

# Effectiveness of The Sage-Grouse Initiative:

## Analyzing Change in Sage-Grouse Range from 2001-2015

### Introduction

The sage-grouse is a striking bird found solely in the sagebrush of the Western United States. Over the past century, sage-grouse range has been rapidly decreasing due to depletion of the sagebrush ecosystem. Increase in fire frequency, encroachment of invasive species, and destruction of the land to create more farms and ranches have all caused the sagebrush landscape to shrink. In 2015, the US Congress did not grant the sage-grouse endangered species status despite all this destruction, because they claimed the species had its own protection under The Sage Grouse Initiative, a program created by the USDA's Natural Resources Conservation Service in 2010. The Sage Grouse Initiative is a partnership between the government and private landowners to maintain the sagebrush ecosystem, and therefore the sage grouse.

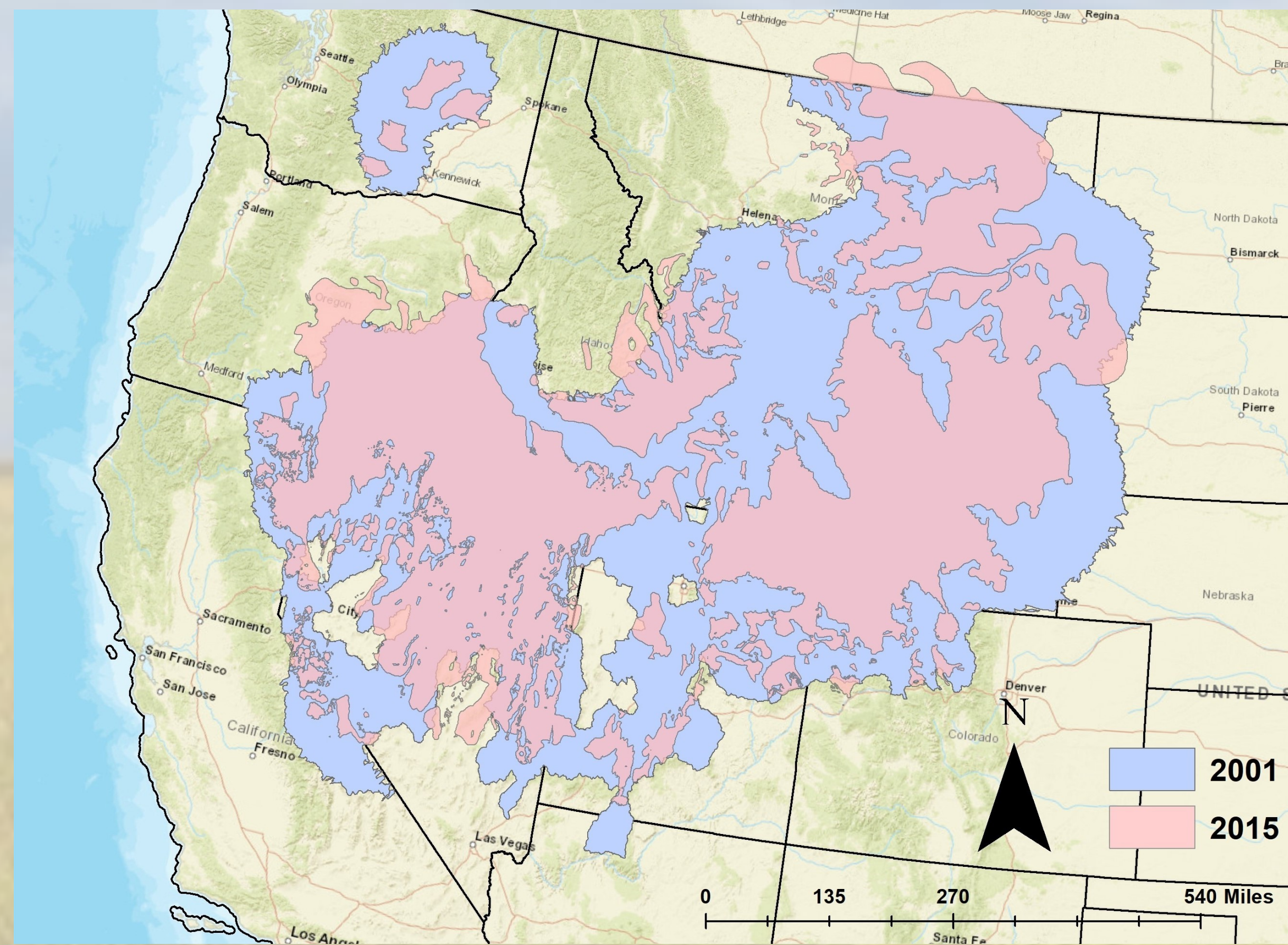
This project seeks to discover if the Sage Grouse Initiative has been successful in maintaining sage-grouse range. This project analyzes if the-sage grouse has been more successfully conserved in private or public lands.

