

# Impacts of the Temporary Loss of CRP on Greater Sage- Grouse in Washington State

A Greater Sage-Grouse is shown in its natural habitat, standing on dry, brownish ground with sparse green grass. The bird has a white neck and chest, a black face with a yellow patch, and a large, dark, spiky tail fan. The background is a blurred field of similar vegetation.

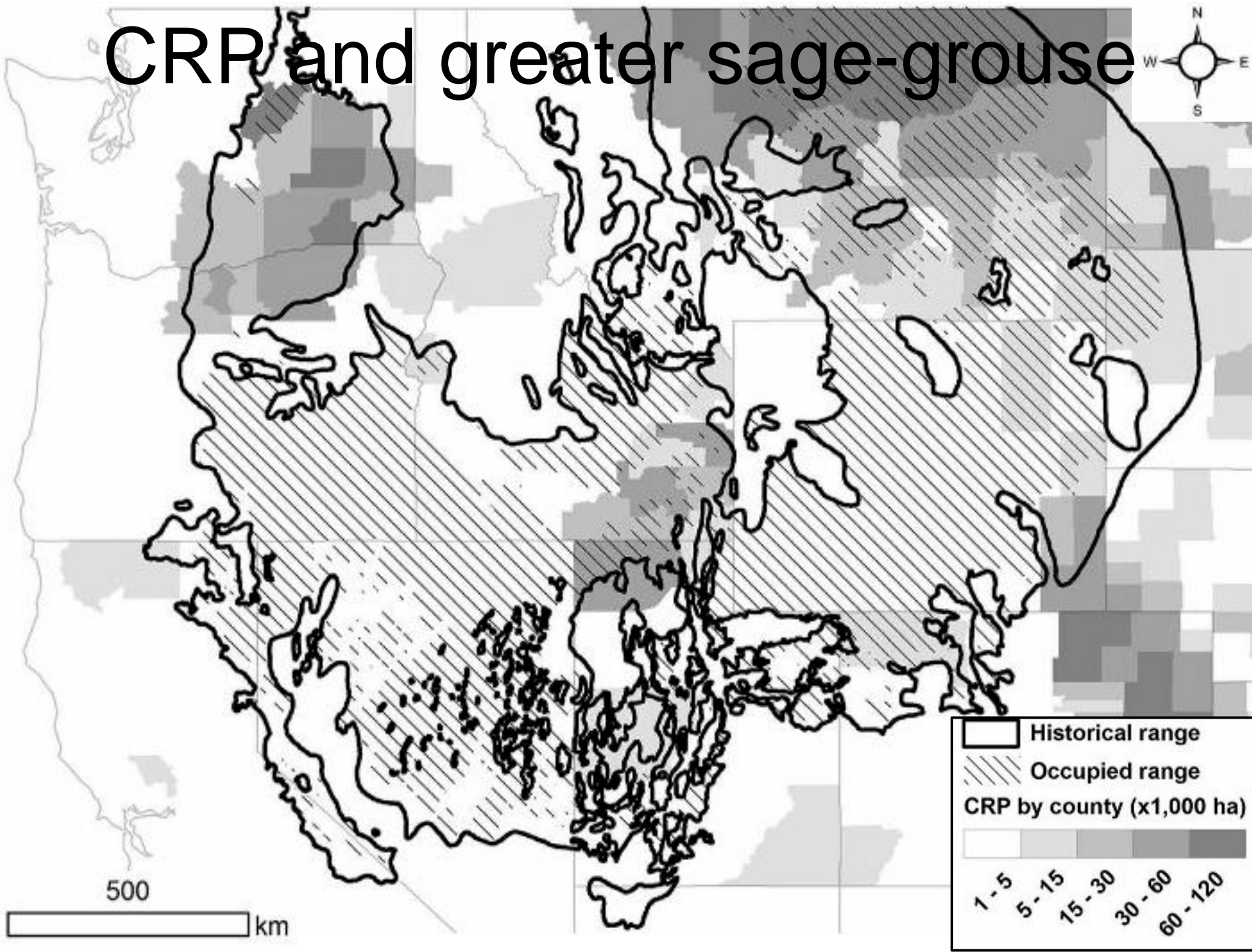
*Michael A. Schroeder*

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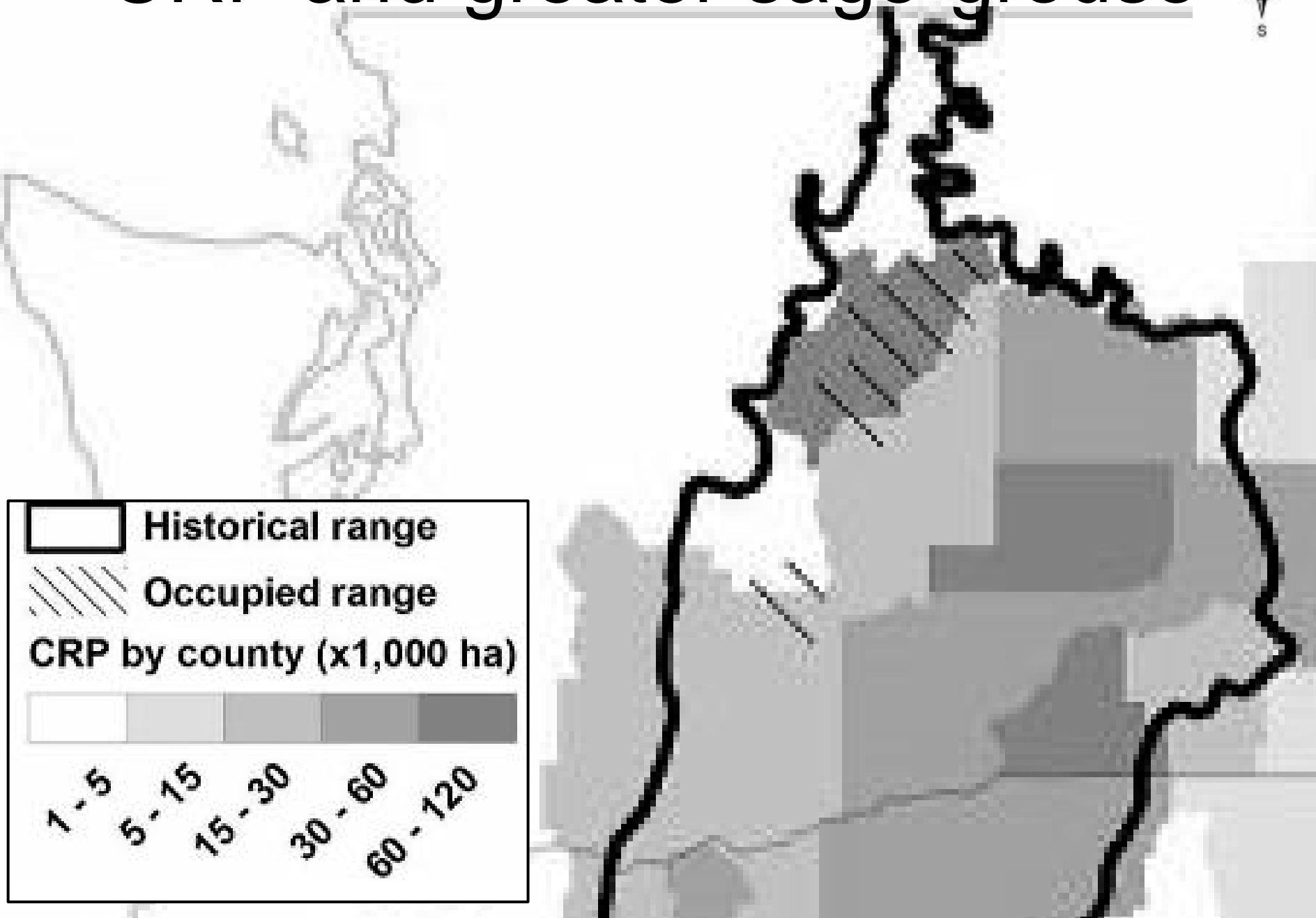
*Samuel A. Cushman*

