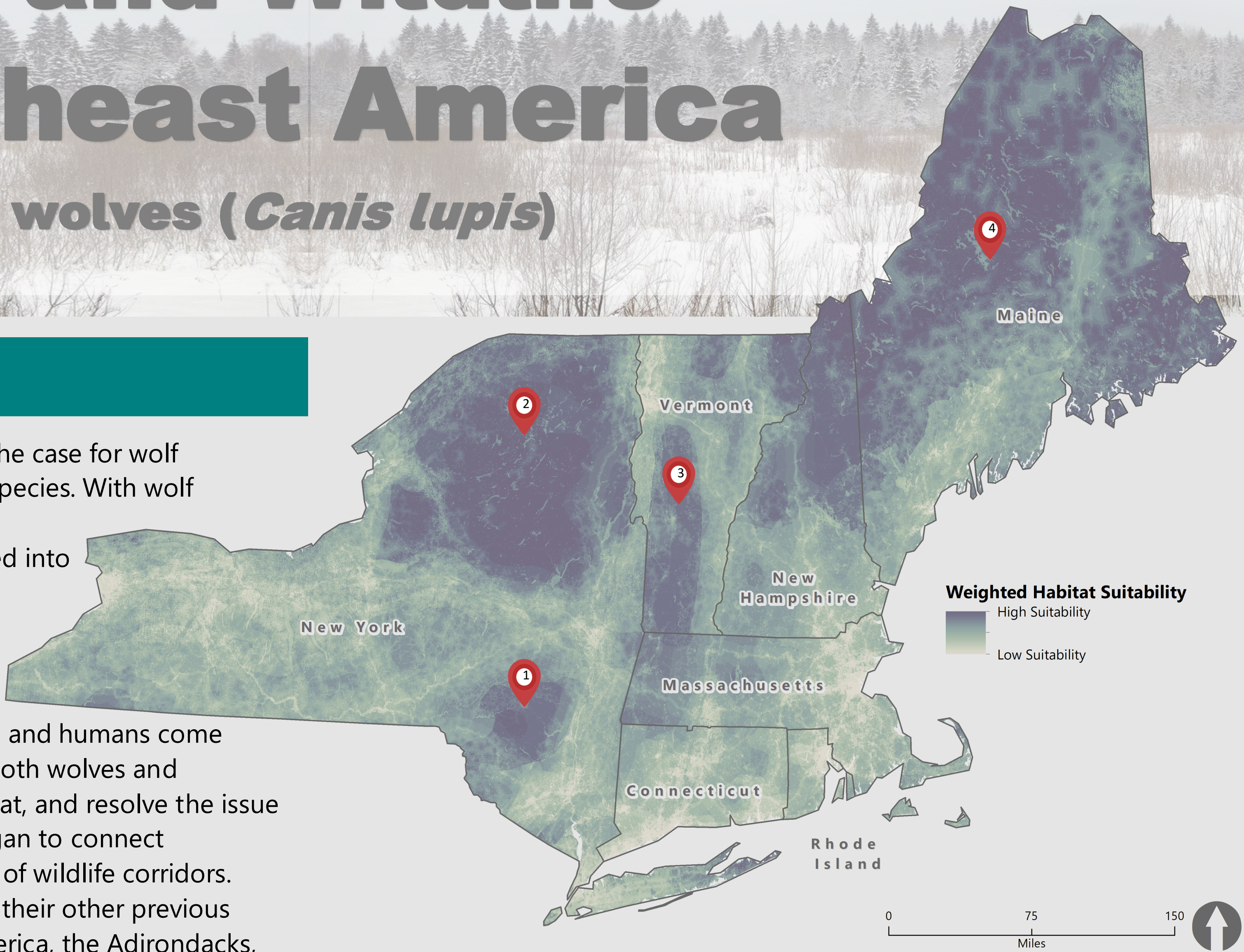


Welcoming Wolves and Wildlife Corridors into Northeast America

A habitat suitability analysis for gray wolves (*Canis lupis*)

Why wolf reintroduction?

