



U.S. Fish & Wildlife Service

Kirtland's warbler

Dendroica kirtlandii

The first Kirtland's warbler in North America was identified in 1851 from a specimen collected on Dr. Jared Kirtland's farm near Cleveland, Ohio. Biologists did not learn where it nested until 1903 when they found a warbler nest in Michigan. Today, Kirtland's warbler faces two significant threats: lack of crucial young jack pine forest habitat and the parasitic cowbird.

A pair of Kirtland's warblers requires at least eight acres of young jack pine forest to nest, but usually needs 30 to 40 acres to raise a nest of young. Its exacting nesting habitat requirements, as well as cowbird parasitism, caused a drastic decline in its numbers and led the U.S. Fish and Wildlife Service to list the Kirtland's warbler as an endangered species in 1973. *Endangered* means a species is in danger of extinction throughout all or a portion of its range, while the less dire *threatened* designation means a species is likely to become endangered within the foreseeable future.

Today, Kirtland's warblers are found only in ten counties on Michigan's northern Lower Peninsula and four counties in the Upper

Peninsula. Until 1995 they had never been known to nest on the Upper Peninsula. Kirtland's warblers migrate from Michigan to the southeastern coast of the United States on their way to wintering grounds in the Bahamas.

Bluish-gray with black streaks on its back, Kirtland's warblers are the only gray-backed warblers that persistently bob their tails. Yellow breasts, black side streaks and split white eye rings further distinguish Kirtland's warblers, which measure about six inches in length. Males are not as brightly colored as females.

Primarily insect eaters, Kirtland's warblers forage for insects and larvae near the ground and in lower parts of pines and oaks. They also eat blueberries and pine sap; adults feed soft berries to their young.

Kirtland's warblers nest only on the ground near the lower branches of large stands of young jack pines that are five to 20 feet tall and six to 22 years old. The tree's age is crucial, although biologists are not sure why. It is possible that the birds need low

branches near the ground to help conceal their nests. Before the trees are six years old, the lower branches are not large enough to hide the nest. After 15 years, these lower branches begin to die.

Concealed by the branches, overhanging grass and low shrubs, the warbler's cup-shaped nest is made of grasses. Females incubate four to five eggs for about 14 days while males feed them. Once hatched, the birds remain in the nest for another nine or ten days before *fledging*, or leaving the nest.

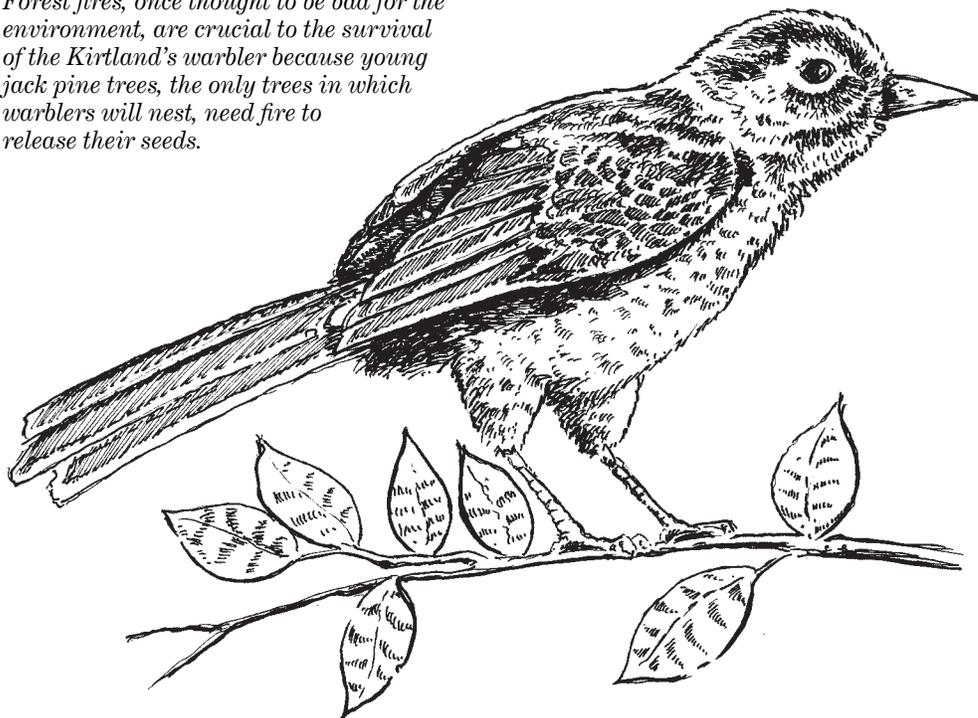
It was once believed that destructive forest fires were bad for the environment. However, scientists now understand that fires play an important role in forest ecosystems. For example, jack pines need fire to release their seeds. Preventing forest fires prevented new jack pines from growing. Kirtland's warblers will not nest without young jack pines, and the population dwindled dramatically before scientists realized that forest fires were actually good for the environment—and for Kirtland's warblers.

