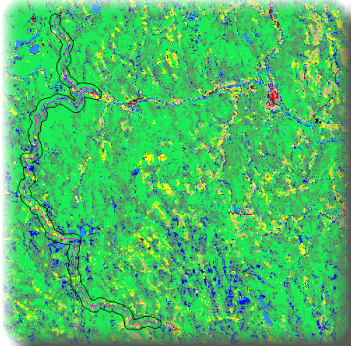


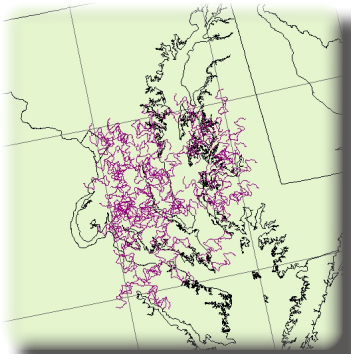
Evaluation of Representativeness of Sampling of the North American Breeding Bird Survey



- **The Challenge:** The North American Breeding Bird Survey is a critical information source for >400 species of birds. The survey is unique; no other survey provides data at the geographic and temporal scale of the BBS. Analysis and upkeep of this important survey requires experimental work to ensure that the assumptions of the analyses are met and that the design of the survey is adequate to meet the goal of providing unbiased estimates of population change. The roadside nature of the survey has been a source of controversy since the start of the survey, with critics contending that inferences about relative abundance and population change do not extend beyond the roadside sample frame and that the BBS only indexes change for roadside birds. Although limited comparative information exists on counts of birds along roadsides relative to offroad areas, remotely-sensed habitat information can be used to determine whether habitats along roads differ from adjacent off-road habitat in the United States. Other factors associated with roadsides, such as disturbance associated with traffic, can also limit our ability to monitor bird populations using roadside surveys.



- **The Science:** We are using remotely-sensed land cover data to determine whether amounts of habitat and rates of habitat change differ between roadsides and off-road areas. USGS scientists summarized Landsat data into land cover categories for years 1992 and 2001, and analyzed change in land cover between those years across the contiguous United States. We are overlaying Breeding Bird Survey routes on the land cover maps to evaluate present land cover and change in land cover along BBS routes. We are also randomly sampling from the landscape near each survey route to discover whether the amounts of habitat and rates of change in habitats differ between the locations where birds are counted and the surrounding landscape. Finally, we are evaluating the consequences of amounts of traffic along survey routes for estimation of population change.



- **The Future:** As expected, there are differences in land cover occur between roadside and non roadside habitat. However, the differences between on- and off-road land cover vary regionally. Analysis is in progress regarding relative change in habitats on verses off roads. Roadside traffic has significant effects on observer's ability to perceive many species of birds, but the magnitude of these effects are generally small and have not been a significant source of bias for estimates of population change. Analyses of these and other aspects of the survey design are continuing, with the goal of documenting and controlling for factors that limit the ability of the survey to monitor North American birds.