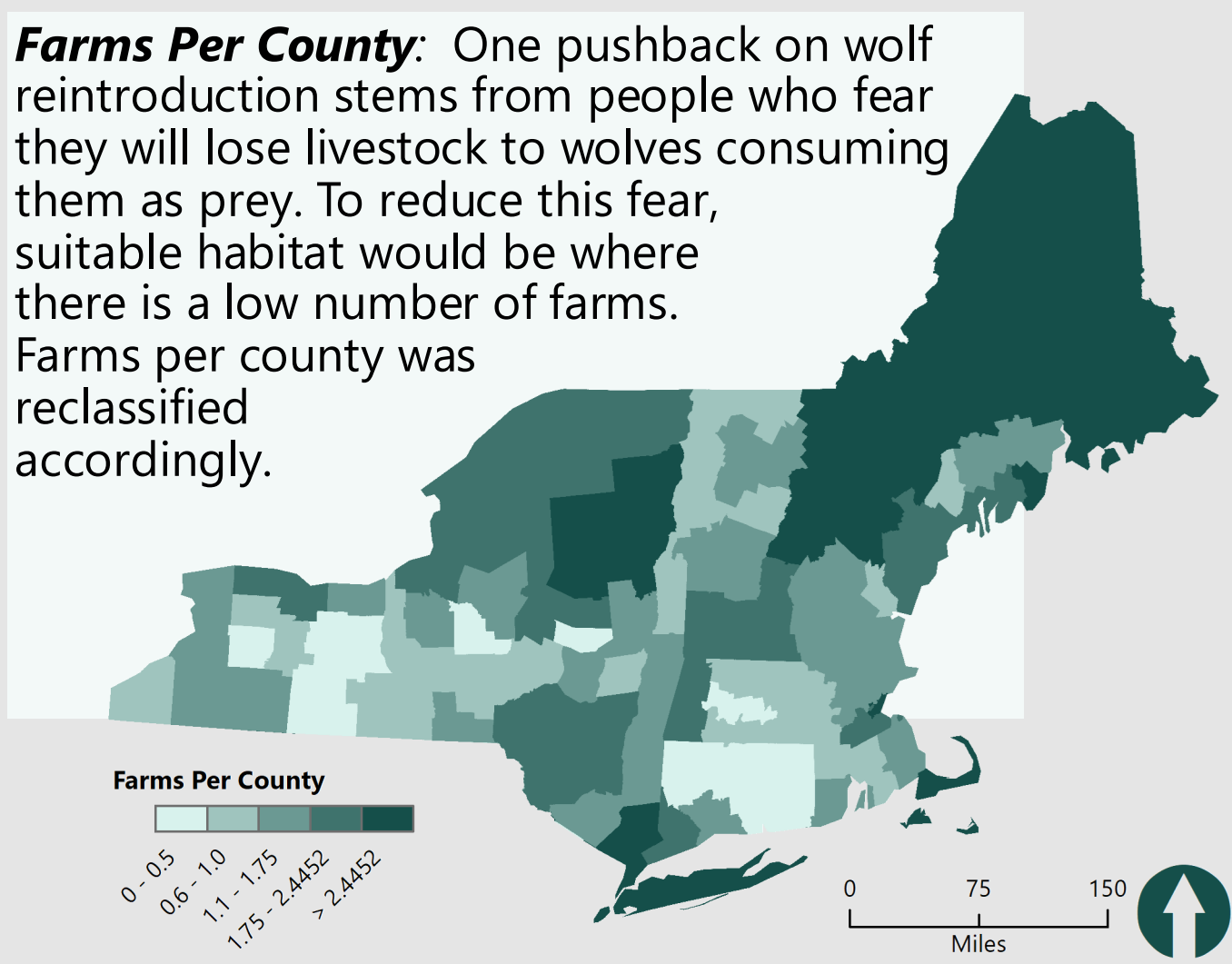
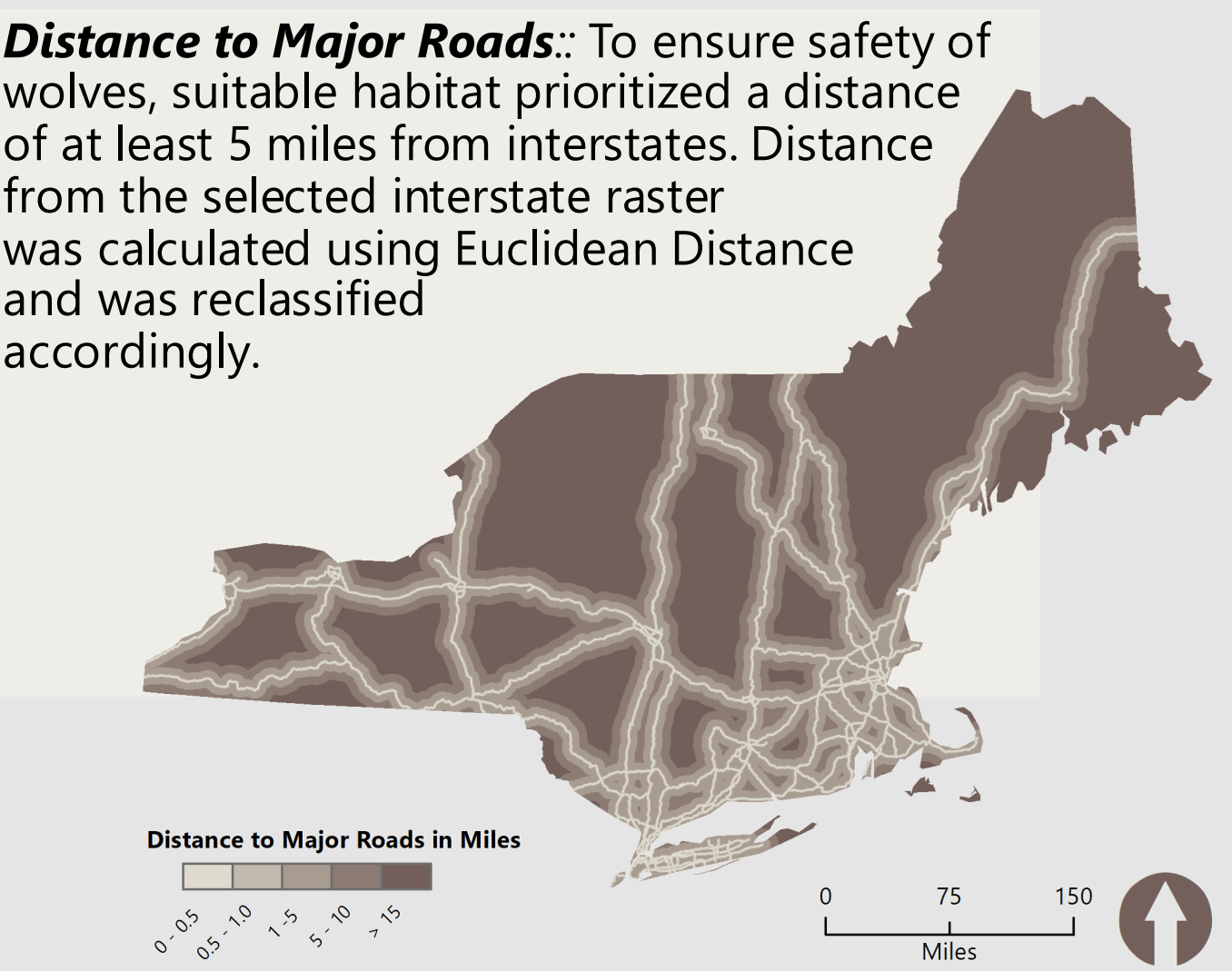
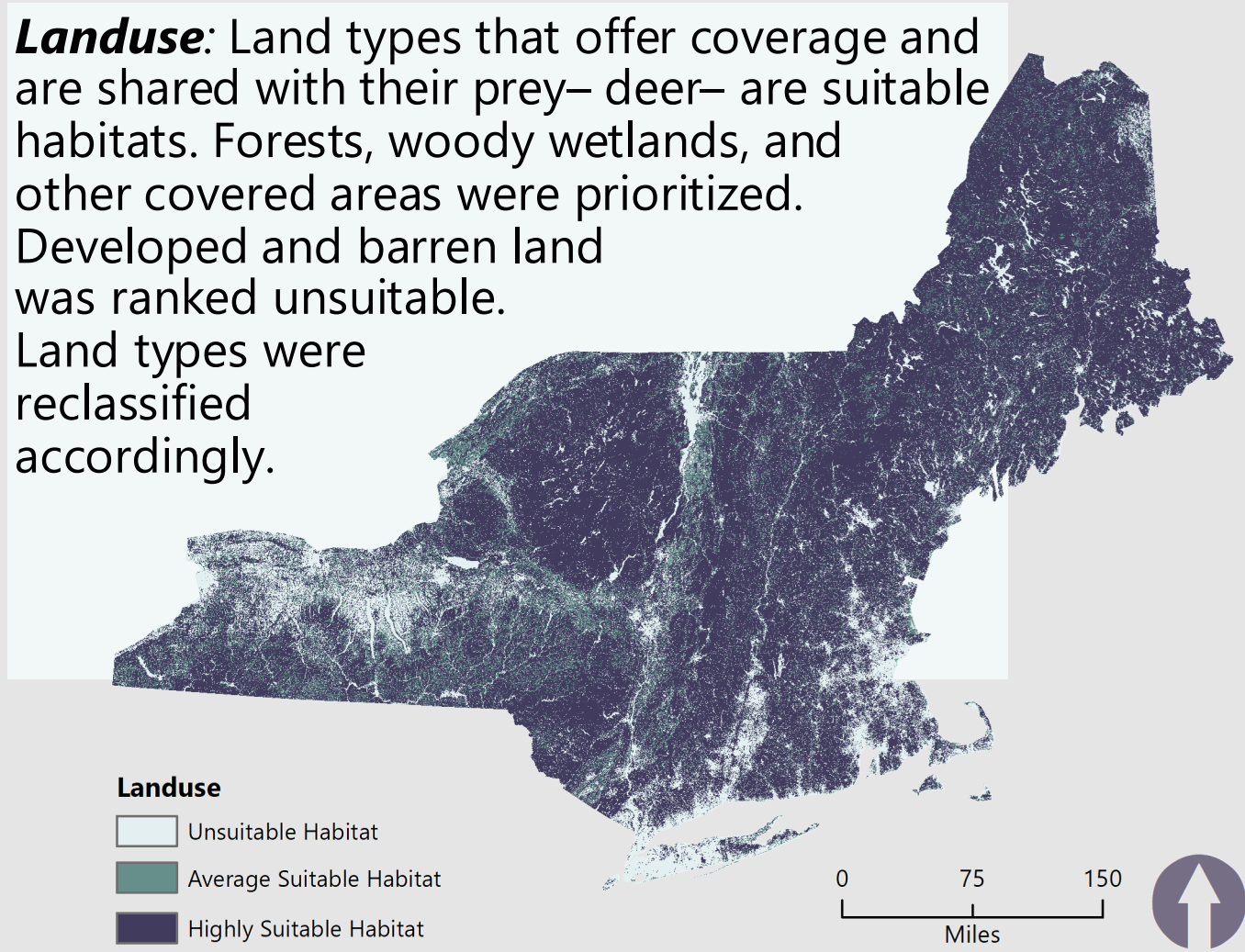
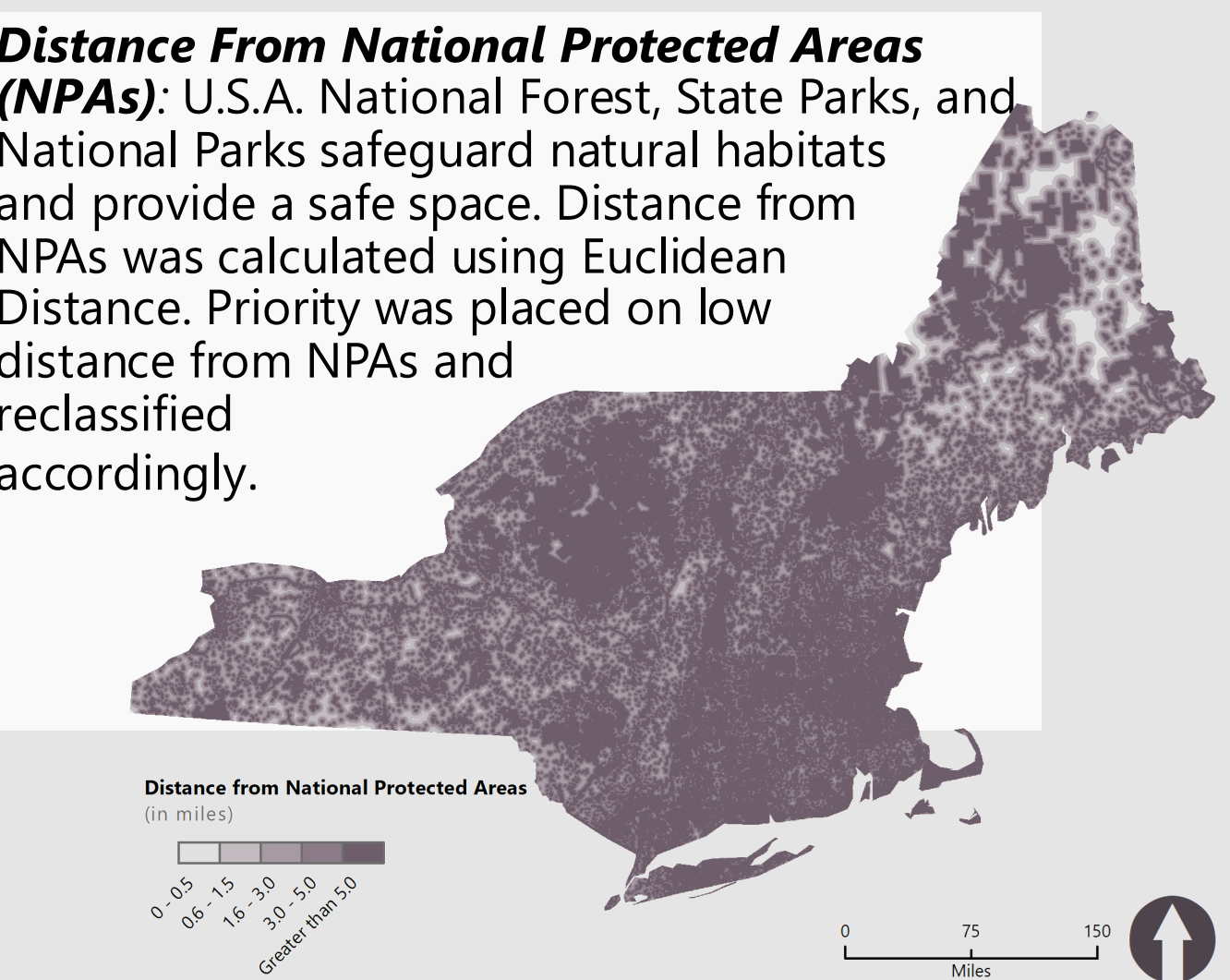
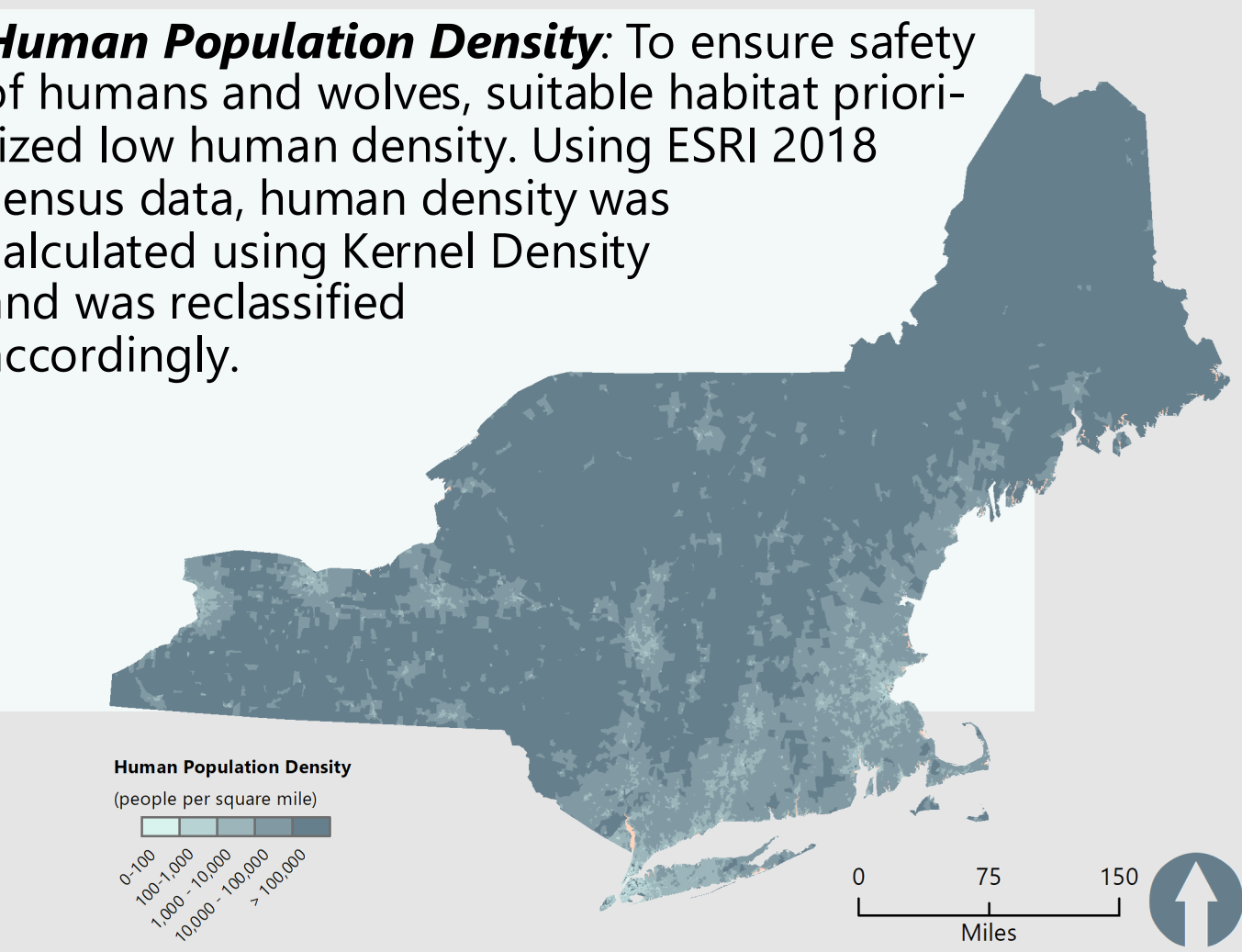
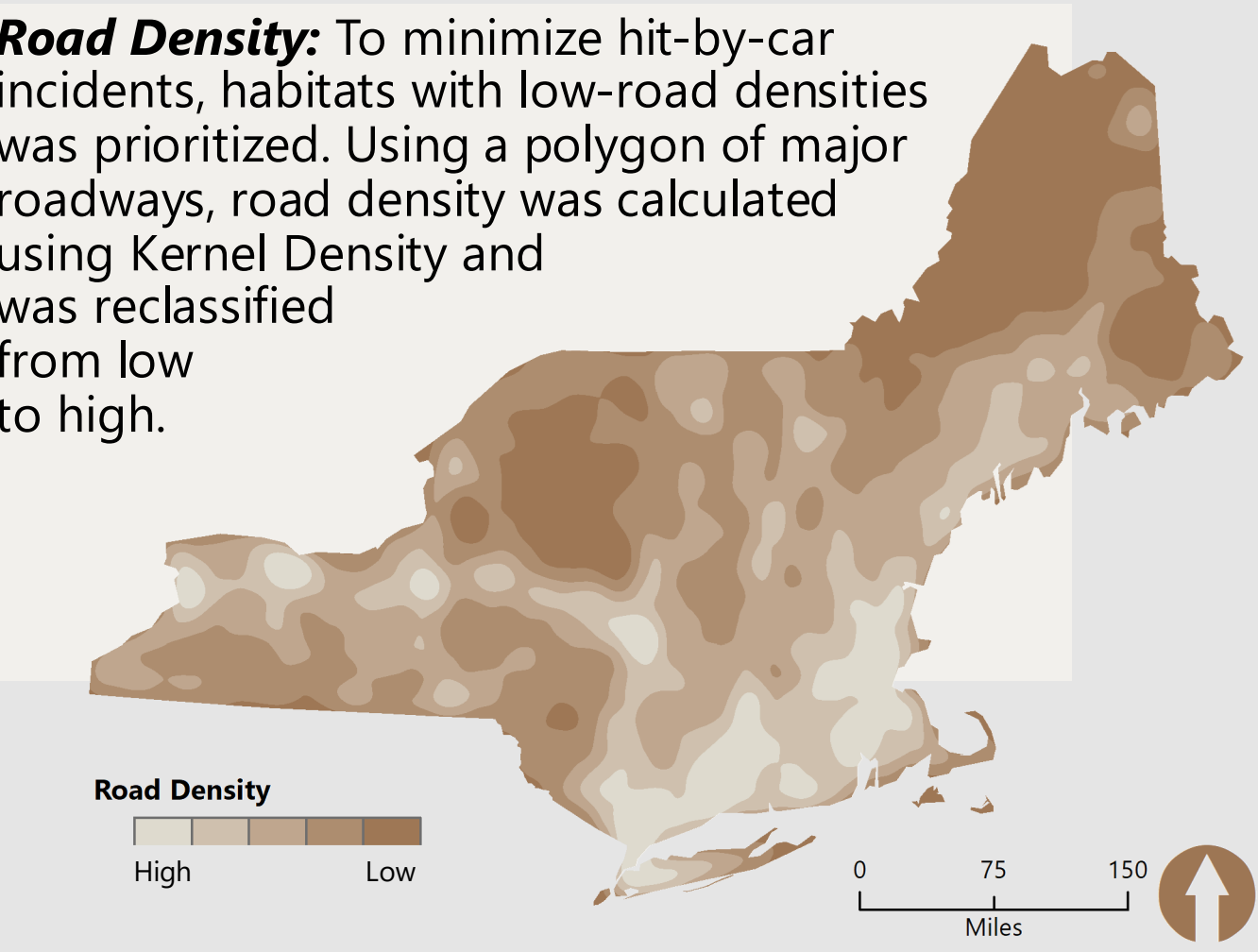
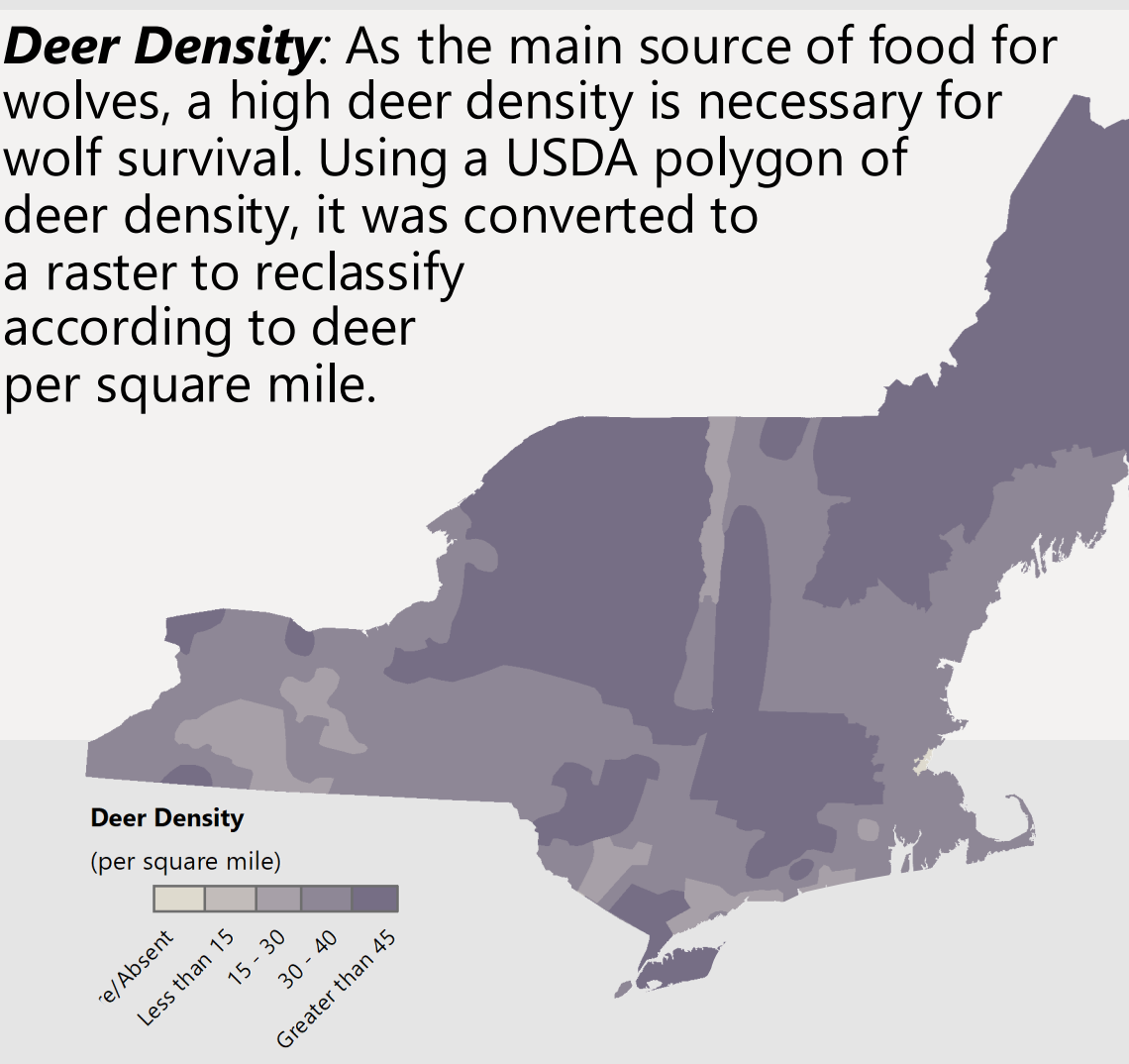
