

Survival of the endangered Kirtland's Warbler depends on fire, jack pine habitat, and intensive human intervention

BY STEVE AND CHAR HARRYMAN



Ron Austing

Our anticipation grew as we slowly drove along the dirt road running between the dense stands of jack pines. We suddenly heard a loud, distinctive song off to the right. We stopped the car, quietly got out, and began panning the tops of the trees with binoculars. The bird repeated its song, and we walked along the road in the direction from which it was coming, looking and listening. Finally we sighted the bird perched on the branch of a snag, just above the jack pines. We got a closer look at this handsome singing male, and watched as he threw his head back and sang his magnificent song. We stood there in awe, experiencing the excitement of our first encounter with a Kirtland's Warbler.

When Congress passed the Endangered Species Act of 1973, the Kirtland's Warbler was one of the first birds to be listed. This unique bird nests on the ground under young jack

pinus in northern Michigan. Known nesting sites have been restricted to portions of the northern lower peninsula, although in recent years, singing males have been heard in the Upper Peninsula. Limited nesting habitat of appropriate quality and Brown-headed Cowbird parasitism have been the main reasons for the Kirtland's endangered status. In keeping with the provisions of the Act, a Kirtland's Warbler Recovery Team was established in 1975 to organize efforts in aiding the warbler. A recovery plan was formed and, according to recovery team leader Rex Ennis of the U.S. Forest Service, the "ultimate objective is to reestablish a self-sustaining wild Kirtland's Warbler population throughout its known former range at a minimum level of 1,000 pairs."

The survival of the Kirtland's Warbler is dependent on the combined management efforts of the recovery team, consisting of the Michigan

Last spring, 692 singing male Kirtland's Warblers (one above) were counted in the jack pine forests of Michigan. To prevent the extinction of this endangered bird, state and federal agencies intensively manage the birds' jack pine habitat, with hopes of reestablishing a self-sustaining population of at least 1,000 pairs.

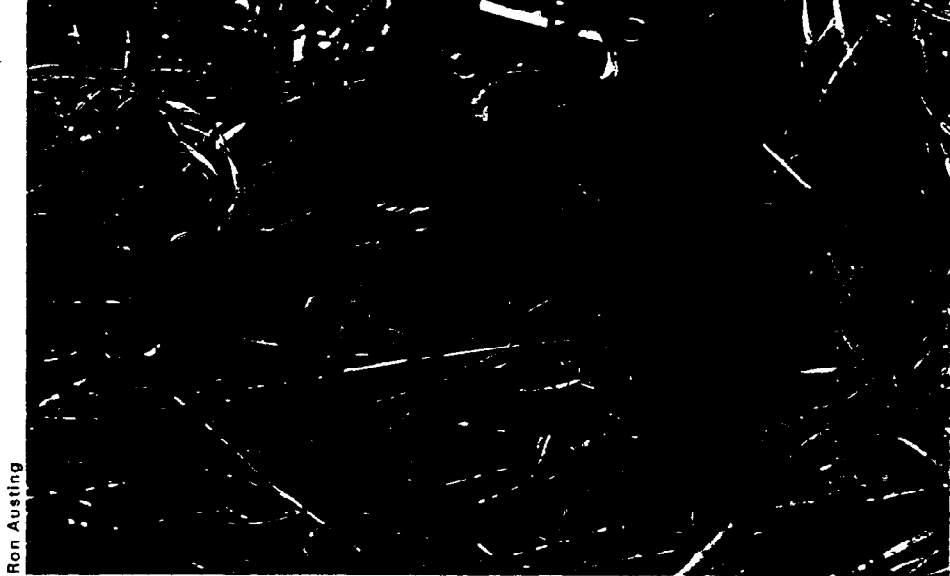
Department of Natural Resources, U.S. Forest Service, and the U.S. Fish and Wildlife Service. Through the management of jack pine forests in northern lower Michigan, these state and federal agencies are to provide the Kirtland's Warbler with approximately 25,000 to 30,000 acres of suitable jack pine nesting habitat. Because of these efforts, combined with habitat resulting from wildfires, the number of Kirtland's Warblers has risen significantly over the past several years.

The 1996 Kirtland's Warbler census in Michigan counted 692 singing males, second only to 1995's record of

765. The significance of the decline in 1996 is not clear, and may be due to sampling error. In any case, numbers of warblers for both of the past two years represent a substantial increase from the all-time low of 167 singing males reported in 1987. Another promising trend is the increasing number of Kirtland's Warblers found in the jack pine forests of Michigan's Upper Peninsula, with an all-time high of fourteen males and six females counted during the 1996 census. The annual Kirtland's Warbler census is conducted over a ten-day period during the first two weeks of June. The 1996 census was completed with the combined efforts of state and federal land management agencies, the Michigan Department of Military Affairs, and a number of volunteers.

