

# Kirtland's Warbler Recovery Team Effectively Coordinates Interagency Research and Management

by David L. Trauger and Carol I. Bocetti

With the Endangered Species Act due for reauthorization, it is timely to recognize the outstanding interagency cooperation fostered by members of the Kirtland's Warbler Recovery Team. Their success provides a good example of what this law can accomplish. Although there have been challenges through the years, the Team's actions have resulted in improved habitat conditions and an encouraging increase in the Kirtland's warbler (*Dendroica kirtlandii*) population (Figure 1).

Over the past 20 years, the Kirtland's Warbler Recovery Team has consisted of seven to nine members appointed by the U.S. Fish and Wildlife Service (FWS). It includes representatives of the principal cooperating agencies — the Michigan Department of Natural Resources (MDNR), the U.S. Forest Service (FS), and the FWS — as well as interested private citizens.

## Early Interagency Efforts

In the late 1950's, prior to the official designation of a Recovery Team, a group of dedicated land managers and concerned citizens organized a Kirtland's warbler task force. In the process, they set an enduring precedent for interagency cooperation. The task force planted experimental tree plantations (which later served as a stronghold for the warbler), attempted innovative silvicultural activities, and helped prioritize research. Participants in this group included Larry Ryel (MDNR), John Byelich (MDNR), Nicholas Cuthbert (Central Michigan University), Lawrence Walkinshaw, Harold Mayfield, and later G. William Irvine (FS), Nels Johnson (MDNR), and Robert Radtke (FS).

In the early 1970's, when the third decennial census indicated that the

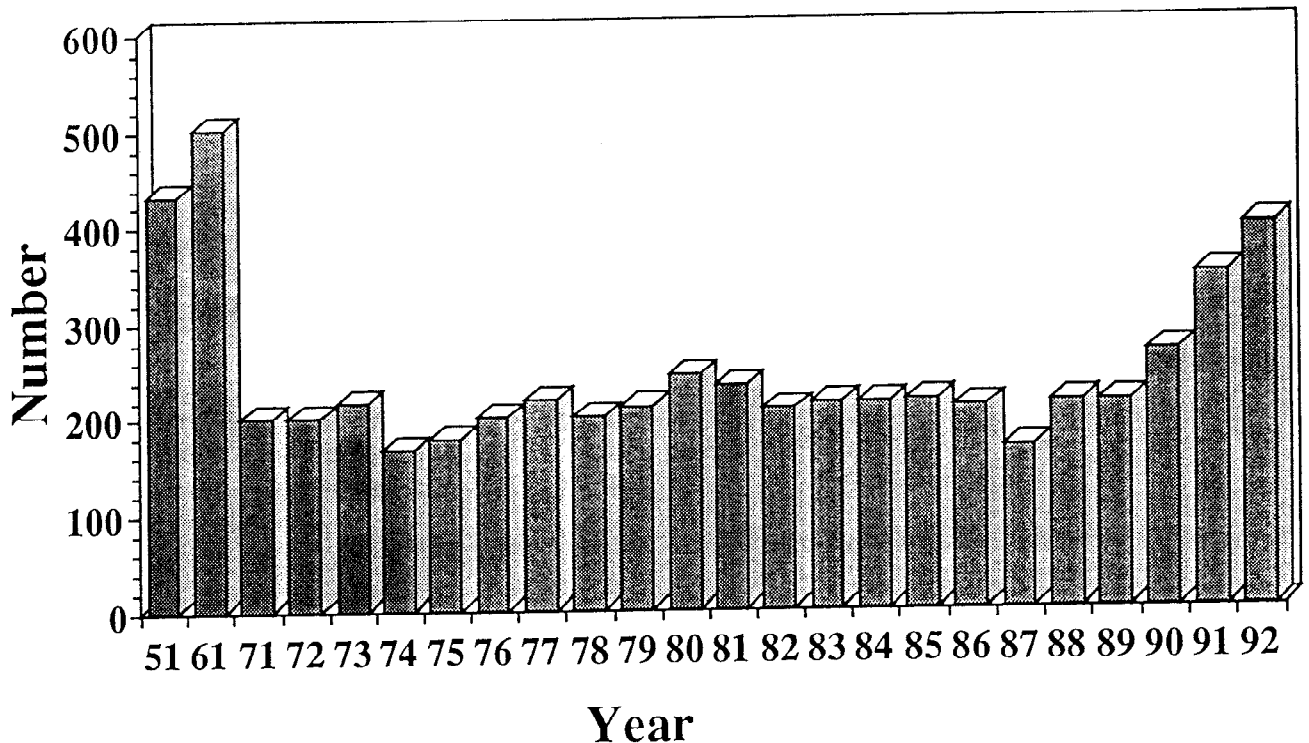
Kirtland's warbler was declining dramatically (Figure 1), the task force recommended swift action. Nest parasitism by brown-headed cowbirds (*Molothrus ater*) was identified as the likely cause for the decline in warbler productivity. In response, the FWS, MDNR, FS, state and local chapters of the Michigan Audubon Society, and Michigan Natural Areas Council joined in a massive trapping program to control cowbirds. This highly successful effort stabilized the warbler population.

