

## STUDY PERFORMANCE REPORT

State: Michigan

Cooperators: Michigan Department of Natural Resources, U. S. Fish and Wildlife Service

Project Title: Michigan's Endangered and Threatened Species Program

Project Number: E-1-13

Study Number: 601

Study Title: Management of the Kirtland's Warbler

Period Covered: September 30, 1984 through September 30, 1985

### I. Summary

With the exception of limitations imposed by a shortage of available planting stock, all objectives scheduled for accomplishment during this segment were accomplished. These accomplishments partly fulfill the objectives of the Kirtland's Warbler Management Plan. An average of 1,550 acres per year of new habitat is needed on state land to meet the objectives of the management plan for the recovery of the Kirtland's warbler. This goal has not been met, mainly because of limited funding and a shortage of prescribed burning.

From time to time wildfires create new habitat, offsetting the need to artificially regenerate the full acreage prescribed by the management plan. However, wildfire prevention and control are of highest priority because of risk to public safety and private property by jack pine fires. There were no significant wildfires in Kirtland's warbler management units in 1985.

The plantings in 1985 are to provide habitat after the large Mack Lake burn on U. S. Forest Service land has passed peak use by nesting Kirtland's warblers. It is too late to plant to offset a critical habitat shortage which will occur between 1986-1990 prior to Kirtland's warbler use of the Mack Lake burn. During this period available habitat will be divided between plantations created during the early years of this plan and a wildfire produced habitat, the bald hill burn, on military land at Camp Grayling. Efforts are in process to arrive at a management agreement with the military which will maximize benefits to the Kirtland's warbler on military land during this critical period, and thereafter.

### II. Background

The Kirtland's warbler (Dendroica kirtlandii) is a federally listed endangered species. Because of its limited summer range and unique habitat requirements, and because of its decreasing numbers in recent years, this bird is in need of specialized protective and management measures.

The Kirtland's warbler population has been censused in 1951, 1961 and every year from 1971 on. In 1971, the bird was found to have declined in numbers by about half. Several things have contributed to this decline. Acceptable warbler habitat has been declining and will continue to do so into the early 1990's. Brown-headed cowbirds (Molothrus ater) are known to parasitize warbler nests reducing warbler productivity. Even people in their zeal to see the bird inadvertently disturb the warbler during these critically low population periods. These are only the hazards we know of and do not include the unknowns that befall the warbler during migration or on their winter range.

As early as the 1950's, some habitat management was being done to help the warbler. However, it was not until the 1970's that major efforts were put forth in behalf of the bird. In 1975, the Kirtland's Warbler National Recovery Team was established to prepare a plan to guide the bird's recovery. That plan, the Kirtland's Warbler Recovery Plan, was completed in 1976. It calls for on-the-ground management of approximately 135,000 acres on both U. S. Forest Service and state-owned land, enough for about 1,000 pairs of warblers, to be managed by cutting, burning and planting for the bird. This is in addition to special regulatory protection, land acquisition and research to both learn more about the birds and find better techniques to come to their aid.

The Recovery Plan for the Kirtland's warbler is largely a land-based plan. Although there is a general concensus that brown-headed cowbird parasitism and human interference have a negative effect upon the bird and should be controlled, most experts agree that providing more habitat for the bird is the surest means to recovery.

Kirtland's warbler habitat is a sometimes variable community with jack pine (Pinus banksiana) overstory growing on Grayling Sand or other similarly well-drained soil. Recent research has shown that the plants composing the understory of this jack pine community, and more specifically their structure, may influence the female warbler's choice of nest site while the male may key in on aspects of the overstory.

Management techniques used to produce or regenerate this jack pine community traditionally have been limited to cutting, burning and planting. While there have been no additions to these major manipulative techniques, certain refinements have been added to produce "better quality" habitat. Plantations are designed to leave nesting openings by laying out rows of trees in an opposing wave pattern. Cutting small openings in dense new stands of jack pine, burning without previously cutting, and planting in unburned areas are some of the refinements being tried. Of course, the ultimate objective is to find a means to provide quality Kirtland's warbler habitat.