### Methodology

To analyze change in grouse range over time, data for sage-grouse range before the Sage Grouse Initiative was created and after the Sage Grouse Initiative was created needed to be found. The USGS Gap Analysis Project provided the 2001 range, and the USFWS Status Review provided the 2015 range. By creating a new field and calculating area based on geometry in square mileage, the total area of the ranges were able to be found.

Data was obtained from the Protected Areas Database in order to analyze change in grouse range in specific land types. Although the database provided various land types, focus was put on National Grasslands, National Wildlife Refuges, Private Ranches and Ranch Easements, and Private Agriculture and Agricultural Easements. These

Overall Change in Sage-Grouse Range



were chosen because the Sage Grouse Initiative focuses on working with privately owned lands, wildlife refuges, and national grasslands as the sage-grouse lives in grasslands that span the area of both private and public lands.

Intersects were made between the land type and the grouse range of the two years to obtain a shape file that was a polygon of the grouse range in that specific land type of that specific year. A field was added to the attribute table and geometry was calculated in square miles. By looking at statistics, the sum of the area was observed. The maps on this poster were chosen to be shown because the area created by the intersects were big enough to be easy to see, while the polygons for private ranches and ranch easements and private agriculture and agricultural easements were too small to visualize effectively on a map. By knowing the square mileage of the

different land types in the different years, percent change could be calculated. The below data table was made to compare the land types.

### Conclusion

Based on the created data table, one can see that the Sage Grouse Initiative is only semi-effective. Total sage-grouse range decreased by 40.8% from 2001 to 2015, showcasing a dramatic shrinkage and a clear damage to the sage grouse population. However, national wildlife refuge sage-grouse range only decreased 37.3% and private agriculture and agricultural easements only decreased by 35.4%. Although still a decrease rather than an increase, one can see there has been an effort in those two land types to stop sage-grouse range from decreasing because those values are smaller than the overall sage-grouse range loss. However, national grassland range decreased 59.8% and

Land Type	Total Range	All Protected Areas	National Grasslands	National Wildlife Refuges	Private Ranches and Ranch Easements	Private Agriculture and Agricultural Easements
<b>2001 (sq miles)</b>	469,735	371,786	3,129	4,292	402	62
<b>2015 (sq miles)</b>	278,034	204,962	1,259	2,689	229	40
<b>Percent Change</b>	-40.8%	-44.9%	-59.8%	-37.3%	-43%	-35.4%

private ranches and ranch easements decreased 43%, both numbers higher than the overall sage-grouse range loss. This means that efforts to stop sage-grouse range from decreasing in those land types have not been effective. Overall, the efforts within private agriculture and agricultural easements as well as national wildlife refuges have been more effective than efforts within national grasslands and private ranches and ranch easements.

This data showcases that the Sage Grouse Initiative is not effective enough to keep the sage-grouse population thriving, and should potentially be put on the endangered species list. Although efforts in some land types are relatively effective, the sage-grouse range is still decreasing dramatically across all land types, and will likely continue decreasing. Although pairing with private land owners has been beneficial, it is not enough to keep the sage-grouse range from decreasing. Being truly effective would entail the organization to reach out to thousands more private landowners.

Although this analysis is a start to analyzing the effectiveness of the Sage Grouse Initiative, there are some limitations to this analysis. The USGS Gap Analysis and Status Reviews create ranges based on existing data and expert opinions, meaning the ranges created are predictions. Additionally, range of the species changes seasonally and annually which means the maps would differ based on the month and year. One limitation of this analysis is that private ranches and private agriculture data were found from the Protected Lands Database, meaning that there are potentially more private ranches and private agricultural lands involved in the Sage Grouse Initiative. A future analysis could look at more land types to determine if there are different land types where the Sage Grouse Initiative has been effective.