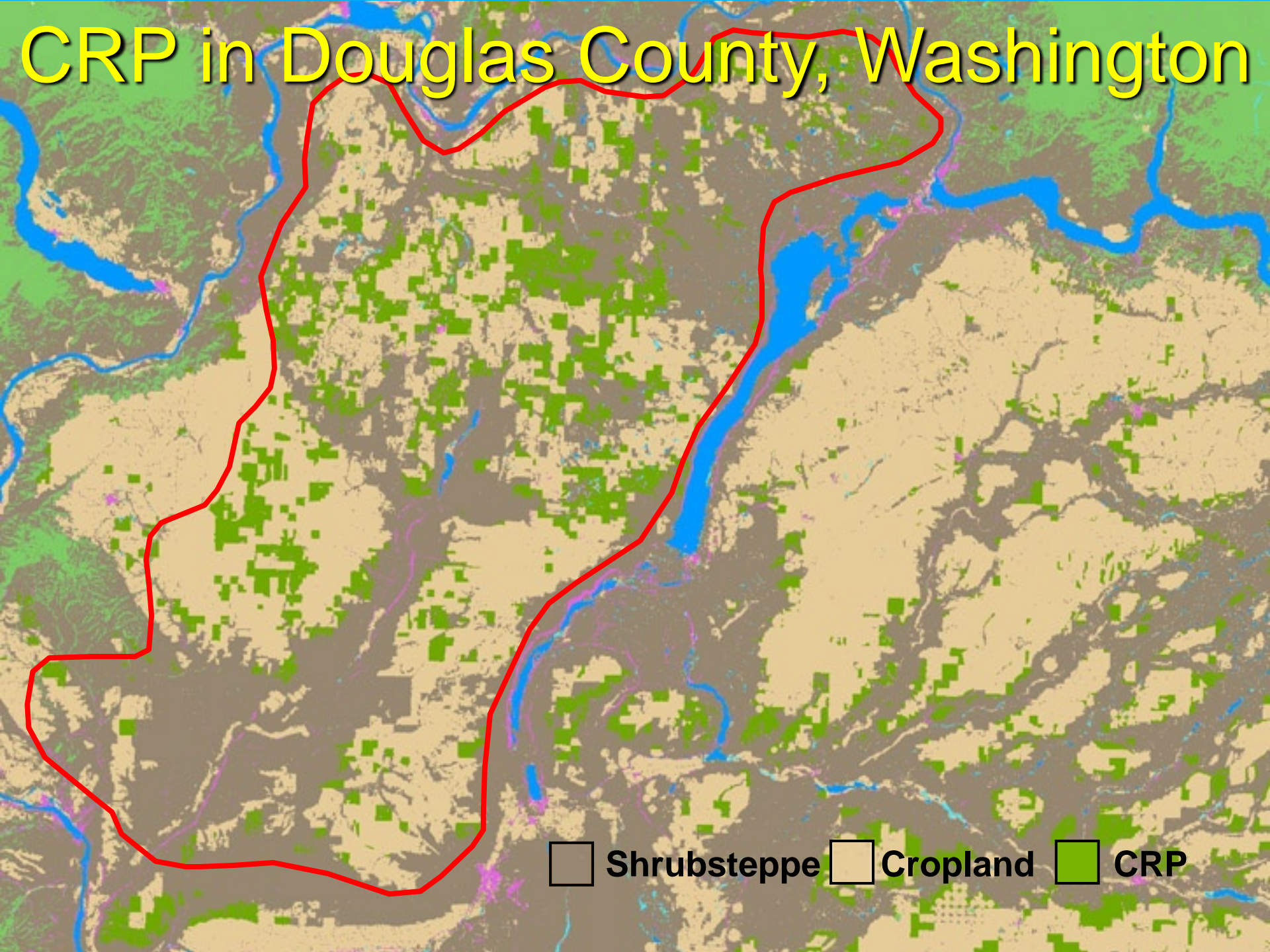
# CRP and greater sage-grouse





# CRP and greater sage-grouse

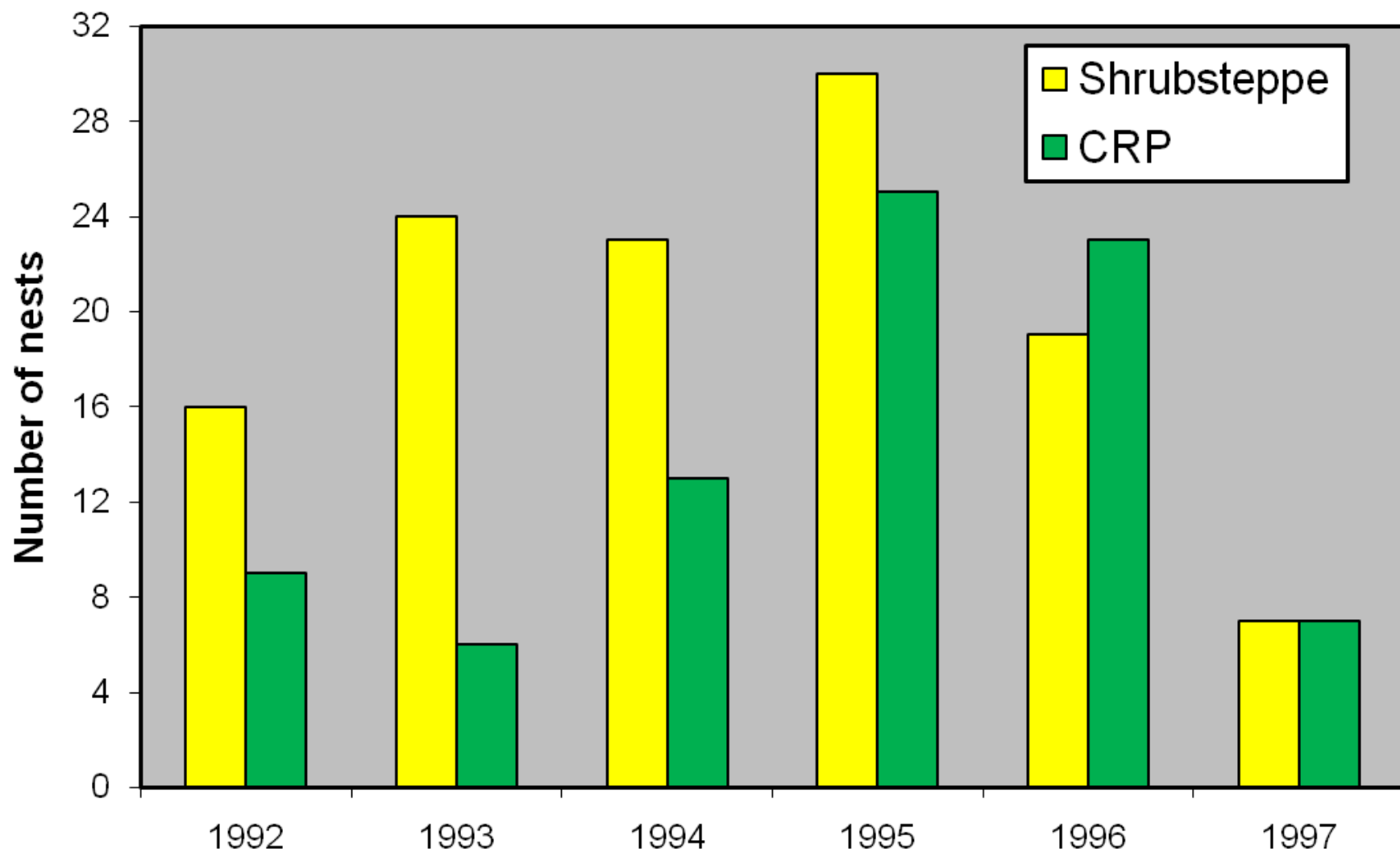




# CRP in Douglas County, Washington

 Shrubsteppe  Cropland  CRP

# Results – Nesting



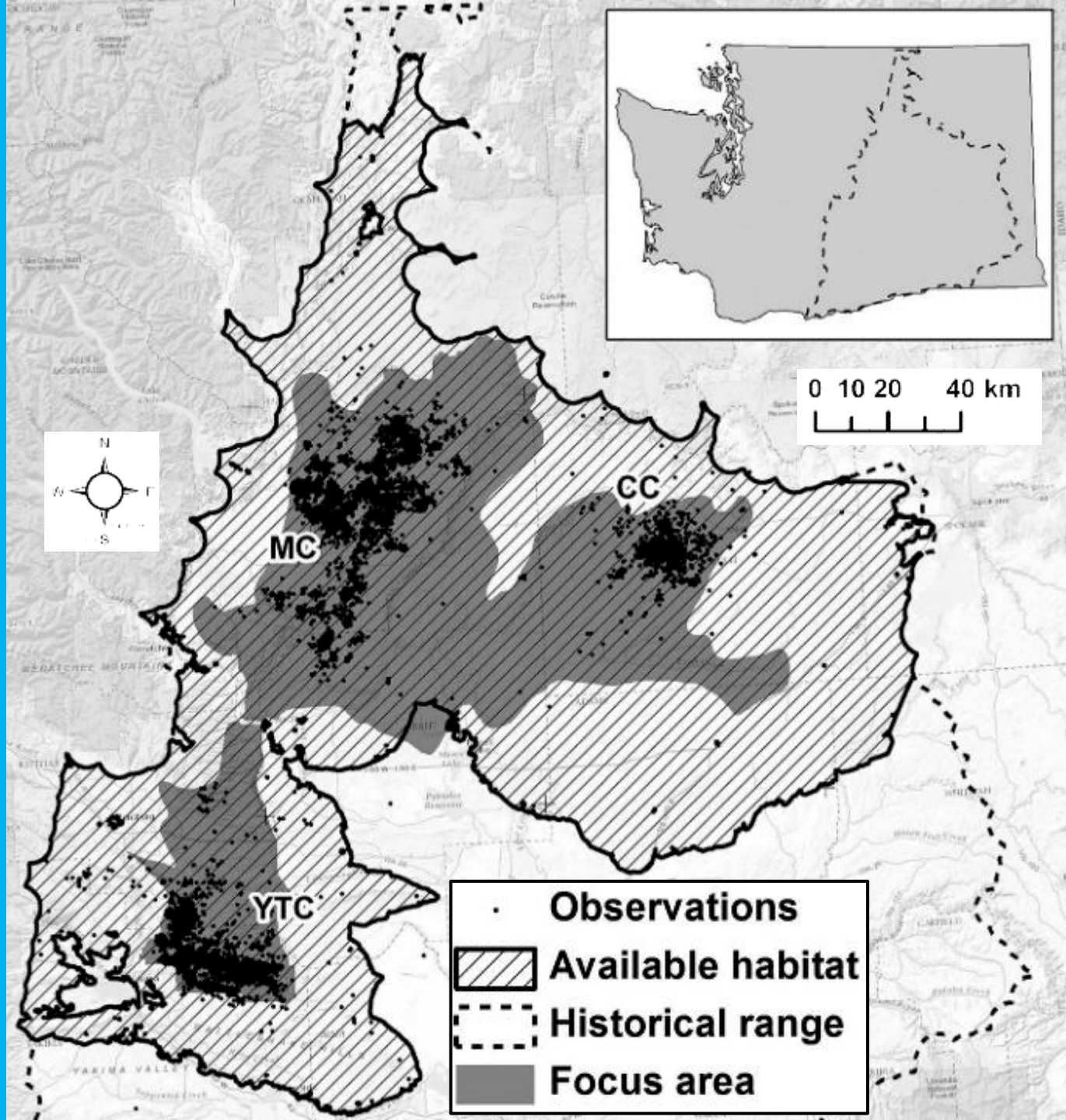


CRP transition





# Results – Habitat use





# Results – Habitat use





# Results – Pellet counts



Shrubsteppe



Old CRP

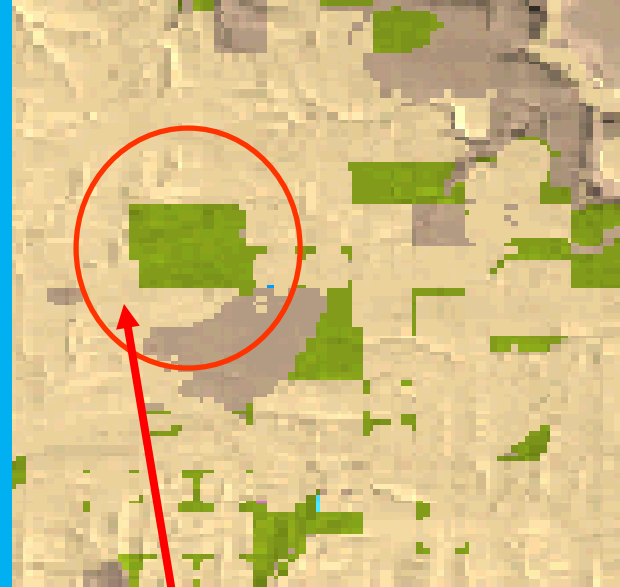


New CRP

# Results – Pellet counts



Shrubsteppe



Cropland



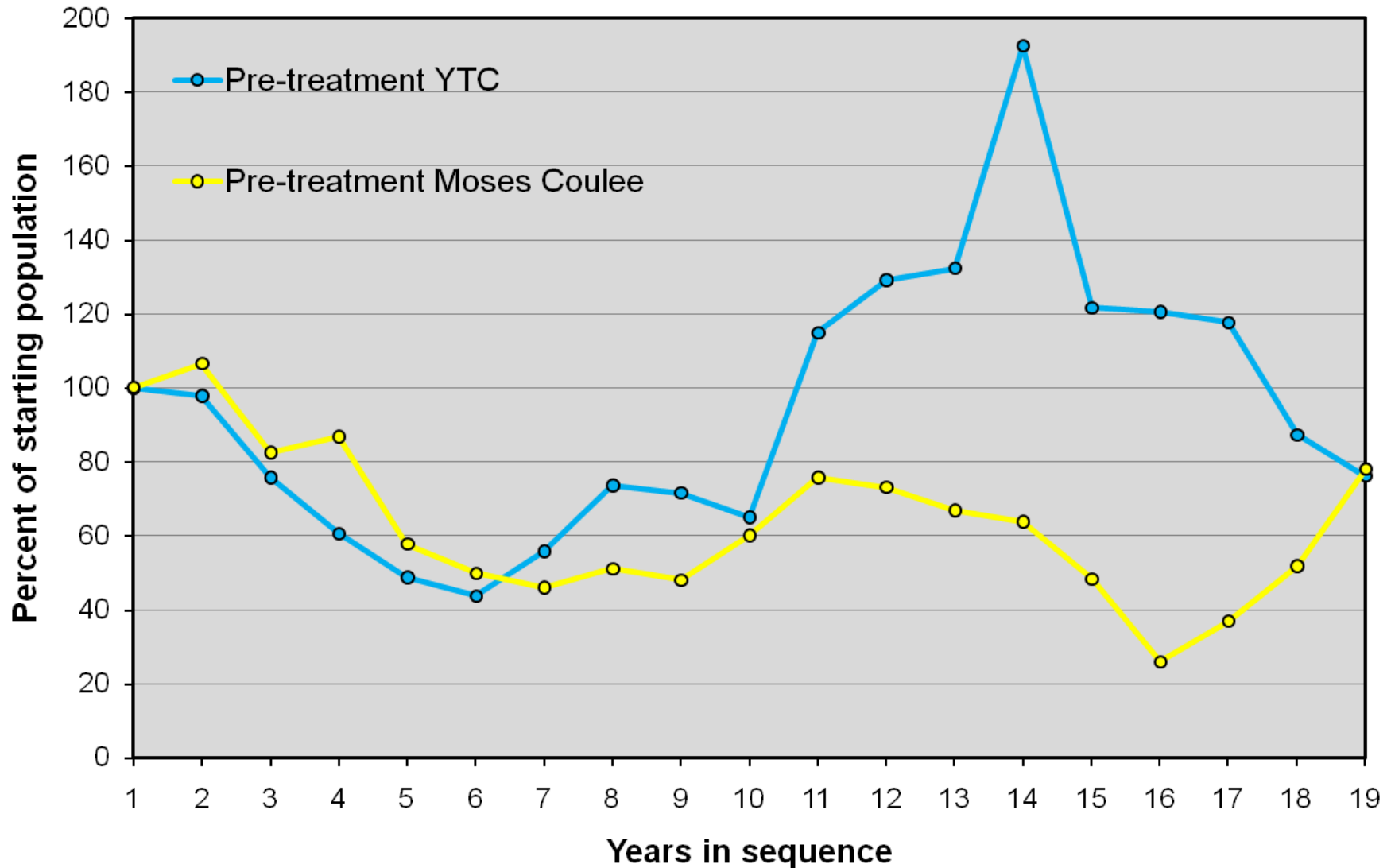


# Results – Pellet counts



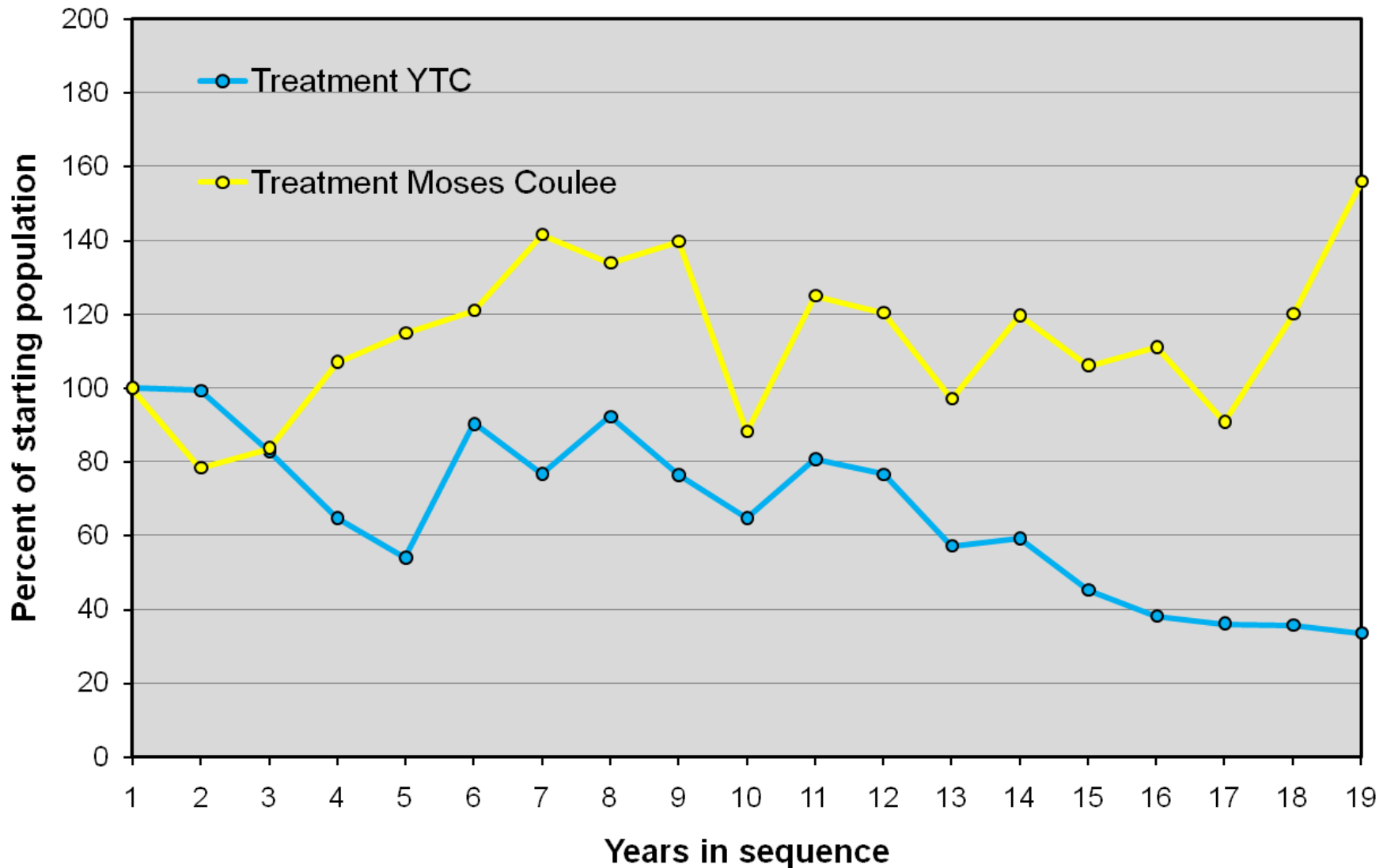


# Results – Population change





# Results – Population change



# Does CRP benefit sage-grouse?

1. Nesting by females
2. Habitat use
3. Pellet counts
4. Population-level response





*Research Article*

