



Mapping Pelagic Bird Distribution and Abundance as a Decision-Making Tool for Off-Shore Wind Turbine Development and Conservation Planning

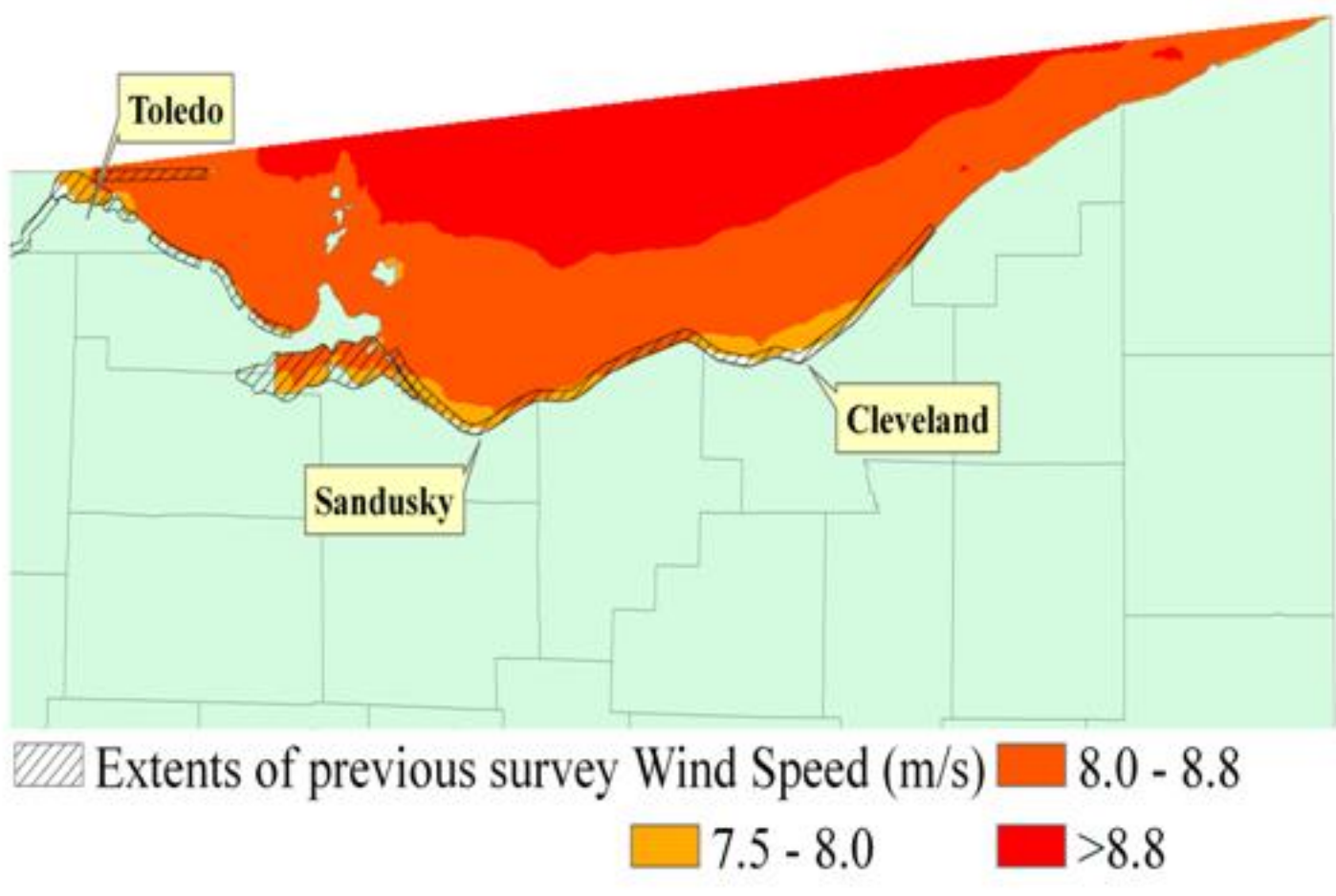


Keith D. Lott¹, Megan Seymour², and Robert Russell²

Ohio Department of Natural Resources Division of Wildlife¹ United States Fish & Wildlife Service²