## The Recovery Team

In 1973, the Endangered Species Act called for restoring Endangered and Threatened species to a secure status. The FWS recognized the valuable contributions of the task force by naming many

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## Kirtland's Warbler Singing Male Population Trends



# Kirtland's Warbler and the Jack Pine Plains of Michigan

by Carol Bocetti

The Kirtland's warbler is just one of many plants and animals that live on the jack pine plains of northern Lower Michigan, an ecosystem characterized by extremely well-drained sandy soil with low nutrient content. The habitat is maintained in a young condition by extensive forest fires that burn the jack pine about every 50 years. Along with scrub oaks, this tough pine is one of the few tree species able to survive on such poor soils. Jack pines outcompete the scrub oaks because the pine is well adapted to fire, actually requiring the heat of fire to open its cones and spread the seeds.

Jack pine forests created by wildfires are very patchy, with clumps of pines interspersed with grass and sedge openings. Kirtland's warblers make their nests on the ground at the edge of these openings, where nest are concealed by thick ground cover and low branches of jack pine. Many other ani-

mals, such as the eastern bluebird, sharp-tailed grouse, upland sandpiper, American kestrel, white-tailed deer, and snowshoe hare, also make their homes in the pine barrens. Rare plants like the bird's-nest violet and Allegheny plum also are found in this pine barren ecosystem.

The Kirtland's warbler uses the pine barrens when the trees are about 6 to 20 years of age, or about 5 to 20 feet (1.5 to 6 meters) tall. When the pines exceed 20 feet in height, the lower branches become shaded and die, leaving the warbler less cover in which to hide its nest. The warblers breed in loose "colonies" and prefer to colonize large areas of pine barren (300 or more acres, or 120 hectares, in size), and a minimum of 80 acres (32 ha) is usually required to attract warblers. A pair of warblers defends about 30 acres (12 ha) of jack pine habitat as a territory for raising young.

Much of the pine barren habitat has been altered as a result of fire suppression, which promotes vegetative succession, or has been changed for alternative land uses. Recognizing the warbler's plight, land managers have created habitat that resembles the pine barrens by planting jack pines on the region's sandy soil in a wavy pattern that mimics the patchiness of the natural habitat. The Kirtland's warbler and its dry plains neighbors have successfully inhabited these artificial pine barrens. The plantations are managed on a 50-year rotation and serve many uses, including a commercial harvest of jack pine. By properly managing and preserving the pine barrens, we will maintain the biodiversity of Michigan's jack pine plains, allowing future generations the delight of hearing the sweet song of the Kirtland's warbler.



Kirtland's warbler in jack pine

photo by Bob Harrington, Michigan Department of Natural Resources

## Warbler Recovery Team

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of its members to the Kirtland's Warbler Recovery Team, the first recovery team established by the Service. Original Team members were John Byelich (MDNR), the team leader; G. William Irvine (FS); Nels Johnson (MDNR); Wesley Jones (FWS); Harold Mayfield; Robert Radtke (FS); and William Shake (FWS). In 1976, they prepared the first Kirtland's Warbler Recovery Plan. The Team updated the Recovery Plan in 1985 with the help of new members Michael DeCapita (FWS) and William Mahalak (MDNR).

Today, the Recovery Team is made up of new members who uphold the high standards established by their predecessors. The Team now includes K. Rex Ennis (FS), leader; John Probst (FS); George Burgoyne, Jr. (MDNR); Gary Boushelle (MDNR); William Mahalak (MDNR); Ronald Refsnider (FWS); Michael DeCapita (FWS); and Cameron Kepler (FWS).