# Persistence of Greater Sage-Grouse in Agricultural Landscapes

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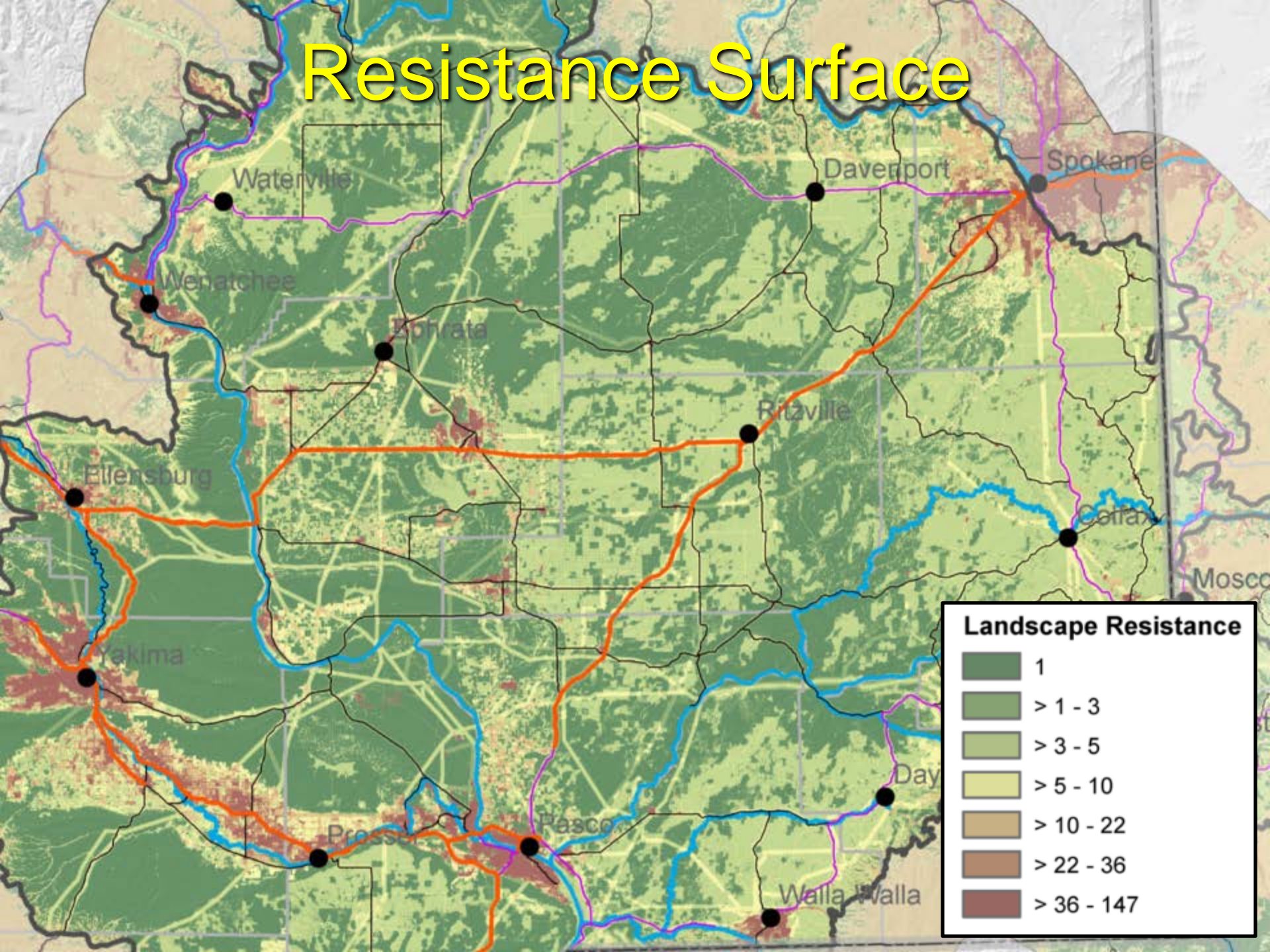
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**ABSTRACT** Local extirpations influence species' range contractions and are often precursors of range-wide extinction. Understanding extinction dynamics is important for devising effective management strategies to protect threatened and endangered species. The greater sage-grouse (*Centrocercus urophasianus*) is an example of a species undergoing range contraction, and has been extirpated from nearly half its historically occupied habitat. We used species distribution modeling to quantify environmental variables constraining a threatened sage-grouse population inhabiting an agricultural landscape in Washington, USA. Fields planted to perennial vegetation as part of the Conservation Reserve Program (CRP) were important in providing year-round habitat for sage-grouse but only when intermixed with native sagebrush-steppe vegetation. Without the CRP, we estimate 66% of sage-grouse habitat in the study area would become unsuitable. Conversely, if CRP allotments were concentrated near occupied native sagebrush-steppe, we estimate the area of sage-grouse habitat could be increased by up to 63%. In addition to the area of native sagebrush-steppe and CRP lands, we also found that climate variability, the patch configuration of sagebrush-steppe, and proximity to major roads and transmission lines constrain the distribution of occupied habitat within the study area. Our study demonstrates how conservation programs such as CRP may be used as a management tool to reduce the risk of extirpation in agricultural areas, and to facilitate species range shifts in response to climatic changes in the sagebrush biome. © 2017 The Wildlife Society.