In October of 2009, the Ohio Department of Natural Resources Division of Wildlife began conducting aerial pelagic bird (e.g., ducks, geese, gulls, and terns) surveys in order to determine the spatial and temporal distribution of bird activity across Ohio's portion of Lake Erie. These surveys were conducted weekly from mid-October until mid-December, and again from mid-March until the end of May in order to encompass a complete migratory cycle. The goals of this study were to collect baseline information on pelagic bird activity levels in order to assess the potential direct/indirect impacts offshore wind facilities, and to encourage the siting of wind energy facilities within regions which minimize the potential impacts to water birds.

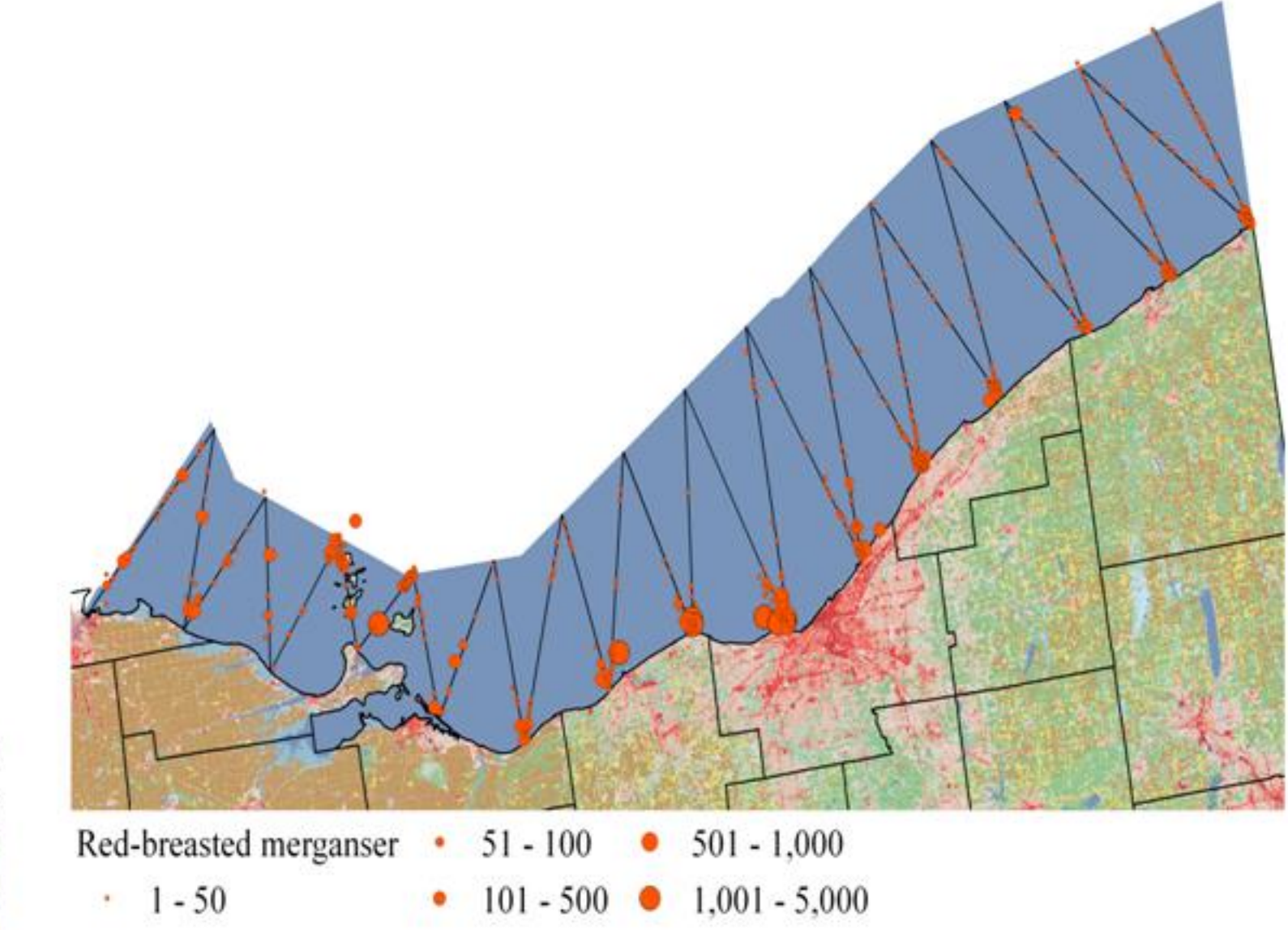
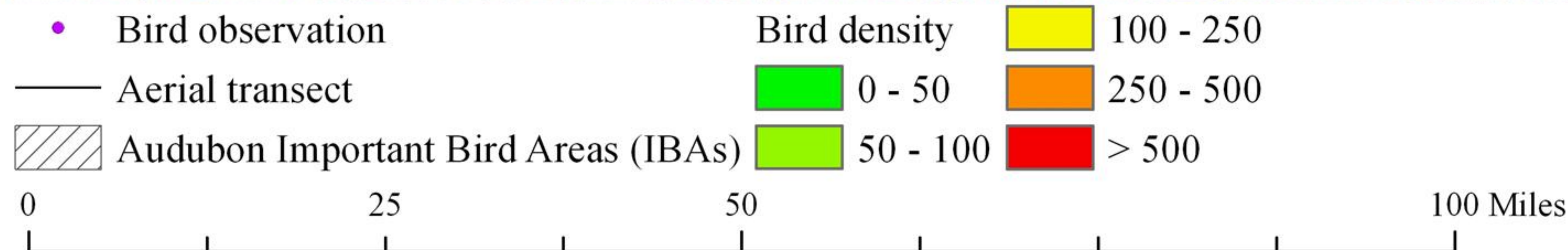
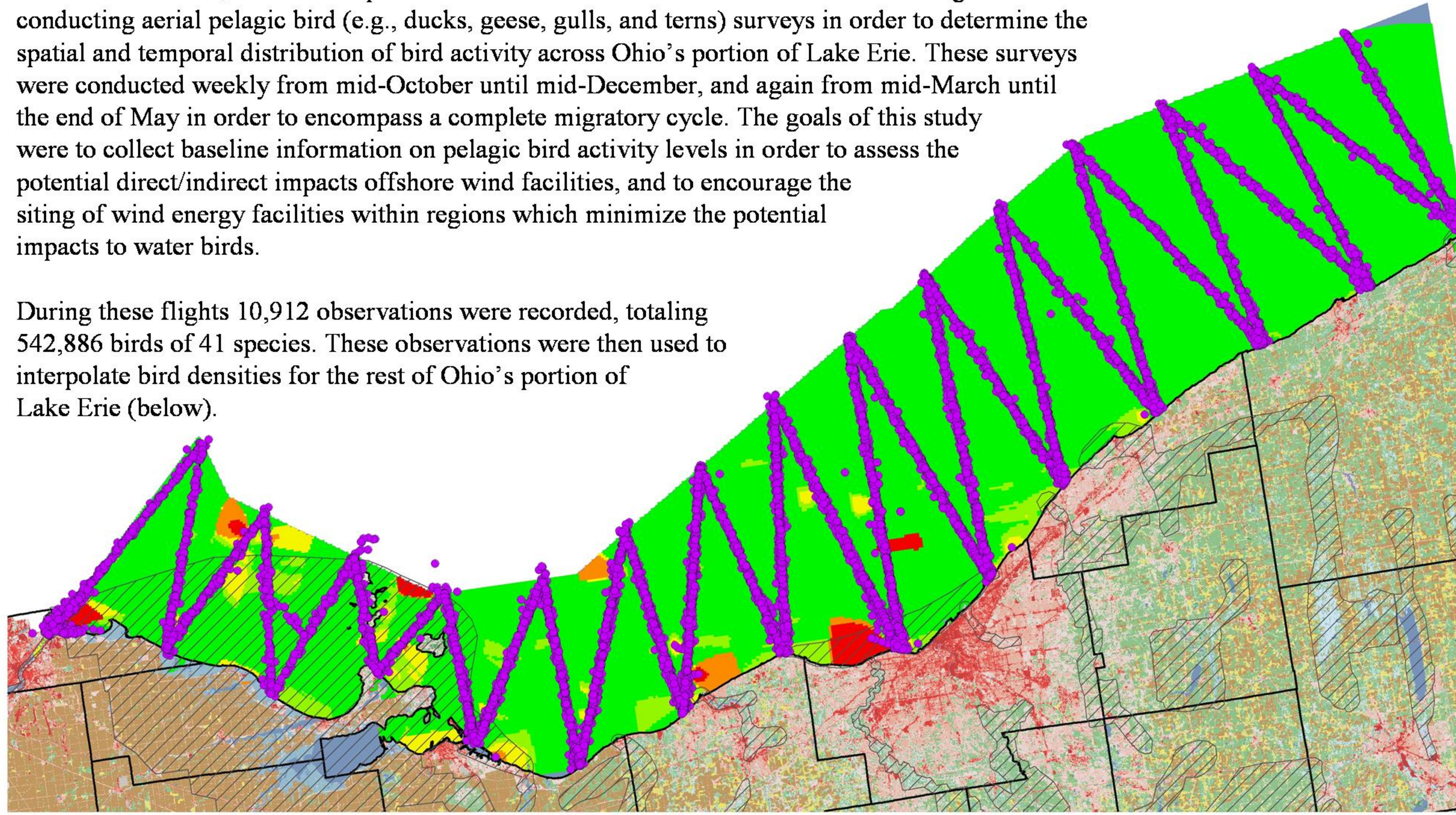
During these flights 10,912 observations were recorded, totaling 542,886 birds of 41 species. These observations were then used to interpolate bird densities for the rest of Ohio's portion of Lake Erie (below).