The first Kirtland's Warbler was found on May 13, 1851, near the farm of Dr. Jared P. Kirtland on the outskirts of Cleveland, Ohio, and the specimen was sent to the Smithsonian Institute in Washington, D.C. There it was identified as a species of the wood warbler family and named Kirtland's Warbler in honor of Kirtland, who compiled the first lists of birds, fish, mammals, reptiles, and amphibians for Ohio. The first breeding pair of Kirtland's Warblers was discovered by Norman A. Wood in July of 1903 in Michigan's Oscoda County, about one-half mile from the Crawford County line and approximately one mile north of the AuSable River.

Male Kirtland's Warblers are easily identified by their blue-gray heads, black cheeks, and white broken eye-rings. Their backs are blue-gray with black streaks. Black streaking is also found on the sides of their bright yellow breasts. The females resemble the males, but are duller overall and without black cheeks. The Kirtland's is often seen "bobbing" or "wagging" its tail. Usually found flitting about in



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trees, thickets, and on the ground in search of food, the Kirtland's Warbler uses its narrow bill to grab a variety of insects, such as caterpillars, butterflies, moths, flies, and grasshoppers. Blueberries, in season, are also part of its diet.

It wasn't until January 8, 1879, that the first Kirtland's Warbler was discovered on its winter range on Andros Island in the Bahamas, and until recently little has been known about the birds' activities there. In

1985, the U.S. Fish and Wildlife Service surveyed the Kirtland's winter habitat in the Bahamas and found a substantial number of birds. Moreover, the warblers were widespread throughout the more than 700 islands in this area. The northern islands of the Bahamas support stands of Caribbean pine, a fire species similar to the jack pine. Warblers inhabit the three-to-four foot high, broad-leaved scrub in these pine areas where insects are available year-round. Low amounts of

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acres. These areas are a combination of dense jack pines and open grassland areas. The warblers will begin to nest under jack pines when the trees are about five feet tall (about six to eight years old). The lower branches help to conceal the birds as they approach their nests. The birds work their way down the tree's branches in a spiral fashion, then drop to the ground from one of the lower branches that touch the undergrowth. The warblers nest under the jack pines until the trees reach about twelve feet in height (about twenty years old), at which time the lower branches begin to die from self-pruning.

In order for the old jack pine forest to again be used by Kirtland's Warblers for nesting, it must regenerate. The jack pine is a fire species and depends on periodic burning for its continued existence. Most of its cones are serotinous, meaning they are held tightly closed by a resin that melts only when heated to about 112 degrees Fahrenheit, a temperature easily achieved in a wild-fire and sometimes reached on a hot summer day in open sunlight. When the cones open, the seeds inside are released and a fine membrane carries them as far as a half mile away. If moisture is adequate, they take root in the nutrient-rich soil that follows a fire and within a few weeks, the jack pine seedlings begin to flourish.

The number of Kirtland's Warblers is believed to have been at its highest level during the 1880s and 1890s, when logging and wildfires in Michigan provided maximum jack pine habitat. As trees were cut down, wildfires burned over vast areas, helping to regenerate the jack pine forests. When settlers moved into Michigan and built homes and roads, however, fire protection became increasingly important. In 1920, the Department of Conservation (now the Michigan Department of Natural Resources) was formed, with one of its main purposes being forest fire control. Over the years, the department's efforts were so successful that Kirtland's Warbler habitat eventually declined.

Jack pine plantations occupied by the Kirtland's Warbler are closed to the public during the nesting season, between May 1 and August 15 or September 10, to protect the birds from disturbance. For anyone interested in seeing a Kirtland's Warbler, free guided tours, lasting from one to two hours, are offered from mid-May through early July. Best chances for viewing a Kirtland's Warbler are from May 20 to June 20. The U.S. Fish and Wildlife

Service offers tours daily, departing from the Holiday Inn in Grayling, Michigan, at 7:00 and 11:00 a.m. The U.S. Forest Service also conducts tours departing from the Mio District Ranger Office in Mio at

7:00 and 11:00 a.m. daily, except Monday and Tuesday. Tours are limited to twenty people and groups larger than five should make reservations. Contact the U.S. Fish and Wildlife Service, East Lansing Field Office, at 517-351-2555 regarding tours beginning in Grayling, or for U.S. Forest Service tours beginning at the Mio District Ranger Office, 517-826-3252. Tape recorders, pets, and smoking are not allowed. Cameras are allowed, but no special provisions will be made for photographers. If possible, bring a spotting scope.

A good time to take a tour is during the Kirtland's Warbler Festival, a two-



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day event held to inform people of the efforts being made to ensure the survival of the Kirtland's Warbler and the jack pine ecosystem. The Fourth Annual Kirtland's Warbler Festival will take place on May 17 and 18, 1997. The festival is a regional event encompassing the Chambers of Commerce, community organizations, schools, and local, state, and federal agencies in Crawford, Ogemaw, Oscoda, and Roscommon counties. Kirtland Community College

near the town of Roscommon is the focal point for the festival. For questions regarding the festival, contact Kirtland Community College, 517-275-5121, ext. 347.