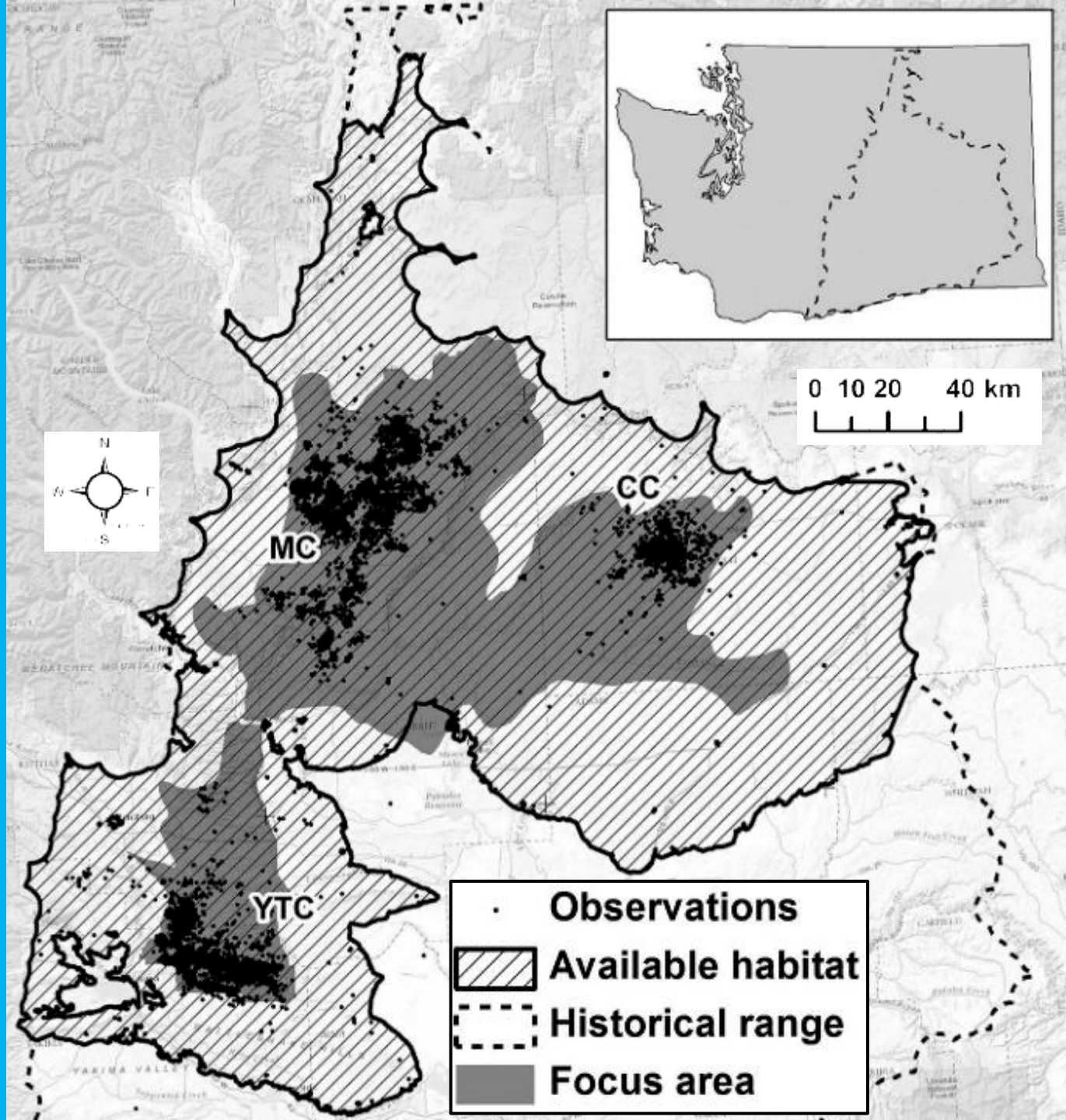


# Resistance Surface

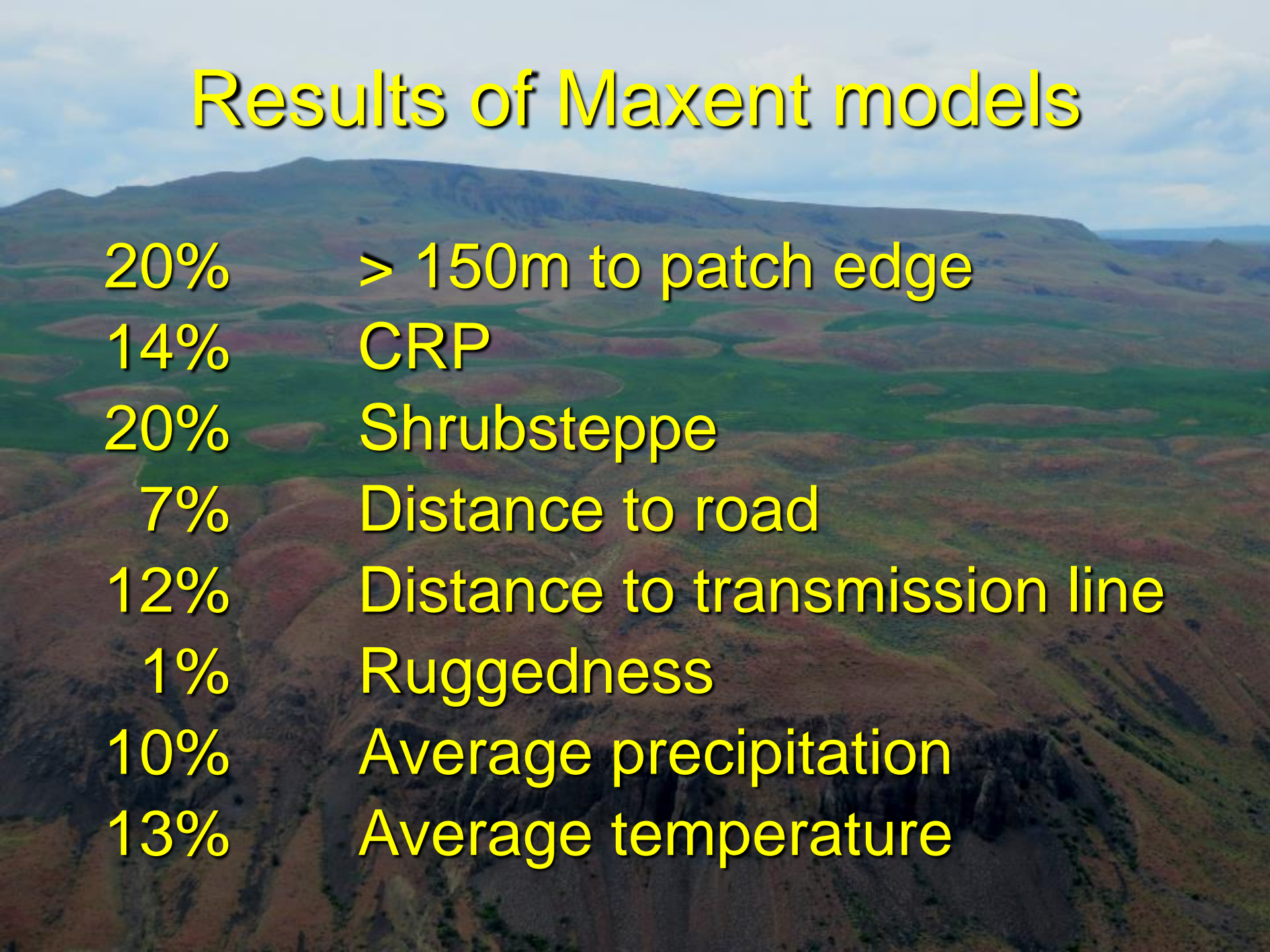




# Telemetry locations



# Results of Maxent models



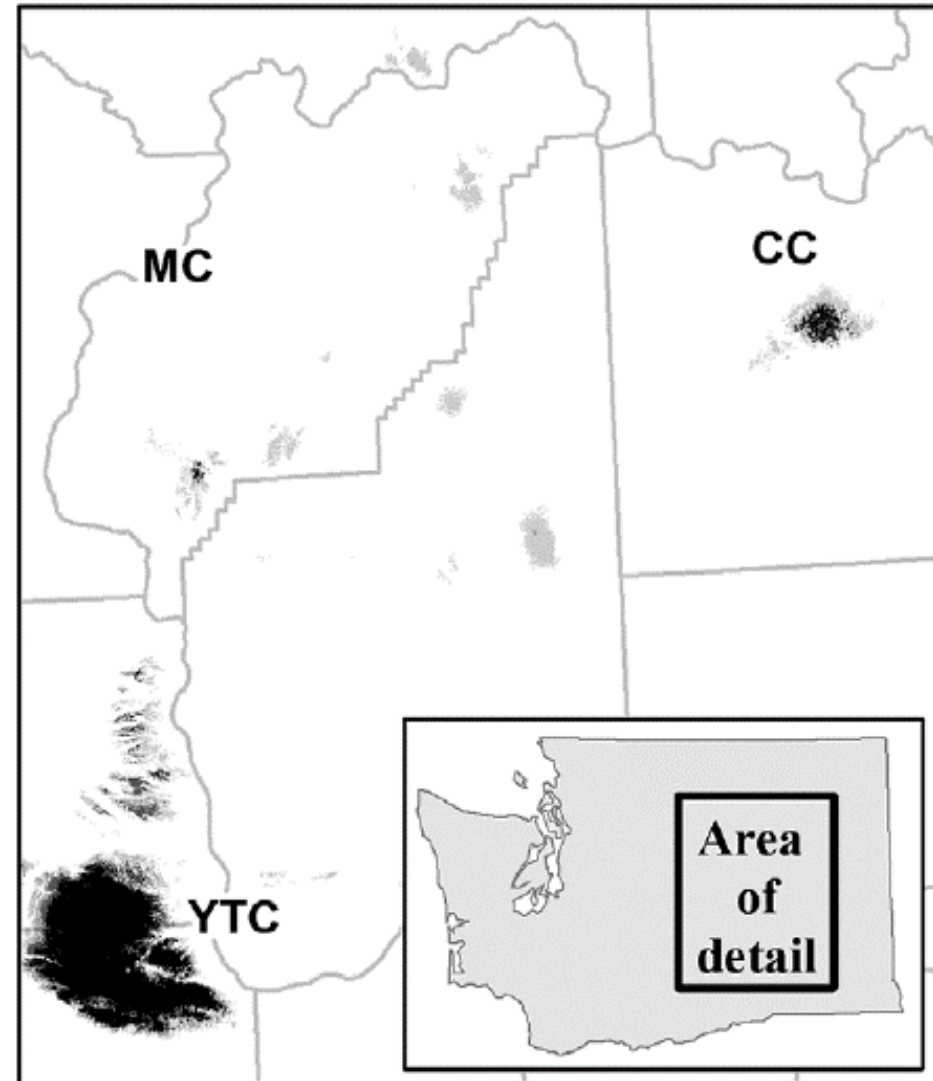
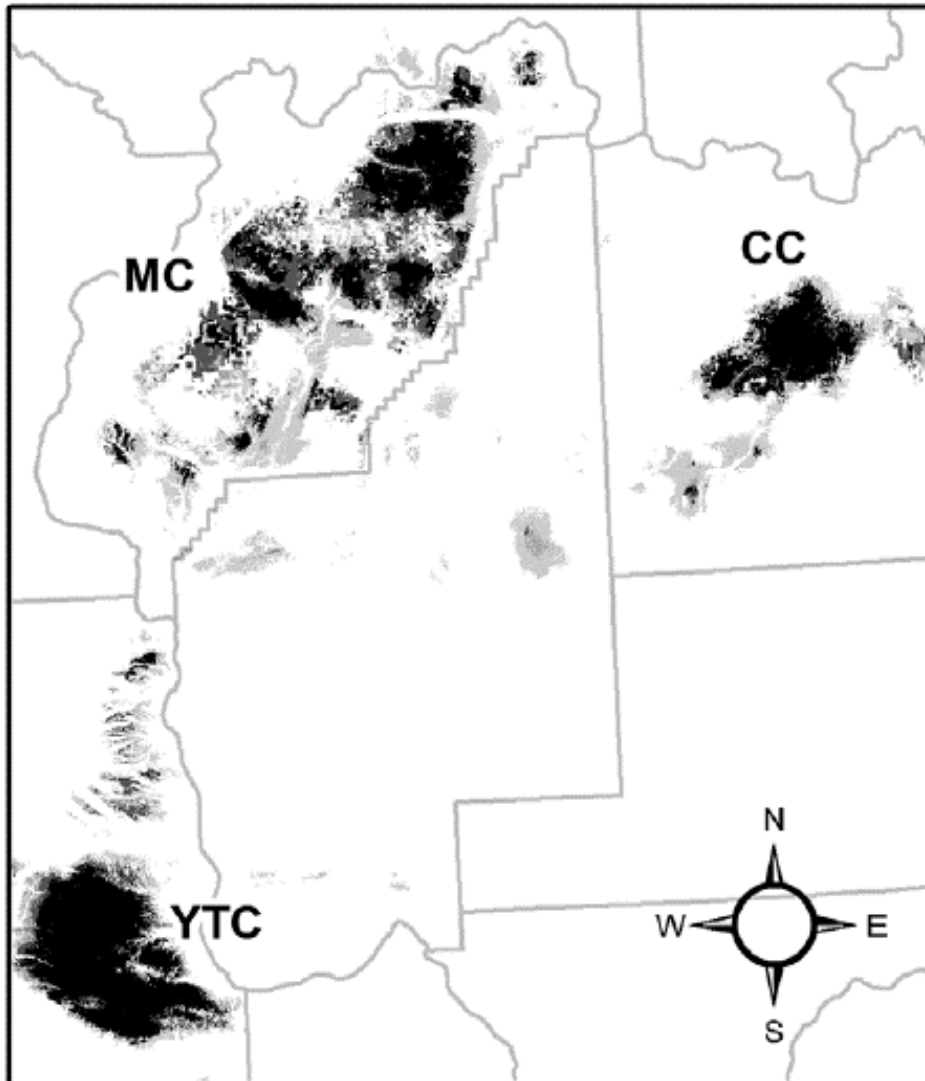
20%	> 150m to patch edge
14%	CRP
20%	Shrubsteppe
7%	Distance to road
12%	Distance to transmission line
1%	Ruggedness
10%	Average precipitation
13%	Average temperature



# Habitat prediction

Existing CRP

No CRP





# Evolution of CRP

The background of the slide is a photograph of a vast, open landscape. In the foreground and middle ground, there is a field of tall, dry, yellowish-brown grass interspersed with dark, leafless shrubs. In the far distance, a range of mountains is visible under a clear, light blue sky. The overall scene suggests a natural, possibly restored, habitat.