Managing any wildlife species is, at least in part, a human problem. Because it is ourselves that determined there was a problem in the first place, it is not unexpected that not everyone agrees with our conclusions just as there are those who agree with our position. Yet the Kirtland's warbler is to be protected pursuant to federal and state statutes.

The Kirtland's Warbler National Recovery Team has recommended a three-pronged approach to protect the warbler: an information and education program, fire prevention, and regulatory protection. To this end, slide shows, brochures, talks and movies have been prepared for presentation to the public. Within Michigan, the warbler is the most widely promoted of the endangered species. This effort is producing desirable results in not only educating the public, but also positively influencing people's opinions toward the bird.

Wildfires, the boon of the warbler for so many years, are now potentially its nemesis. At present when the bird's numbers are critically low, a wildfire could destroy a considerable portion of existing warbler habitat and jeopardize the bird's existence. Therefore, in Kirtland's warbler areas, fire suppression has been a matter of high priority.

Regulations have also been used. A perimeter around known nest sites of Kirtland's warblers has been posted against human entry during the nesting period on an annual basis. Also, any project receiving federal funds must first demonstrate that by its activities it does not negatively affect any endangered or threatened species, Kirtland's warblers included. This requirement has prompted mitigation on many activities that would likely otherwise have negative impacts on these species.

Because of the uniqueness of Kirtland's warbler habitat in terms of soil type and plant community, these warblers are concentrated on a limited number of land parcels. This concentration effectively increases the opportunity for some catastrophic event to eliminate the species while limiting the warbler's ability to colonize new areas from these sources.

One way to relieve this situation is to establish other independent colonies, thus reducing the changes that all of the warblers will experience the same forces on their population. However, the methodology needed to establish these independent colonies has not been worked out, especially when working with endangered species having limited numbers of individuals.

Management for the Kirtland's warbler is also largely a land-based operation. Techniques used to produce warbler habitat include clear cutting and burning. These facts practically mandate that land managed for the warbler be state or federally owned.

Much of the land in the warbler range is in state or federal ownership. However, private inholdings complicate management activities. For instance, a buffer strip must be left when burning next to private property in order to protect it. Also, blocking in ownership allows for larger, more manageable compartments for treatment.

### III. Objectives

To develop and implement a Recovery Plan to produce a breeding population of 1,000 pairs of Kirtland's warblers, and to quantitatively document factors limiting the recovery of the Kirtland's warbler.

### IV. Procedures

Procedures include updating and expediting a management plan, monitoring warbler activities on its wintering range or along its migration route, closing the nesting areas to human entry, monitoring the breeding populations, acquiring land for the warbler and investigating factors potentially limiting recovery of the warbler.

### V. Findings

In 1985, every effort was made to expedite the Kirtland's Warbler Management Plan. A total of 805,300 jack pine were planted on 622 acres in 1985. Due to a shortage of available nursery stock, the desired minimum of planting one million trees was not reached. We have been assured that this shortage of planting stock will not occur again.

Spring 1985 conditions were ideal for pine seedling planting. Soil moisture was excellent and weather was unusually cool through May. Planting stock, supplied by the state forest nursery at Manistique, was of finest quality. Crew members with previous experience on Kirtland's warbler units were available as temporary workers. Planting proceeded more efficiently, with fewer breakdowns than at any time in the history of this project. A total of 622 acres were machine planted during the brief planting season. Plantation accomplishment records are included with this report.

A period of drouth in midsummer did result in the loss of some seedlings, but initial observations suggest that mortality was not excessive. Rains in August and September reduced the number of days available to prepare 1986 planting areas by prescribed burning. Despite few opportunities to burn, 56 acres were treated. Prescribed burn records are included with this report. We are optimistic that recent staffing additions in the Fire Section of the Forest Management Division will result in considerably more prescribed burning.

Again in 1985, all active Kirtland's warbler nesting habitat on state land was posted against entry during the breeding season. Several violations occurred on the Camp Grayling tank maneuver range due to inexperience of troops in training and the difficulty of spotting closure signs through tank windows. The leader of one tank platoon (9 tanks) was ticketed and fined for entering a warbler nesting area. The Michigan Department of Natural Resources habitat biologist at Grayling and military personnel coordinated to reduce the incidence of violations. A copy of the 1985 Closure Notice is included with this report.