Numerous individuals working independently or representing various agencies, universities, and private organizations have supported the task force and Recovery Team over the years. Although it would be impossible to acknowledge all of the people involved, their efforts have been important to the species' conservation. We have attempted to identify those playing key roles in recent years.

### Management for Warbler Recovery

To date, a total of \$2.7 million has been spent on habitat acquisition by the FWS, and about 130,000 acres (52,600 hectares) of public lands in north-central Michigan are being managed by the MDNR and FS specifically for the Kirtland's warbler. In addition, the FWS and MDNR coordinate personnel and funds to create warbler habitat on lands owned by each agency. Participating in this collaboration have been Thomas Weise, Gary Boushelle, Sylvia Taylor (retired), William Mahalak, Jerome Weinrich, and Everett Lake (retired) of the MDNR, and Ronald Refsnider, Michael Tansy, and James Engel (retired) of the FWS. In a continuing effort to

control the problem of nest parasitism, Leonard Schumann and Michael DeCapita of the FWS are working with many of the MDNR personnel mentioned above on a cowbird trapping program.

New silvicultural techniques are being developed by the FS to enhance Kirtland's warbler habitat. Rex Ennis, Horace LaBombard, William Jarvis, Phillip Huber, David Kline, Douglas Munson, and Randall Marzolo have ensured that FS advances in this area are communicated to other land managers. The FS and FWS also conduct tours to promote a greater public awareness of habitat management activities. Even the military has joined the conservation effort. Gregory Huntington and Andrea Sikkenga of the Michigan National Guard (Camp Grayling) have worked with the Recovery Team to ensure that the military meets its responsibilities in management of military lands for the Kirtland's warbler.

Since 1971, State and Federal agency personnel, assisted by a large contingent of volunteer birders, have joined in conducting an annual Kirtland's warbler census throughout the bird's breeding range. During 1990-92, Wesley Jones (retired FWS), a former Recovery Team member, did an enormous amount of work in coordinating and expanding annual surveys for Kirtland's warblers in Wisconsin, where a few birds have been sighted in recent summers. Kathleen Fruth and Randy Hoffman of the Wisconsin Department of Natural Resources (WDNR) coordinated warbler surveys in that State in 1988 and 1989, respectively. Earlier surveys in Wisconsin were conducted on a much smaller scale.

### Research for Warbler Recovery

Research biologists continue to address questions put forth in the Kirtland's Warbler Recovery Plan and prioritized by the Recovery Team.

For example, Cameron Kepler and Paul Sykes (FWS) are banding and marking warblers to determine if migrational or overwintering mortality is limiting the species' population. Their research program also provides an opportunity to es-

timate adult-to-juvenile ratios as a productivity index, evaluate colony fidelity and dynamics, and examine intercolonial movements. They have also mapped breeding territories to identify habitat factors critical to Kirtland's warblers. One immediate result of their research was an extended closure period for critical areas occupied by the birds.

John Probst (FS) has investigated habitat characteristics, such as the density and arrangement of jack pines (*Pinus banksiana*), to determine what conditions the Kirtland's warbler prefers. Land managers have increased the stems/acre planted as a result of his work. He has also studied aspects of the species' breeding biology. Probst is currently working on a plumage evaluation so that observers can age and sex the species on sight, and he is developing a landscape approach for evaluating warbler habitat use.

Carol Bocetti (Ohio State University) developed a reintroduction strategy for the Kirtland's warbler based on work with a surrogate species. She is currently studying predation, the mated status of males, and recruitment rates in various habitat types. David Ewert of (The Nature Conservancy) recorded singing males to understand the song types and make "fingerprint-like" sonograms of individual birds. The above research has been heavily dependent on the FWS banding program.

Also studying the Kirtland's warbler is Burton Barnes (University of Michigan), who developed an ecosystem approach to habitat evaluation that will benefit both land managers and researchers. Paul Aird (University of Toronto) surveyed and studied the warbler in the periphery of its range in Ontario, Canada. Jerome Weinrich (MDNR) has been a constant source of information and insight on the species as a long-term manager and researcher. While the Recovery Team helps to coordinate research to minimize overlap, the researchers themselves have been sharing and exchanging data freely so that disturbance to this endangered species is minimized.