The second greatest threat to the survival of the Kirtland's warbler is the brown-headed cowbird. Cowbirds lay eggs in another bird's nest, leaving the unsuspecting owner of the nest, called the *host*, to incubate and care for the young cowbird. When the female cowbird lays its egg in a nest, it removes one of the host's eggs. The cowbird egg hatches a day before the others, getting a head start on growth. The young cowbird is bigger and able to claim more food than the other nestlings, and it often crowds or pushes the other baby birds out of the nest.

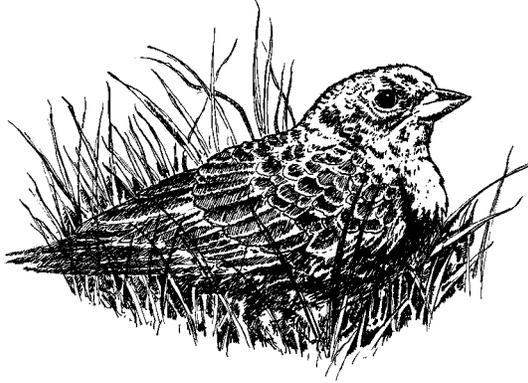
Some bird species have developed ways to combat the cowbird. They may abandon their nest and lay more eggs elsewhere or build another nest on top of the cowbird egg. However, Kirtland's warblers never developed such defenses. Because of the cowbird's habits and the Kirtland's warbler's inability to protect its nest and its young, less than a third of warbler nests produced any young warblers in 1971.

The Fish and Wildlife Service, in cooperation with the Michigan Department of Natural Resources, the U.S. Forest Service and the Michigan Audubon Society,

Forest fires, once thought to be bad for the environment, are crucial to the survival of the Kirtland's warbler because young jack pine trees, the only trees in which warblers will nest, need fire to release their seeds.



Thanks to protection under the Endangered Species Act and conservation measures by the U.S. Fish and Wildlife Service, U.S. Forest Service and the Michigan Department of Natural Resources, Kirtland's warbler populations have rebounded. Biologists counted more than 700 singing male Kirtland's warblers in 1997.



initiated an aggressive cowbird removal program in 1972. From 1972 through 1997, they removed more than 105,000 cowbirds from warbler nesting areas. As a result, Kirtland's warblers now have very good nesting success and enough young are being produced to maintain or increase the population.

Biologists and bird counters began to recognize the dire plight of the Kirtland's warbler in the 1950s. To keep track of the dwindling numbers of Kirtland's warblers, birders counted the number of singing males every 10 years starting in 1951. Females do not sing, and therefore are almost impossible to count accurately, but studies indicate there is one female for each male. In 1961, the total population of males and females was more than 1,000. By 1971 the population had plummeted to about 400 birds. At that time, biologists began counting singing male warblers every year.

In 1973, the Fish and Wildlife Service appointed the Kirtland's Warbler Recovery Team, the first endangered species recovery team established by the Service. This team includes representatives from the Michigan Department of Natural Resources, the Fish and Wildlife Service, U.S. Geological Survey, Forest Service and interested citizens. The team's job is to determine how to save the warbler from extinction.

The recovery team's goal is to establish 1,000 breeding pairs of Kirtland's warblers. In 1995, 765 male warblers were counted, the highest number recorded since the first count in 1951. Since then, the number has remained high, with 692 singing males in 1996, and 733 in 1997. The number of singing males in the Michigan Upper Peninsula increased to 19 in 1997, and five unmated males were found that year in northern Wisconsin.

Today, warbler conservation measures seem to be working. About 140,000 acres of public lands have been set aside by the Michigan Department of Natural Resources, the U.S. Forest Service and Fish and Wildlife Service specifically for Kirtland's warbler management.

The recovery team has recommended that 30,000 acres of warbler nesting habitat always be available—enough to reach the recovery goal. Since the trees continuously grow older and warblers cannot nest in forests older than about 22 years, land managers must create new habitat every year. Two thousand acres of forest are clear-cut and two-year-old jack pine seedlings planted each year. The cut trees are chopped and used for fuel or particle board—nothing is wasted. Sixty-nine percent of the warblers counted in the 1997 census were on these managed land areas.

A portion of the Michigan Department of Natural Resources annual habitat management is funded through Endangered Species Act grant money from the U.S. Fish and Wildlife Service. In recent years, the amount of these grants has decreased, along with other funding for similar work by the U.S. Forest Service and the State of Michigan.

Kirtland's warbler populations have yet to meet the recovery goal, but they have certainly stabilized and are increasing each year thanks to many extremely dedicated people. With their continued help Kirtland's warbler will continue to search out young jack pine forests each spring for generations to come.

Kirtland's warblers forage for adult insects and insect larvae in pine and oak trees. They also eat berries and pine sap.



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