Again in 1985 a census was made of Kirtland's warbler singing males, conducted according to established procedures by authorized personnel. This effort was a contribution of Federal Aid in Wildlife Restoration, Michigan Project W-124-R and also this project (E-1-13). The 1985 world population of Kirtland's warbler singing males was 217. 216 were found on the traditional breeding grounds on jack pine plains of northern Lower Michigan, and one male was located in Ontario, Canada. A copy of "Situation Report, Kirtland's Warbler, 1985" by H. R. Hill is included with this report.

Wildlife Division staff has continued its effort to take the story of the Kirtland's warbler to the public. A number of speeches, TV interviews and articles were produced.

Representatives of the U. S. Forest Service, U. S. Fish and Wildlife Service, and Michigan DNR developed a preliminary proposal to study Kirtland's warbler habitat utilization in the Mack Lake Burn (attached). Some vegetative sampling was completed in 1985. Refinement of the study proposal will be done at the February meeting of the Recovery Team.

Since 1982, Michigan DNR Biologists have been developing methods to locate Kirtland's warblers after the breeding season (in August and September). This work continued in 1985; indeed more time was spent in the field this year than before, thanks to funding for contracting with a consulting wildlife biologist to search for warblers (report attached). Much of this field work was done in the Mack Lake Burn where one apparently immature Kirtland's warbler was observed on 21 August. This was the first documented observation of a Kirtland's warbler in this area of developing habitat since it burned in 1980. Observations on quality and extent of potential habitat in this burn will be most useful as the area develops.

Again in 1985, the Michigan DNR hosted two meetings of the Kirtland's Warbler Recovery Team. Wildlife Division secretaries kept detailed minutes of these meetings to serve as an important record of the many accomplishments and problems discussed. Copies of these minutes are included with this report.

There is growing concern among conservationists that the Kirtland's warbler will not survive the upcoming critical habitat shortage between the years 1986 and 1990. Paramount to this concern is the location during this period of some of the best of the active habitat on military land at Camp Grayling in Crawford County. This area is subject to frequent wild fires caused by discharge of weapons and use by military vehicles during the breeding season.

Simultaneously, military personnel at Camp Grayling are concerned that an ever-increasing acreage posted against entry during the Kirtland's warbler breeding season is unduly hampering military operations. A Kirtland's Warbler Management Plan for Camp Grayling which was presented to the Michigan Natural Resources Commission several years ago has not been fully implemented. DNR and military planners, therefore, are seeking a reasonable resolution of the problem. A new management plan for Camp Grayling is nearing completion. A copy of the most recent draft plan is included with this report.

In 1985, Michigan DNR's Wildlife and Land Divisions personnel cooperated with USFWS land acquisition personnel to identify key parcels in need of purchase for the Kirtland's warbler. The Michigan DNR is pleased with the excellent progress the Service has made in Kirtland's warbler land acquisition.

## VI. Recommendations

Problems affecting survival for the warblers have been addressed from both a short-term and long-term perspective. Through the preparation and implementation of both a Recovery Plan and a management plan, the long-term survival of the species has been addressed. The short-term problems facing the species are presently of critical importance. A predicted habitat shortfall has caused an immediate step-up of effort to meet this need.

In the long-term, at least 1,500 acres of new habitat must be generated each year on state land to meet the objective of the Kirtland's warbler Recovery Plan of 1,000 pairs of Kirtland's warblers. At the present average rate of 1,000 acres per year, there will be a 20 percent reduction in the success of the total Kirtland's Warbler Recovery Plan, assuming the U. S. Forest Service (USFS) can meet habitat objectives on national forest lands. Unfortunately, some of the recently planted stands have not survived to produce good habitat without repeated treatment. This means that the shortfall presently far exceeds 20 percent. Therefore, it will be cost-efficient in the long term to place a high priority on research directed at finding less expensive, more reliable methods of regenerating jack pine on land having a site index of 40 or less. At the same time there is a real need to expand our planting capabilities (equipment, planting stock, funding) to catch up with the backlog that exists.