

Response of Avian Community to Forest Management on Moosehorn NWR



- **The Challenge:** Research goals focus on measurement of direct effects of various habitat management techniques for game species on neotropical migratory birds. Analyses are ongoing to determine if avian species richness, diversity, and relative abundance of land birds has changed at Moosehorn National Wildlife Refuge as a result of habitat management; determine if the structure of the avian community in the managed portion of the refuge differs from that in the unmanaged wilderness area; and determine if changes in avian species on the refuge from 1978-81 to now are similar to trends for the same species along federal survey routes for similar habitats elsewhere in Maine.



- **The Science:** Moosehorn National Wildlife Refuge in eastern Maine was established in 1936 as a management area for American woodcock (*Scolopax minor*). The 6,580 ha area is 90% forested and has had an active program to harvest wood since 1979. When the program began, point counts were used to determine species richness and relative abundance of birds in conifer, hardwood, and mixed-wood control (uncut) and harvested sites. Distributions of bird species and abundance were different between control and treatment plots. Numbers of species increased in harvested plots, and more species gained individuals than declined. Increases in estimated richness and diversity were noted in treated hardwood and mixed growth stands. Of the 68 species of birds recorded, 17 increased in relative abundance, whereas only 2 species declined after treatment began. Stand treatment was associated with changes in the composition of the bird community. The refuge now contains patches of the original forest (~5,070 ha), which includes a 2,000 ha permanent wilderness area, and is interspersed with clearcut blocks and strips <25 years old.



- **The Future:** Research on direct effects of various habitat management techniques for game species on neotropical migratory birds is sparse. This project is an ongoing collaboration among the US fish and Wildlife Service, USGS PWRC and USGS NPWRC. Forest habitat on the refuge has been mapped and put into a Geographic Information System. We will be modeling change in avian diversity and richness in response to forest structure over time. The results will provide information to federal, state, and NGO agencies on effects of timber harvest on neotropical birds and ways to improve forest habitat for migratory birds.