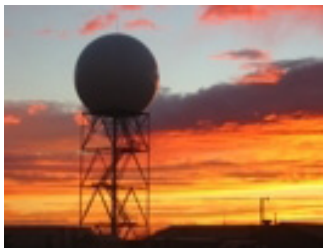
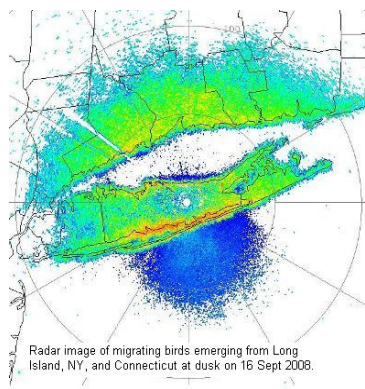


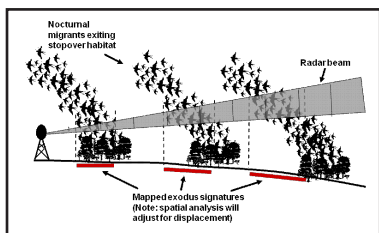
# Radar Analysis of Fall Migration Stopover Sites in the Northeastern U.S.



- The Challenge:** Most conservation efforts for land birds in North America have focused on protecting or enhancing breeding habitat. For migratory species, however, migration may be the period in the annual cycle when mortality is highest. In fall, juvenile birds are making their first migratory flights; their success, and that of adult birds, depends on the availability of suitable habitats where they can safely rest and forage. The northeastern U.S. includes the first stopping sites for millions of southward-bound migrants. Identifying important stopover sites and habitats is thus a critical step in development of a comprehensive regional conservation plan for migratory land birds.



- The Science:** Data collected during Fall 2008 & 2009 by the 17 weather surveillance radars (WSR-88D) in FWS Region 5 are being used to identify important stopover sites across the northeastern U.S. These radars can detect birds as they depart daytime stopover sites to resume nocturnal migratory flight, and radar reflectivity measures are correlated to bird density aloft. Radar data are screened to identify nights in which radar targets are dominated by migrating birds. For each of these nights, radar reflectivity data collected near dusk are temporally interpolated to when the sun is 5.5° below horizon, when birds initiate nocturnal migratory flights en masse. Within each radar-sampled area, "important" stopover sites are those areas with above-mean reflectivity across nights, further categorized as "consistently high density of emerging migrants" or "highly variable migrant density". Important stopover sites are mapped in a Geographic Information System, overlain on land cover and elevation data. For each site, the habitat, elevation, and landscape characteristics are determined, and used to develop statistical models that predict sites outside of radar-sampled areas that also may be important stopover habitat.



- The Future:** Results and products from the project will help to focus conservation efforts for migrating landbirds on areas and habitats where they are likely to be most effective, contributing directly to Bird Conservation Region plans of the Atlantic Coast and Appalachian Joint Ventures, Comprehensive Conservation Plans for Region 5 refuges, State Wildlife Action Plans, and to broader region-wide planning for migratory bird conservation.