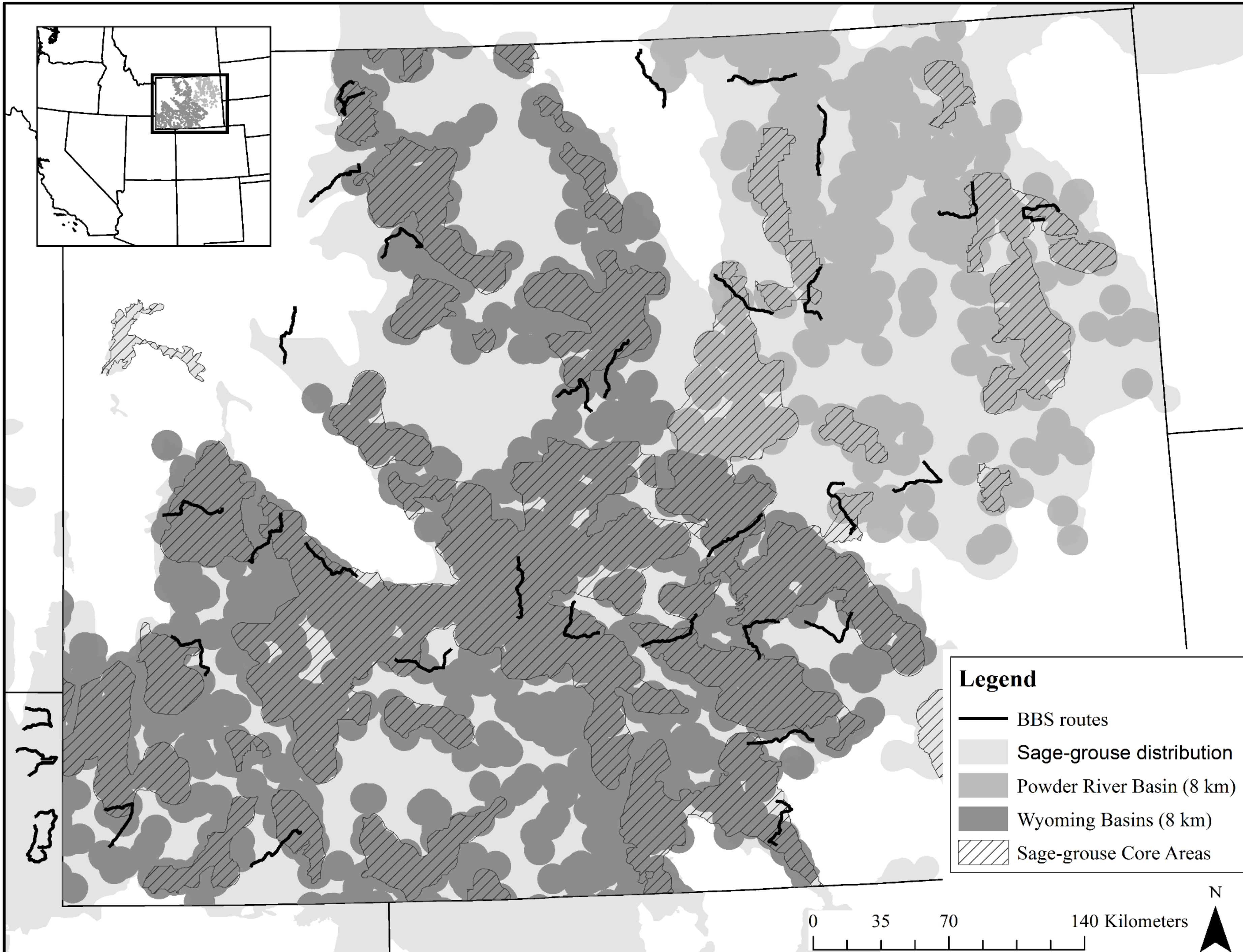
- Assess sage-grouse as umbrella species for sagebrush-obligate songbirds