Wolves once roamed all of America, but were extirpated by the 1920s from overhunting. The case for wolf reintroduction began in the 1990s based on the precedence of their status as a keystone species. With wolf presence, forest ecosystems are more harmoniously regulated as hunting ungulates helps minimize the over-consumption of forest vegetation. In the 1990s wolves were reintroduced into Yellowstone National Park and have had such a successful reintroduction people have argued for them to be removed from the endangered species list. With sufficient prey distribution in the West, they quickly expanded their territory beyond Yellowstone. As wolves and humans come in closer proximity, there is a concern for the safety of both wolves and humans. In the effort to give the wolves more safe habitat, and resolve the issue of the island biogeography of the Rockies, an initiative began to connect Yellowstone to Yukon National Park in Canada through a series of wildlife corridors. Given the success of wolf reintroduction in Yellowstone, consideration to restore wolves in their other previous historical range in the USA should be made. New York has the largest National Park in America, the Adirondacks, along with belts of forests extending into Maine. If wolves were to be reintroduced into Northeastern USA, then there would likely be a need for wildlife corridors analogous to what the Yellowstone to Yukon initiative is calling for.



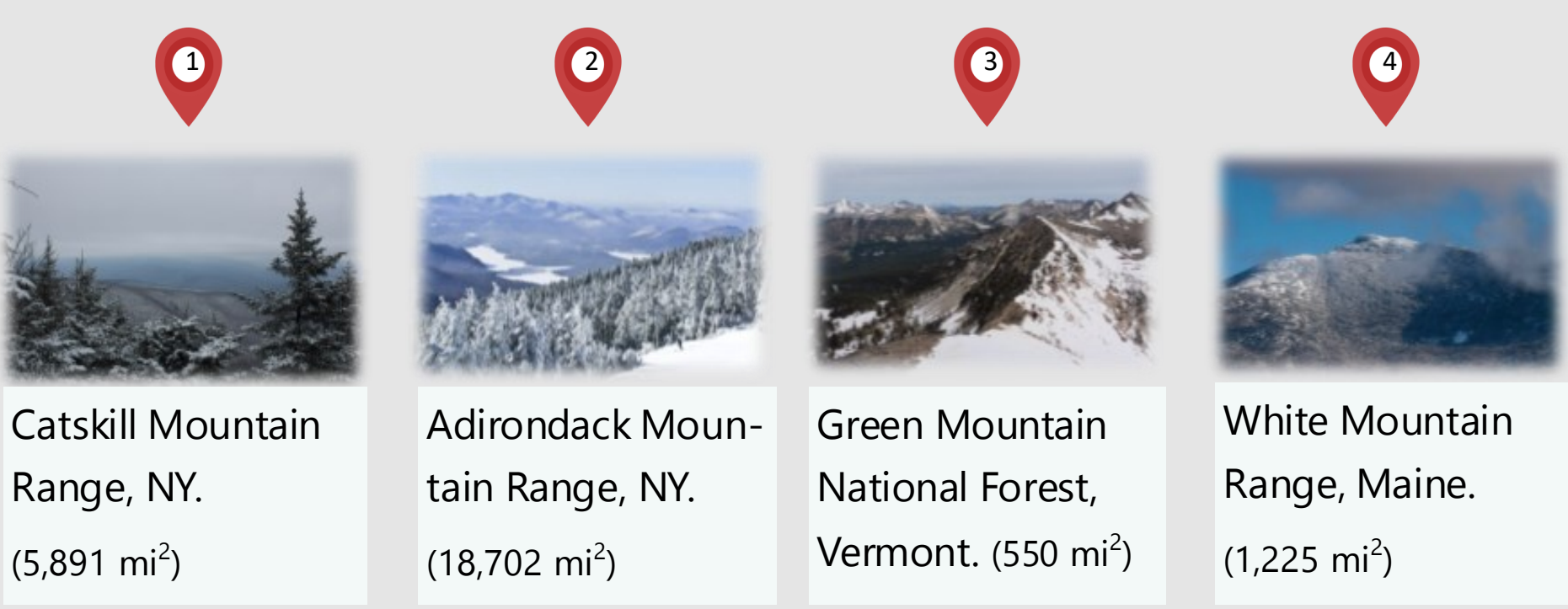
What do wolves need?