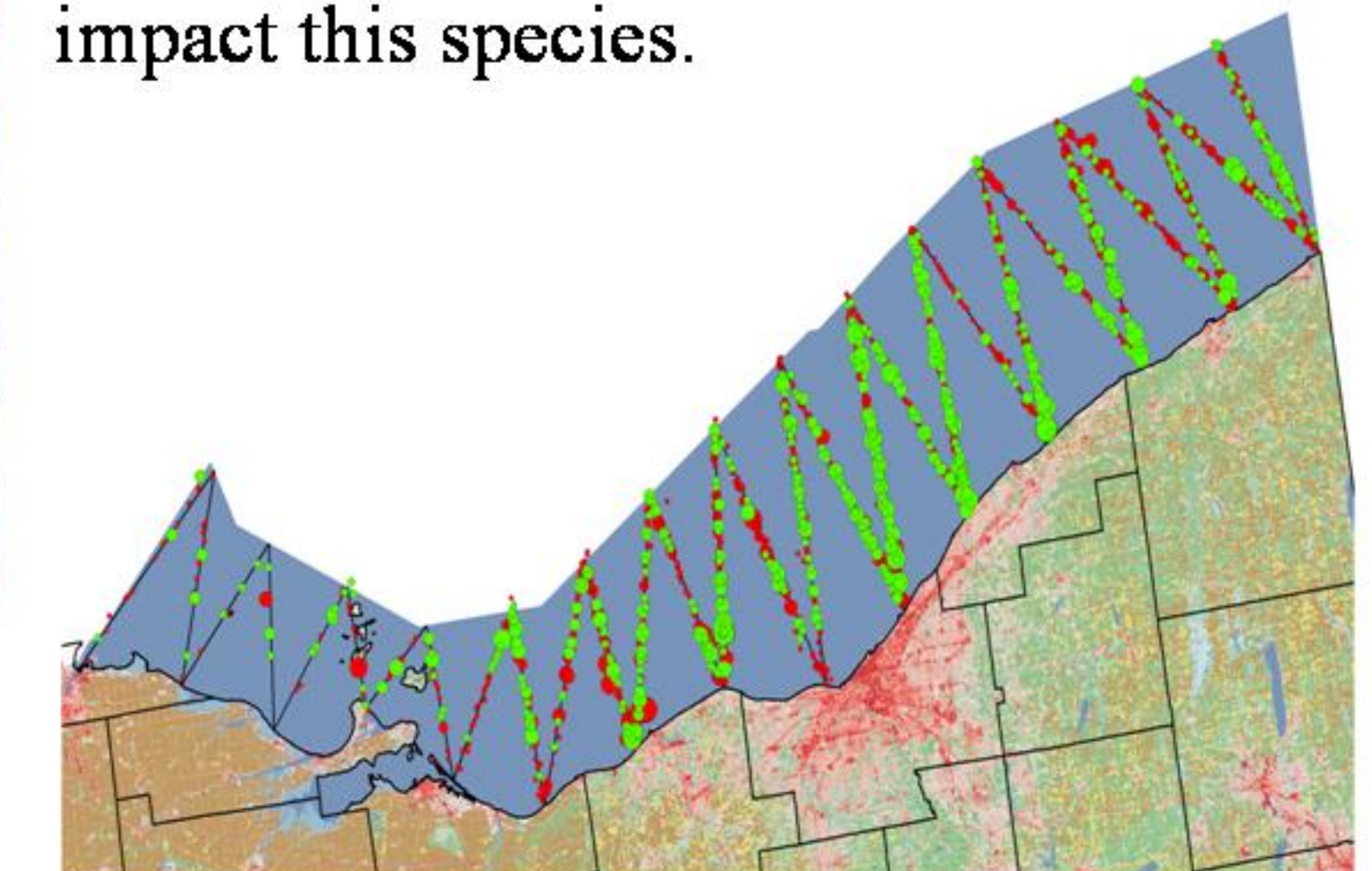
Prior to these efforts waterfowl surveys were mostly constrained to the marshlands located along the Lake Erie shoreline.