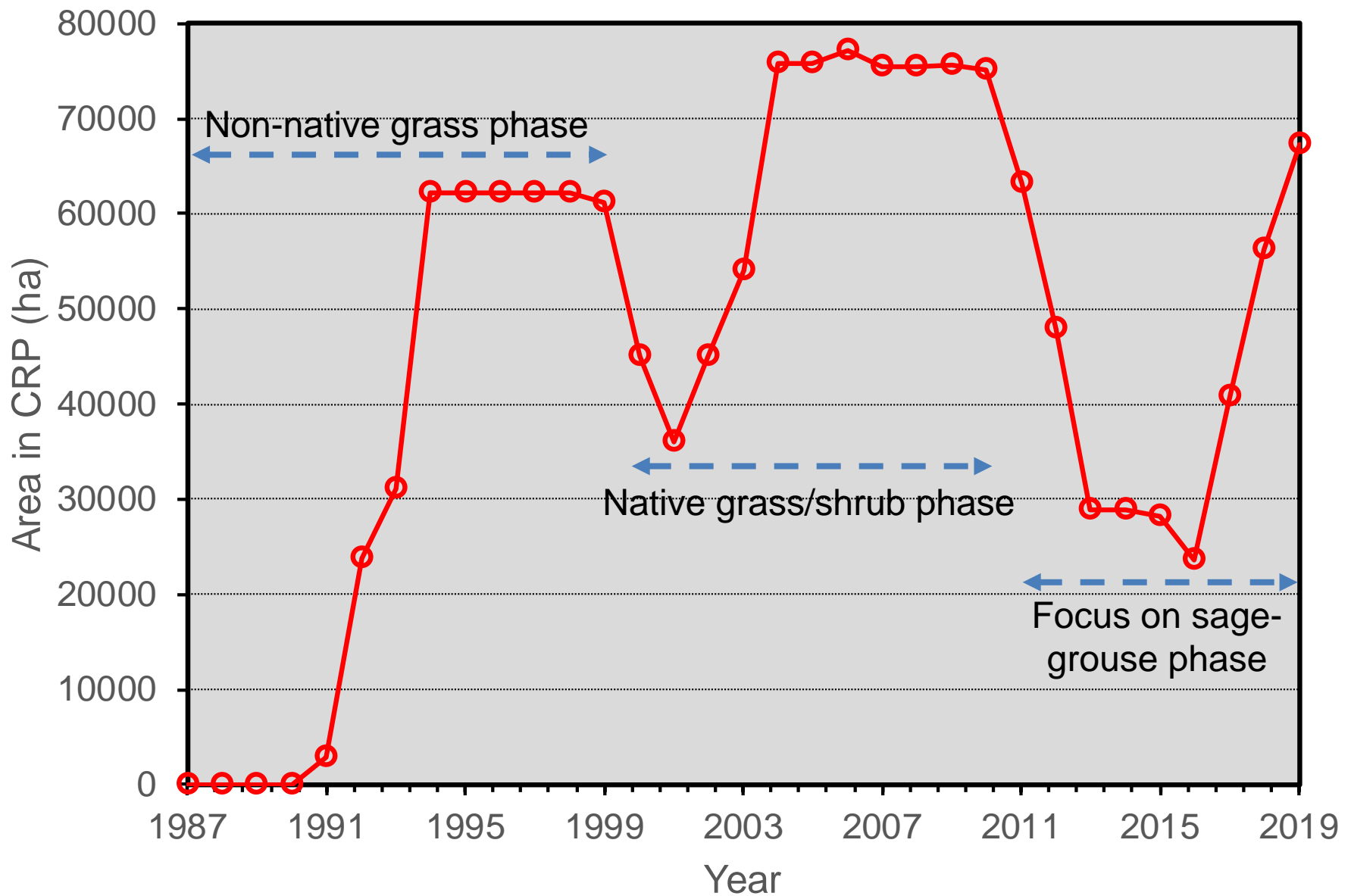
1986-1999      Non-native grass

2000-2010      Native grass and shrub

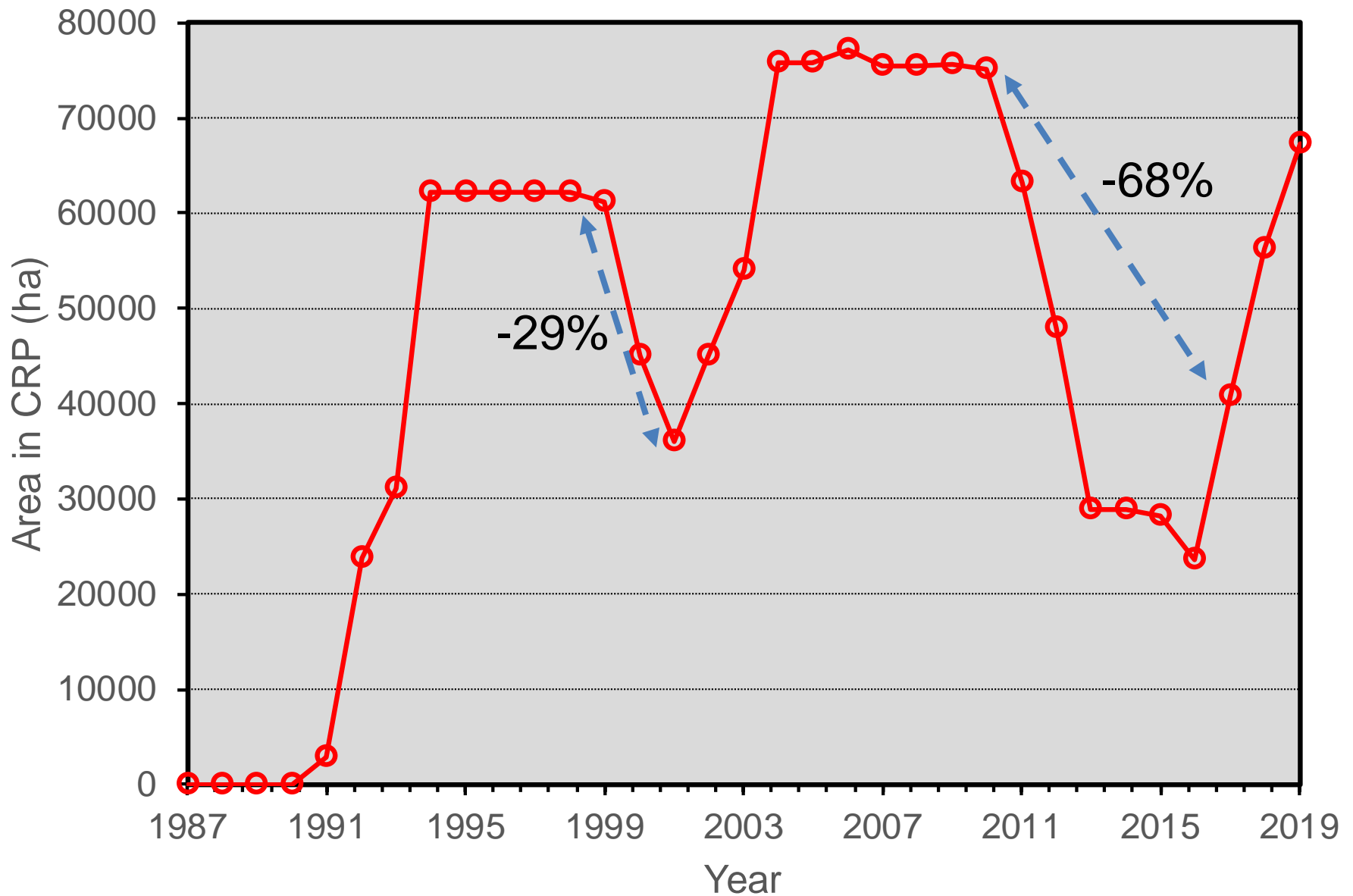
2011-2019      Focus on sage-grouse



# Productive area of CRP

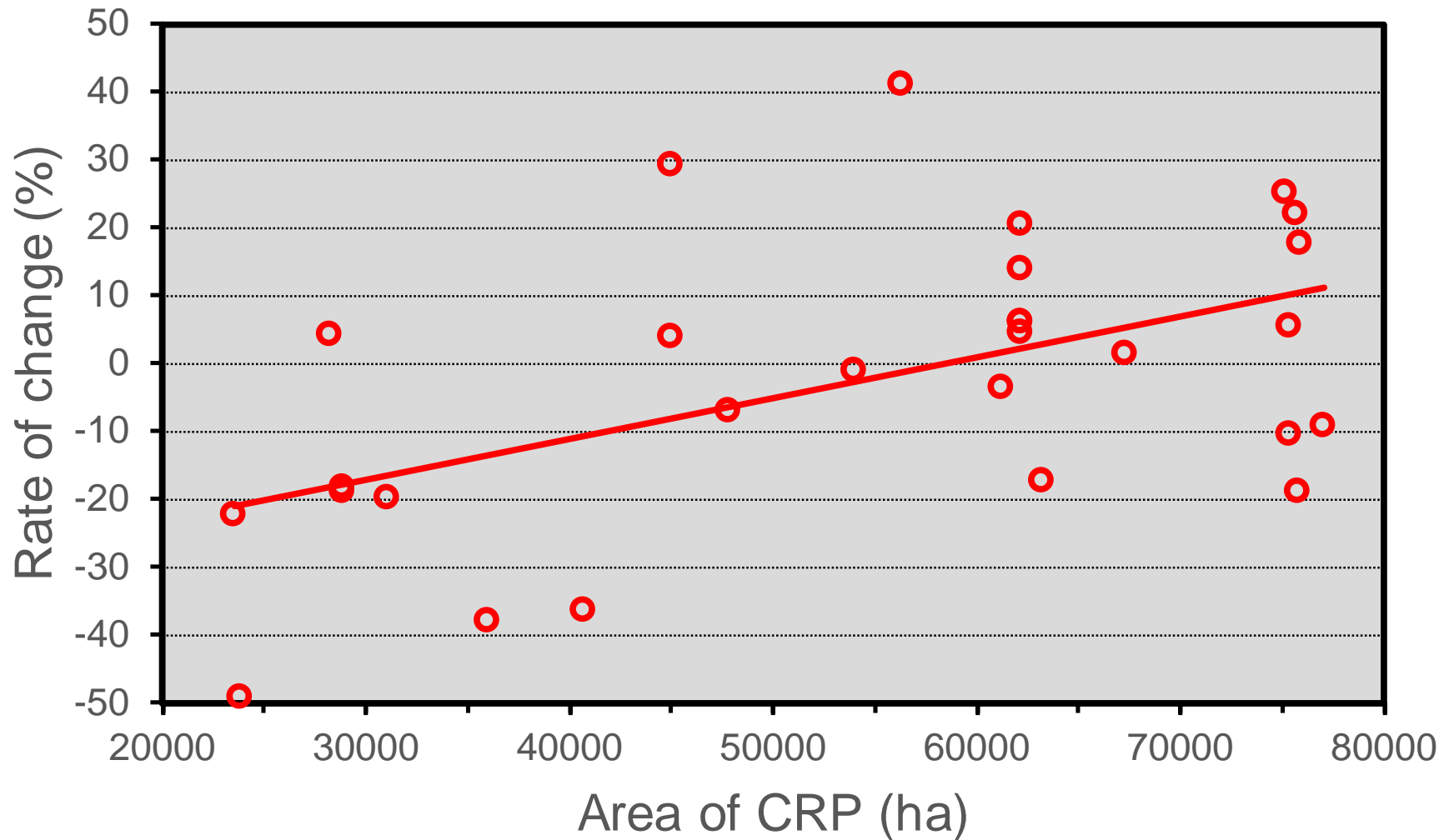