The seven factors critical to wolf habitat suitability are identified from peer-reviewed literature. All factors were ranked on a range of 1 to 5, with 1 denoting extremely unsuitable habitat and 5 denoting extremely suitable habitat. Using the weight and reclassification criteria provided, a weighted suitability analysis was performed using spatial analyst tools.

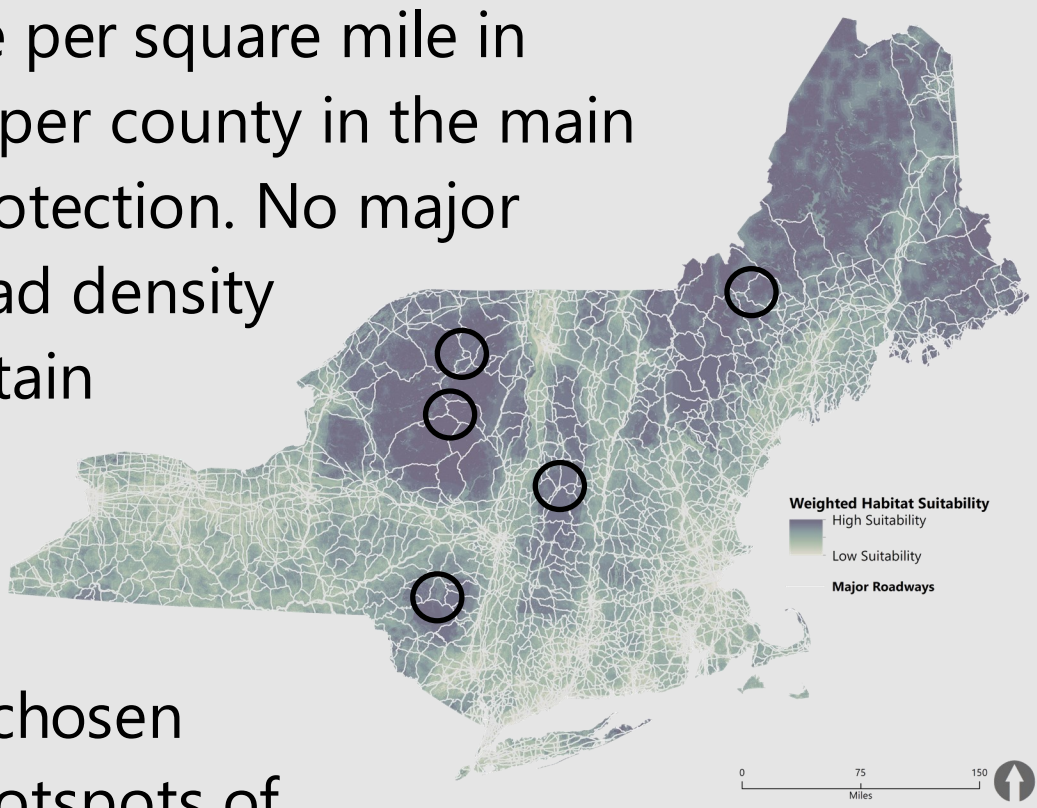
Factor used in Weighted Suitability Analysis	Weight for Analysis in Percent
Deer Density	30%
National Protected Areas	15%
Road Density	15%
Landuse	15%
Distance to Major Roads	10%
Population Density	10%
Farms Per County	5%



Where can wolves go?



There are four main mountain ranges (marked by coinciding pins) that have suitable habitat to support wolves. This area adds up to over 26,000 square miles. Northeast America is primarily forested, and the main areas contain high deer density. With sufficient habitat and prey distribution, wolves' largest threats come from anthropogenic factors, such as human contact or hit-by-car incidents. Human density is primarily under 100 people per square mile in Northeast America. There is less than 1 farm per county in the main ranges, minimizing concern over livestock protection. No major interstates transect the main habitats, but road density was still high in the Catskill and Green Mountain Ranges. Because of this, wildlife corridor recommendations have been made on the figure to the right, which includes a polygon of major roadways. Recommendations were chosen based on centrality in the main ranges and hotspots of road intersection. By this criteria, wolves have suitable habitat to be reintroduced into Northeast America, but the addition of wildlife corridors should also be considered.



Data Sources: ESRIData2018, USDA, USGS, NLCD
Additional Sources: ESRI ArcGIS Online
Projection:
NAD_1983_StatePlane_Vermont_FIPS_400

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