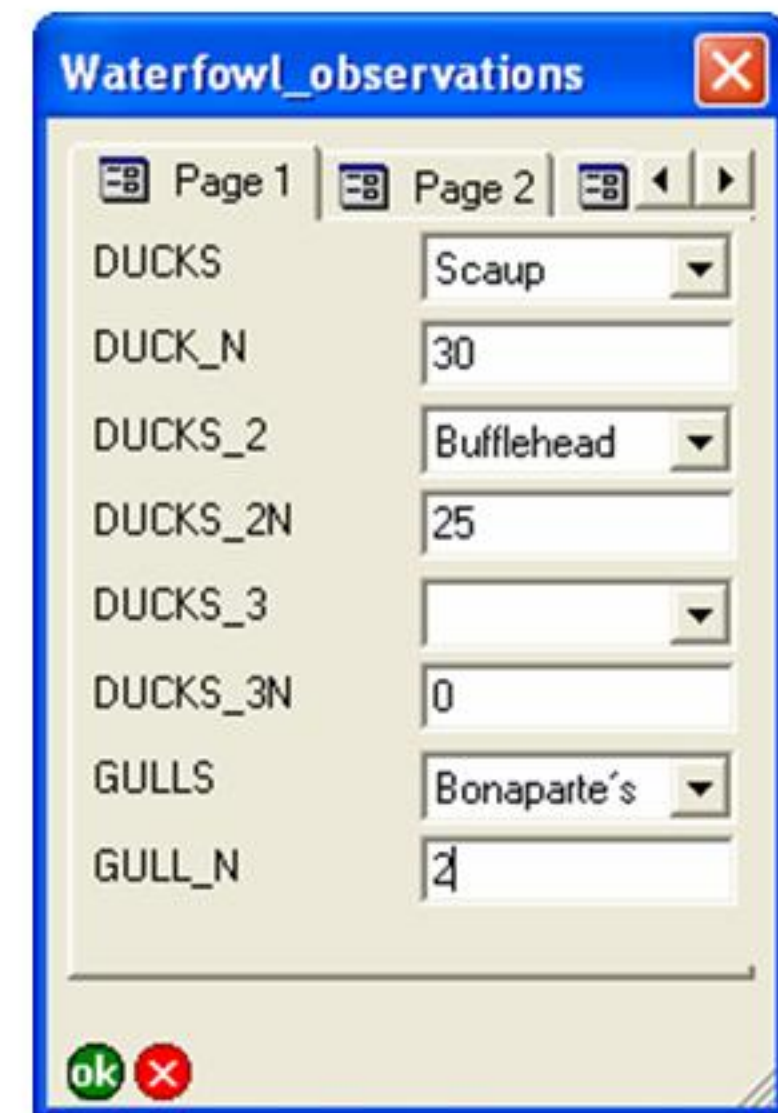
Transects were flown at an altitude of 200-250ft above the water at approximately 120 knots (138 mph).



