

Kirtland's Warbler

Steps to assist the Kirtland's Warbler (Dendroica kirtlandii) were underway long before the Endangered Species Act of 1973. So the immediate effect of the new Federal program was mainly to sanction measures already in operation. Long-range consequences will depend on further steps generated by the Recovery Plan submitted early in 1976.

The precarious status of this bird was recognized long ago. In 1957 the Michigan Department of Natural Resources set aside three tracts of four square miles each ^{in state forest lands} to be managed for the benefit of the Kirtland's Warbler. In 1961 the U. S. Forest Service designated more than 4,000 acres in the Huron National Forest as a Kirtland's Warbler Management Area. These four tracts were all located in the heart of the warbler's nesting range on lands known to have been utilized by the birds for nesting, and to the best of our knowledge they are the first preserves ever established for a single songbird species. The Michigan Audubon Society set up a committee of people engaged in research on the bird to advise the public agencies. (Radtke and Byelich 1963, Wilson Bull. 75:208-215, and Mayfield 1963, Wilson Bull. 75:216-220)

Management by both agencies was perceived to be compatible with eventual harvest of jack pines (Pinus banksiana) for pulpwood. That is, each management area was to be treated in four or five segments, each holding trees of a different age class, the oldest approaching 50 years and harvest to be followed by possible burning and planting as required. This regime was suggested by the known habitat requirements of the bird, which include Christmas-tree-size jack pines growing extensively in nearly solid stands on one soil type, Grayling Sand. Normally this habitat appears about eight years after forest fire and becomes unsuitable to the warbler when the trees are about 20 years old.

In addition to normal forestry practices, some special measures for the benefit of the warbler were contemplated from the outset. Pines were planted in strips rather than solidly to simulate thickets interspersed with clearings occurring in natural regrowths after forest fire. Controlled burning was recognized as an aid to regeneration of jack pines and a discouragement to woody shrubs in the ground cover. Nesting areas were posted and some effort was made to restrain visitors.

New urgency came into these efforts in 1971 when a census of the species showed a decline of 60 percent from the counts of the two previous decades. Counts in 1951 and 1961 had measured the population at about 500 singing males, or 1000 adults on the nesting ground. In 1971 the count was 200 singing males, or 400 birds. In the fall of that year an ad hoc group of concerned people met in Ann Arbor, representing individual researchers, conservation organizations, the Michigan Department of Natural Resources, U. S. Forest Service, and U. S. Fish and Wildlife Service. With the cooperation of all these groups, a campaign was initiated in 1972 to remove Brown-headed Cowbirds (Molothrus ater) from warbler nesting areas.

This bold measure was justified by three known facts: i) The cowbird has invaded this region only within the last century; ii) nesting studies in the 1940s and 1950s showed cowbirds taking a toll of 36 percent of Kirtland's Warbler reproduction with 55 percent of its nests parasitized (Mayfield 1960, Evolution 15:174-179), and more recent studies showed even higher losses and higher rates of parasitism (Walkinshaw 1972, American Birds 26:3-9); and iii) control of cowbirds experimentally in the period 1964-1968 brought a substantial improvement in nesting success (Cuthbert and Radabaugh, unpublished).

From the outset trapping was highly successful in removing cowbirds from the nesting areas, and the effect on the nesting success of the warblers was demonstrated immediately by field studies of Walkinshaw and Faust (Jack-Pine Warbler, 1975 53:54-58) beginning in 1972 and continuing since that time. With cowbirds removed, Kirtland's

warblers have consistently produced more than four fledglings per pair per year - a rate higher than that reported for any other species of North American warbler - laying to rest any concern about the fecundity of the species.

Beginning also in 1972, censuses were conducted annually instead of once every ten years. The decline occurring in the previous decade seems to ^{have} been arrested, but the recovery has not fulfilled the expectations raised by the excellent nesting success. The count of singing males for 1971-1976 has been 201, 200, 216, 167, 179, 200 (Ryel 1977,).

In nesting season the bird now occupies about ^{4,000} 6,000 acres, whereas in 1951 it occupied about 12,000 acres, but at no time has it appeared to utilize all the habitat available to it. Since no other serious problem has been identified on the breeding ground, recent speculation has focused on the migration route and wintering ground, where the bird is virtually unknown.

The bird is seen rarely in migration, and the records fall close to a direct path between northern Michigan and the Bahamas. The route is mainly over land and does not seem to hold any special hazards. The wintering ground also seems relatively free of new threats. The interiors of most of the Bahama Islands are almost devoid of people and agriculture, vegetated mainly with broad-leaved scrub, and little altered in the last century. The rate of return of banded adults on the nesting sites from one June to the next is 65 percent, an excellent survival rate for a small migratory songbird. If there is a deleterious factor operating in migration or in winter, it is selective against birds that have not yet bred, a group for which direct evidence is not yet adequate for analysis.

The Kirtland's Warbler has not yet been shown conclusively to live anywhere except the Bahamas from September to April. One recent sighting was reported from Mexico (Lane 1975, American Birds 29:144), but this unprecedented occurrence has not been supported by other observations or specimens; whereas, more than 70 specimens

and more than 100 sightings have come from the Bahamas in the last hundred years. However, in modern times the bird has been so hard to find in the Bahamas that attempts to study it have been thwarted. Nevertheless, the U. S. Fish and Wildlife Service sponsored a meeting in Nassau, Bahamas, in November 1976 to discuss ways of finding and marking birds ~~on the wintering~~ range and gathering further information about the ~~post-breeding period~~ ^{bird} on the ~~nesting~~ ^{wintering} ground.