# Notable declines in population

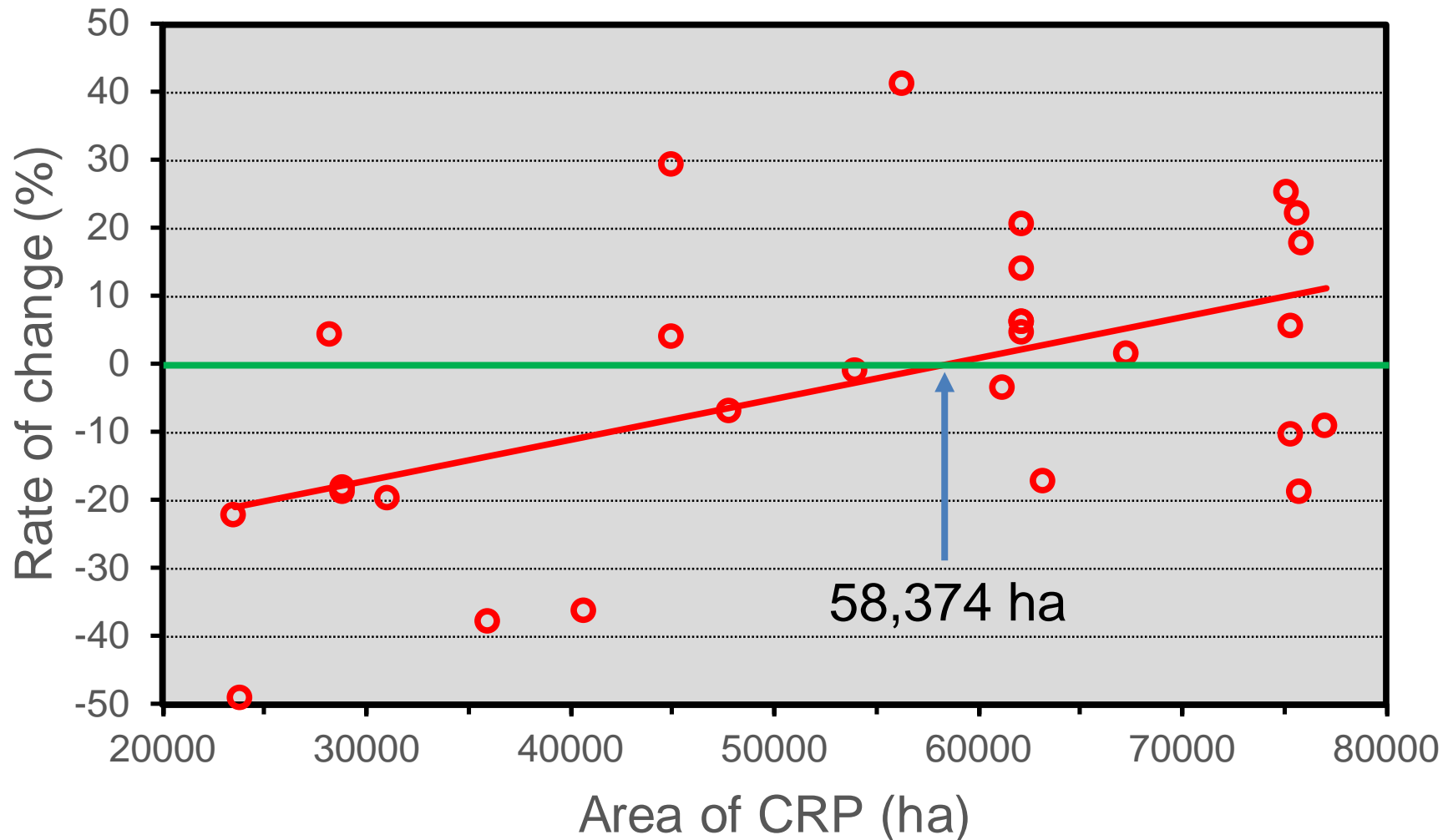




# Rate of population change relative to abundance of productive CRP



# Rate of population change relative to abundance of productive CRP





Thank you