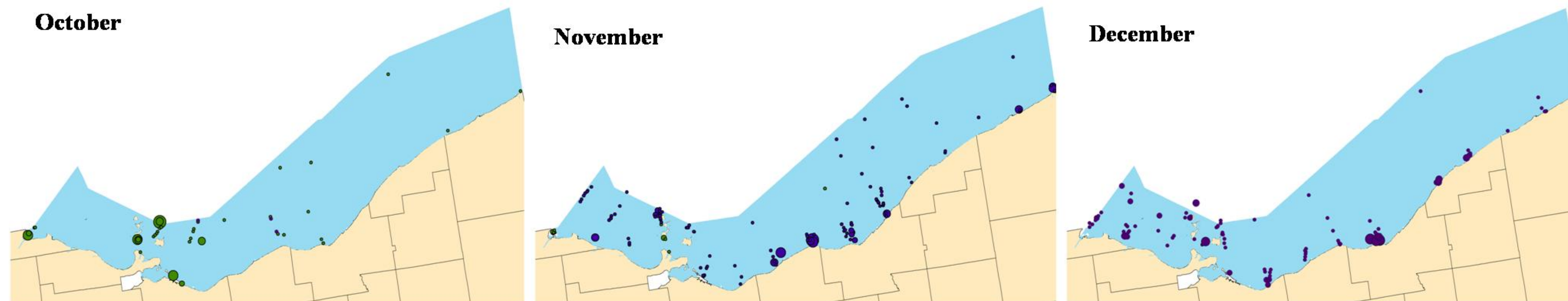
A globally significant proportion of the red-breasted merganser population migrates through the Great Lakes region each year. Results from this study indicate that the majority of these birds prefer to inhabit waters less than 5-miles from the shoreline. Thus, turbines sited outside of this distance would be less likely to impact this species.



Previously relatively few common loons or horned grebes were observed on Lake Erie each year. These species stop-over during migration, but are typically more than a mile from shore making shoreline observations nearly impossible. The extent to which these species use Lake Erie would not be known if it weren't for these surveys.



Observations were entered into a handheld computer which allows for simultaneous recording of multiple species, number of individuals, and the GPS location for each flock or individual.



Various species utilize Lake Erie at different times. As shown above double-crested cormorant numbers decrease through the winter months as they migrate further south. Whereas, red-breasted mergansers are absent throughout much of October, arriving by the thousands during November.

Partial funding for this project was obtained through the Great Lakes Fish and Wildlife Restoration Act grant.