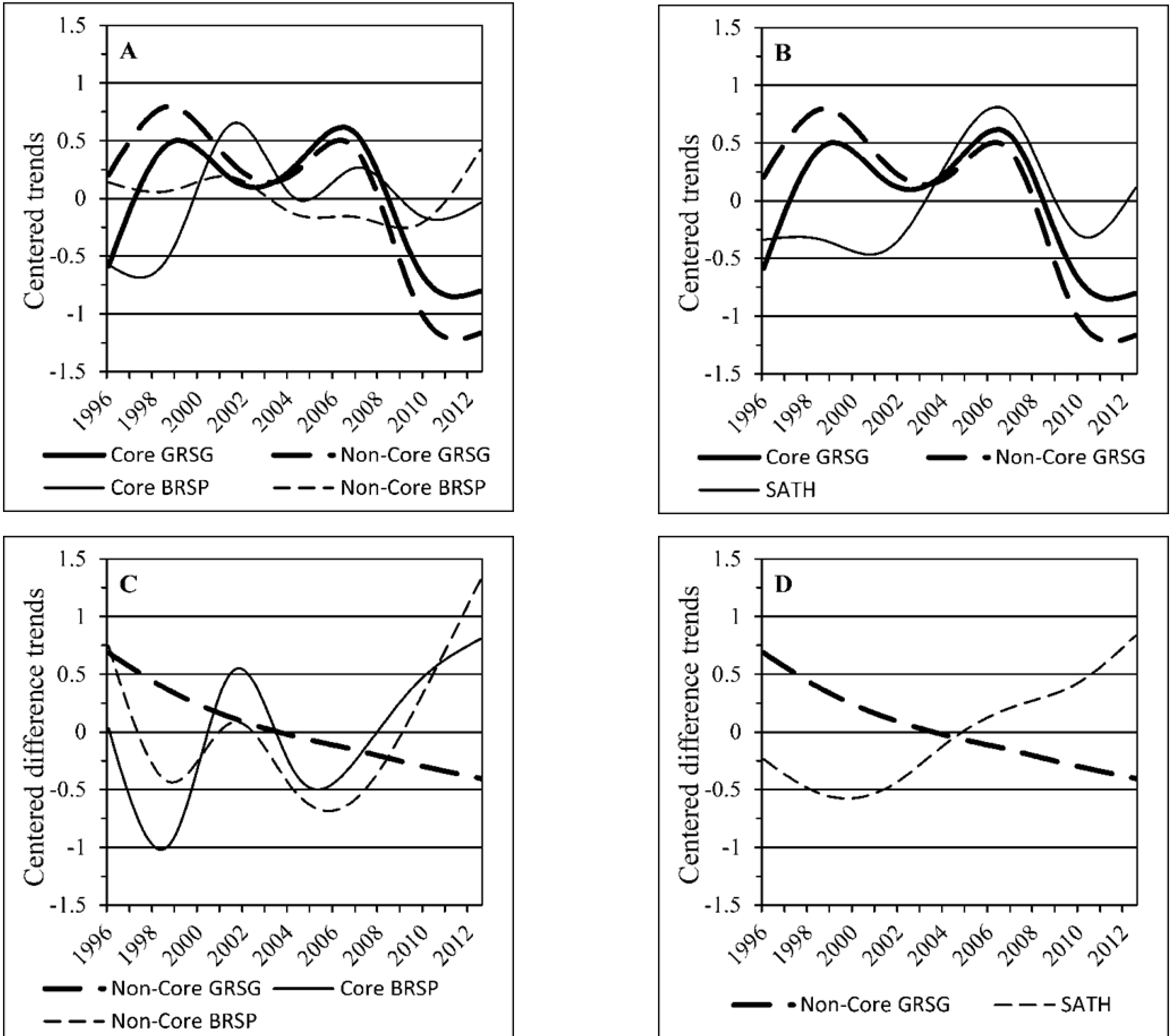
- Evaluate benefits of Wyoming's Core Area Policy for songbirds and sage-grouse

Methods

- Compare indices of population trends
  - Songbirds: Breeding Bird Survey (BBS)
  - Sage-grouse: lek trends

- Analyses in Powder River Basin and Wyoming Basins


Legend
BBS routes
Sage-grouse distribution
Powder River Basin (8 km)
Wyoming Basins (8 km)
Sage-grouse Core Areas
0
35
70
140 Kilometers
N