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## Outlook for Recovery

Although far below the recovery goal of 1,000 breeding pairs, the Kirtland's warbler population has remained relatively stable over the past 2 decades (Figure 1). Throughout the 1980's, the population fluctuated around 200 singing males. In the early 1990's, however, numbers increased above this critically low, albeit stabilized level.

Recently, the Kirtland's warbler population has shown encouraging signs of recovery, primarily in response to seral succession of jack pine habitat following the extensive Mack Lake burn. The 1992 census of 394 singing males represents the highest breeding population in

20 years. Furthermore, both the recovery program and recruitment study indicate that productivity was also quite high during the past two breeding seasons.

The Kirtland's Warbler Recovery Team faces new challenges as members continue to search for ways to increase the population. In addition to maintaining or enhancing ongoing activities, Team members are interested in the possibility of establishing a second Kirtland's warbler population in Wisconsin. Recently, WDNR personnel became involved in team deliberations and recovery activities. Another State could become involved as well; the Team has recommended that surveys for Kirtland's warblers be conducted in suitable habitats throughout Minnesota.

All of the people involved in recovering the Kirtland's warbler have shown outstanding dedication to their cause. Although the various agencies face increasing public demands on their lands, each continues to keep the Kirtland's warbler as one of its top resource management priorities. If the cooperating agencies meet the challenging habitat management goals of the Recovery Plan, and if researchers can unravel the remaining biological mysteries, the Kirtland's warbler will have real hope for survival.

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## Agency Heads Testify

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In his concluding remarks, Secretary Babbitt said that the future of resource management in this country will involve greater development of, and reliance on, science in support of management, as well as a greater partnership of individuals, groups, and organizations to sustain natural systems.

## Espy Pledges Conservation and Stewardship of Forests, Range, and Croplands

Secretary of Agriculture Mike Espy began his statement by saying he intends to ensure his agency works with the Department of the Interior and the EPA to conserve biodiversity. He said that how we use the land affects biological resources and ecosystems in many ways, and that over time certain land use activities can damage the value of soil and water resources. Examples of such uses include growing the same crop on a large acreage year after year, draining wetlands to grow crops, and overgrazing.

Citing the Department of Agriculture's tradition of leadership in conservation and forestry, Secretary Espy said the Soil Conservation Service (SCS), the Agricultural Stabilization and Conservation Service (ASCS),

and the Forest Service will all play roles in improving management of ecosystems and biodiversity. He said, for example, that SCS is a source of technical support to farmers, ranchers, and others, providing leadership for such issues as nonpoint source pollution, wetland protection, and watershed restoration and management, primarily on non-Federal, agricultural lands. Secretary Espy added that ASCS programs provide substantial cost-share and other financial incentives to help farmers invest in land and water conservation.

Secretary Espy said the Forest Service is the only Federal land resource agency with a clear mandate to manage its lands to conserve biological diversity. An example of Forest Service efforts to carry out that mandate is the program "Every Species Counts." This program, he said, "provides the foundation upon which to build an ecosystem approach to evaluating habitats that may be at risk, and to ensure that management activities do not allow a decline in the habitat of identified species."

## Browner says EPA Can Help to Foster Ecosystem Health

EPA Administrator Carol M. Browner testified that EPA, in partnership with other Federal agencies, has a vital role in protecting

biological diversity and ecosystems. She said that, because of the ongoing degradation of natural systems in the country, EPA is "placing more emphasis on the protection of habitat, both for its own sake, and because it protects human life." Browner cited the 1990 Science Advisory Board report to EPA, *Reducing Risk*, which advised emphasis on habitat protection. She said the report based its recommendations on a belief that ecosystems, and the biological diversity they support, have an intrinsic value beyond their direct utility to humans.

Administrator Browner spoke of EPA initiatives to measure trends in the health of ecosystems and to anticipate emerging threats in specific geographic areas, such as the Gulf of Mexico, the Chesapeake Bay, and the Great Lakes. The EPA, she said, is developing a process for assessing ecological risks much like the process now used to assess human health risks. The agency will review its programs for additional opportunities to protect species and habitat in the course of carrying out its statutory responsibilities, and will seek to incorporate ecological components into its ongoing programs.