### Sources

Data Sources: ESRI, USGS

Literature Sources:

The Sage Grouse Initiative. "Our Work." *The Sage Grouse Initiative*, [www.sagegrouseinitiative.com/our-work/](http://www.sagegrouseinitiative.com/our-work/).

U.S. Fish & Wildlife Service. "The Sage-Steppe Ecosystem." *Greater Sage-Grouse*, [www.fws.gov/greatersagegrouse/sagesteppe.php](http://www.fws.gov/greatersagegrouse/sagesteppe.php).

Photo Sources: ThoughtCo, Audubon

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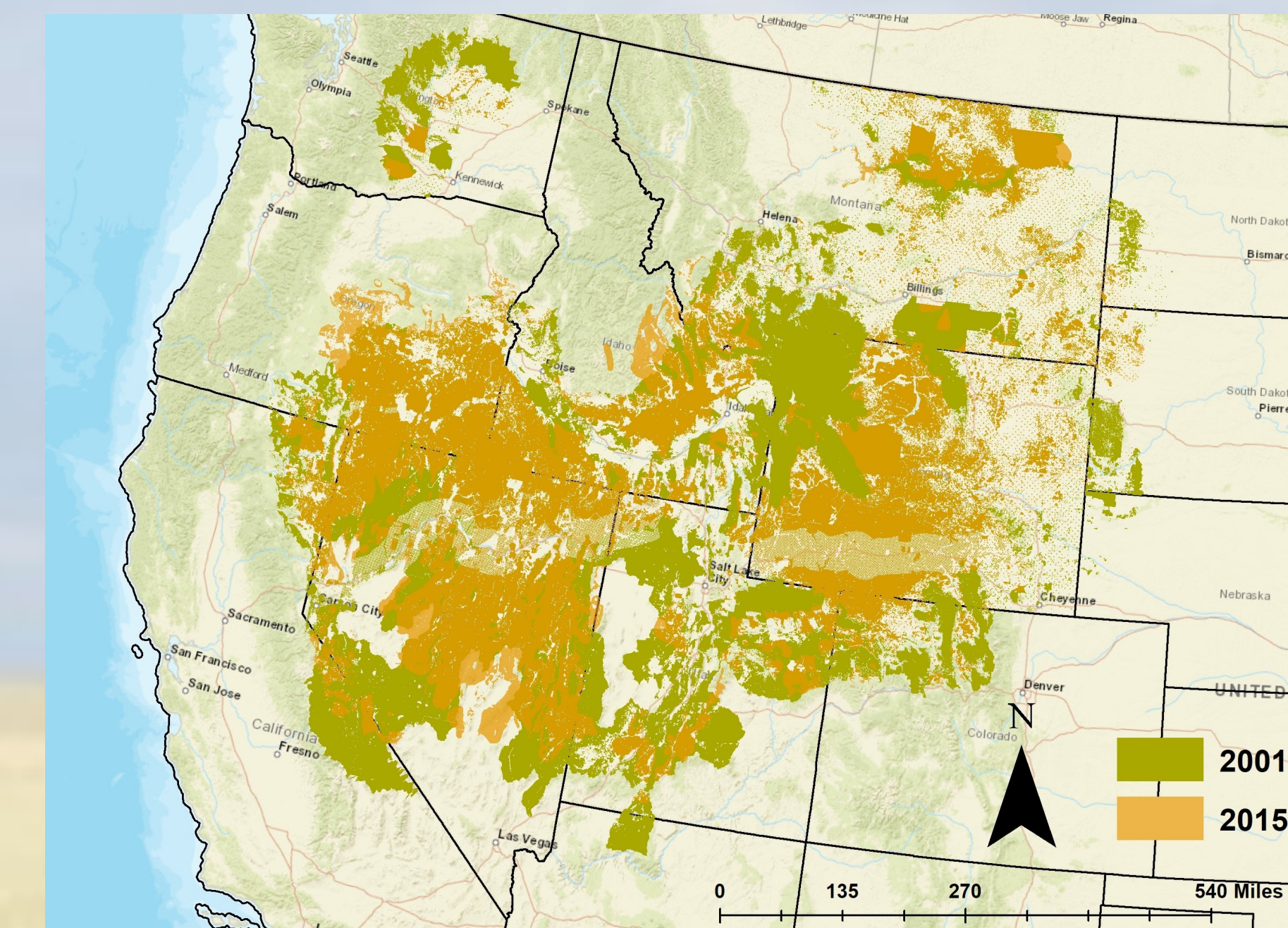
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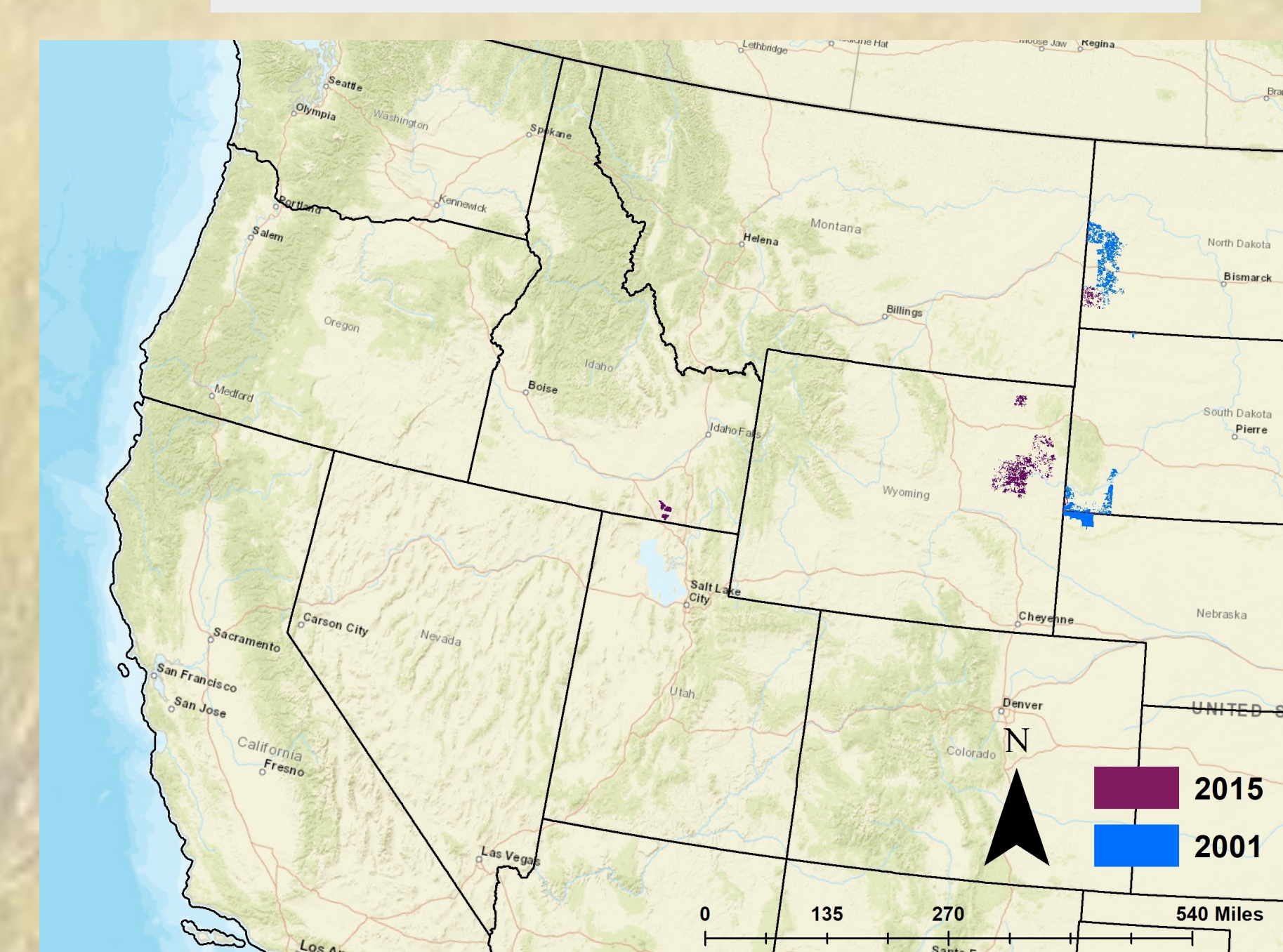
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Change in Sage Grouse Range in All Protected Areas



Change in Sage Grouse-Range in National Grasslands



Change in Sage Grouse Range in National Wildlife Refuges