A
B
C
D
Centered trends
Centered difference trends
1.5
1
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0
-0.5
-1
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1996
1998
2000
2002
2004
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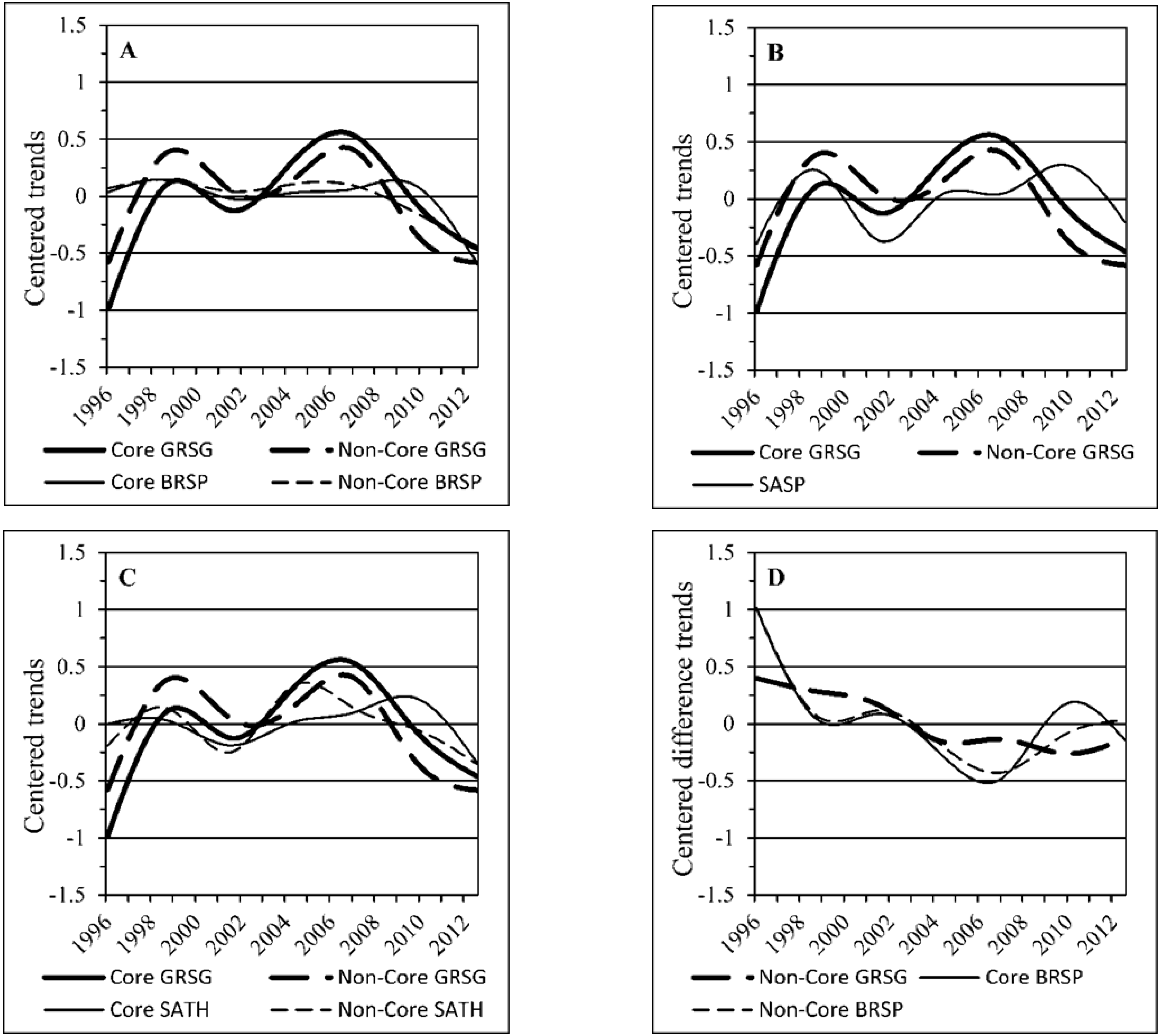
2008
2010
2012
Core GRSG
Non-Core GRSG
Core BRSP
Non-Core BRSP
SATH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Core GRSG
Non-Core GRSG
Core BRSP
Non-Core BRSP
SASP
Core SATH
Non-Core SATH

Conclusions

Songbirds

- No abundance benefit from Core Areas
- Different spp. respond differently
- Results do not indicate sage-grouse conservation ≠ songbird conservation

Sage-grouse

- Differential trends relic of historic habitat quality
- Core Areas appear to be well placed to maintain greater sage-grouse trend

Acknowledgments

- Funding
  - Wyoming Wildlife and Natural Resource Trust

- Data

Questions

Methods

- Stratifications
  1) Null
  2) Songbird : SG
  3) Songbird : Core SG : Non-Core SG
  4) Core Songbird : Non-Core Songbird : SG
  5) Core Songbird : Non-Core Songbird : Core SG : Non-Core SG

Results

- Oscillations not parallel
- Inconsistent trends: songbirds vs. sage-grouse
- Core Areas maintained higher lek trends