A unique way to explore the entire

jack pine and AuSable River ecosystems is to take the self-guided, forty-eight-mile Jack Pine Wildlife Viewing Auto Tour, which begins near Mio. An informative brochure is available at many businesses in Fairview, Mio, and Luzerne, and also from the Michigan Department of Natural Resources, U.S. Forest Service, and Chamber of Commerce for Oscoda County. On the tour are numerous interpretive signs and displays to inform visitors about this unique environment, the variety of wildlife found there, and information about the endangered Kirtland's Warbler.

acquisition and management, something would have to be done about nest parasitism by cowbirds if the Kirtland's Warbler was to survive.

The female cowbird lays her eggs in the nests of other birds, leaving her young to be hatched and cared for by the hosts. Cowbird chicks are larger than warbler chicks and hatch about a day before the warbler eggs. This allows them to monopolize the food supply and trample the smaller warblers. Researchers in the 1960s reported that if one cowbird egg hatches in a warbler nest, only one warbler chick is likely to survive; if two or more cowbird eggs hatch, none of the warbler chicks will survive.

The Kirtland's Warbler was censused every ten years beginning in 1951. In that year, 432 singing males were counted, and in 1961, 502 were counted. When the 1971 census revealed 201 singing males, it became clear that the Kirtland's Warbler was in serious trouble and a decision was made at that time to census the birds annually. Habitat loss and Brown-headed Cowbird parasitism were the suspected reasons.

Representatives from the Michigan Department of Natural Resources, U.S. Forest Service, U.S. Fish and Wildlife Service, and the Michigan Audubon Society met and decided that, in addition to habitat

From 1966-1971, it is estimated that 70 percent of warbler nests contained cowbird eggs, which was reducing warbler production significantly. In 1972, the U.S. Fish and Wildlife Service began trapping cowbirds in Kirtland's Warbler nesting areas. After just one year of trapping, nest parasitism was reduced from 70 percent to

the Kirtland's Warbler. In April and May of 1958, the first jack pine plantings were made in Crawford and Ogemaw counties.

Today, prescribed burning is still done wherever possible for site preparation for planting trees. When used, fires must be carefully set, taking into account temperature, humidity, wind,

Eastern Bluebirds, American Kestrels, White-breasted Nuthatches, Black-capped Chickadees, and a variety of woodpeckers, including the rare Black-backed Woodpecker. Over time, the growth after a fire attracts several other birds, including Upland Sandpipers, Wild Turkeys, Spruce Grouse, Common Ravens, Brewer's Blackbirds, Black-billed Cuckoos, Common Nighthawks, Pileated Woodpeckers, and Clay-colored, Lincoln's, and Vesper Sparrows.

A prime example of the long-range plan for planting jack pine habitat is a 2,000-acre tract of land owned by the Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service. This reflects the shift in direction of management strategy toward planting larger areas, since tracts of 1,000 acres or larger are more attractive to the warblers. Proof of this came during the 1995 census, with 144 singing males counted in a 1,600-acre area planted in Ogemaw County, an unusually high density. Michigan Department of Natural Resources wildlife biologist Jerry Weinrich said they intend to focus most of their efforts on planting this area over the next two years. "Down the road, there will be essentially 2,000 acres of new habitat coming into the right age for Kirtland's Warbler nesting each year, and that will continue to happen for at least the next eight years. We will not reach our goal of 1,000 pairs unless we continue to provide more nesting habitat."

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Like most endangered species in today's world, adequate habitat is the critical factor that can ensure the survival of the Kirtland's Warbler (male, above, in jack pine).

6 percent, and, with continued cowbird management, has remained low, sometimes approaching zero. Mysteriously, however, the warblers did not rebound as expected.

Habitat management of Kirtland's Warbler plantations began in 1955, when Harold F. Mayfield suggested setting aside certain state forest lands as Kirtland's Warbler preserves in an effort to aid the suffering warbler population. In 1956, the Michigan Conservation Commission, with cooperation from the Michigan Audubon Society, agreed to create a preserve for

and other factors. The fires are usually started at the perimeter and burn inward, while carefully monitored by state or federal agencies. Jack pine plantations are susceptible to fire, and an eighty-acre area can burn in as little as one hour. After a fire, the new jack pines and a variety of plant species begin to grow back quickly. Such plants include northern pin oak, sweet fern, wild blueberry, bracken fern, sand cherry, birdsfoot violet, little and big bluestem, blazing star, and puccoon. Some rare plants, such as pale agoseris, hill's thistle, Allegheny plum, and rough fescue, would become even more scarce if it wasn't for the regeneration of jack pine forests.

Dead standing trees left after a fire provide perches and nest cavities for

By preserving the Kirtland's Warbler, we are doing our part to take care of a one-of-a-kind species that adds value and magnificence to our world. William Beebe, the late explorer and naturalist, expressed it best when he said, "The beauty and genius of a work of art may be reconceived though its first material expression be destroyed. A vanished harmony may yet inspire the composer. But when the last individual of a race of living things breathes no more, another heaven and another earth must pass before such a one can be again." 