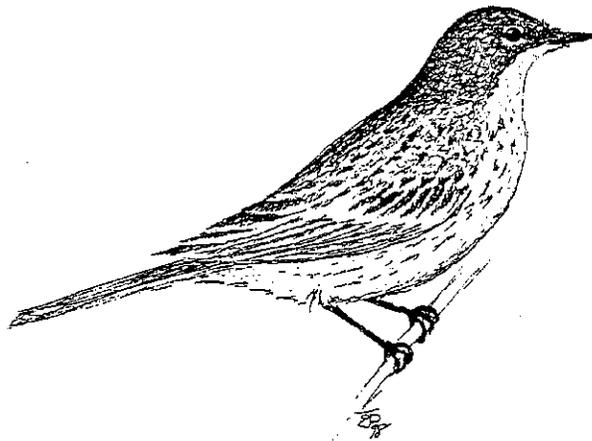


COSEWIC
Assessment and Update Status Report

on the

Kirtland's Warbler
Dendroica kirtlandii

in Canada



ENDANGERED
2000

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA



COSEPAC
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AU CANADA

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Chamberlain, D. 1979. COSEWIC status report on the Kirtland's Warbler *Dendroica kirtlandii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 22 pp.

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Également disponible en français sous le titre Rapport du COSEPAC sur la situation de la Paruline de Kirtland (*Dendroica kirtlandii*) au Canada – Mise à jour

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COSEWIC Assessment Summary

Assessment Summary – May 2000

Common name

Kirtland's Warbler

Scientific name

Dendroica kirtlandii

Status

Endangered

Reason for designation

The species is globally endangered. There are no recent breeding records in Canada, but singing males are occasionally recorded in suitable breeding habitat in Ontario.

Occurrence

Ontario

Status history

Designated Endangered in April 1979. Status re-examined and confirmed in April 1999 and in May 2000. May 2000 assessment based on new quantitative criteria applied to information from the existing 1999 status report.



COSEWIC
Executive Summary
from the 1998 Status Report

Kirtland's Warbler
Dendroica kirtlandii

The Kirtland's Warbler is a globally endangered species breeding in young jack pine regeneration mainly confined to six counties in the Lower Peninsula of Michigan. It apparently formerly bred in Ontario and possibly Quebec, and continued to wander into Canada, with males occasionally establishing territories in patches of available habitat.

With a total population of only about 200 pairs in 1971, intensive efforts were begun to save it from extinction. Control of Brown-headed Cowbirds was begun. They had been parasitizing in excess of 70% of warbler nests, reducing productivity to fewer than one young per pair per year. The creation of additional habitat was also undertaken. But, young birds dispersing in search of the early successional habitats they require were probably unable to find mates, and populations remained low until about 1990.

Since then, the population has begun a slow climb upward and now is between 700 and 800 pairs. A new small population has also become established in the Upper Peninsula of Michigan, with 19 singing males there in 1979.

Kirtland's Warblers continue to wander into Canada, with one or two sightings a year during the 1990s, and possibly other individuals have visited, but remained unseen. The goal of the U.S. recovery team is to have a self-sustaining population of at least 1000 pairs. If the population continues to grow, there is the possibility that a few pairs could begin seeking breeding opportunities in Canada again. There is habitat available in Ontario that could be used by this species, and it has demonstrated the potential, even now, of expanding to new areas.



COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determines the national status of wild species, subspecies, varieties, and nationally significant populations that are considered to be at risk in Canada. Designations are made on all native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fish, lepidopterans, molluscs, vascular plants, lichens, and mosses.

COSEWIC MEMBERSHIP

COSEWIC comprises representatives from each provincial and territorial government wildlife agency, four federal agencies (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biosystematic Partnership), three nonjurisdictional members and the co-chairs of the species specialist groups. The committee meets to consider status reports on candidate species.

DEFINITIONS

| | |
|------------------------|--|
| Species | Any indigenous species, subspecies, variety, or geographically defined population of wild fauna and flora. |
| Extinct (X) | A species that no longer exists. |
| Extirpated (XT) | A species no longer existing in the wild in Canada, but occurring elsewhere. |
| Endangered (E) | A species facing imminent extirpation or extinction. |
| Threatened (T) | A species likely to become endangered if limiting factors are not reversed. |
| Special Concern (SC)* | A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events. |
| Not at Risk (NAR)** | A species that has been evaluated and found to be not at risk. |
| Data Deficient (DD)*** | A species for which there is insufficient scientific information to support status designation. |

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list.



| | |
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The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

**Update
COSEWIC Status Report**

on the

Kirtland's Warbler
Dendroica kirtlandii

in Canada

Ross D. James¹

1999

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INTRODUCTION

The Kirtland's Warbler was previously considered by COSEWIC in 1979 (Chamberlain 1978). It was rated as one of the worlds most critically endangered birds, confined almost entirely as a breeding bird to six counties in the northern part of the Lower Peninsula of Michigan. Populations declined to about 200 pairs by 1971 and remained at that level, despite efforts to control Brown-headed Cowbird (*Molothrus ater*) parasitism and to provide additional habitat.

However, there was evidence that it formerly bred in Ontario at least, and it continued to wander into the province fairly regularly, with males still occasionally establishing territories in scattered patches of habitat there, and once in Quebec. In consideration of the species' overall precarious situation, and its continued occurrence in Canada, it was protected under the *Endangered Species Act* of Ontario in 1971, and subsequently designated as Endangered by COSEWIC in 1979.

POPULATION SIZE AND TRENDS

The first comprehensive survey of Kirtland's Warblers in Michigan was undertaken in 1951. That census was repeated in 1961 and 1971. In 1971 the population was found to have dropped by 50% in a decade, to scarcely more than 200 breeding pairs (Table 1). At that point it was decided that without direct intervention, the species was likely doomed. Although available habitat had declined by about 40% during the 1961 to 1971 period, it was believed that there was still adequate available habitat (Mayfield 1983). The main problem seemed to have been one of brood parasitism by the Brown-headed Cowbird.

Table 1. Numbers of singing male Kirtland's Warblers recorded in censuses in Michigan, 1951 to 1998 (Austen *et al.* 1993; P. Aird and H. Dewar, pers. comm.)

| | |
|------------|--|
| 1951 - 432 | 1983 - 215 |
| | 1984 - 215 |
| 1961 - 502 | 1985 - 216 |
| | 1986 - 210 |
| 1971 - 201 | 1987 - 167 |
| 1972 - 200 | 1988 - 207 |
| 1973 - 216 | 1989 - 212 |
| 1974 - 167 | 1990 - 265 |
| 1975 - 179 | 1991 - 347 |
| 1976 - 200 | 1992 - 397 |
| 1977 - 218 | 1993 - 485 |
| 1978 - 196 | 1994 - 633 (incl. 2 in Upper Peninsula) |
| 1979 - 210 | 1995 - 765 (incl. 8 in Upper Peninsula) |
| 1980 - 242 | 1996 - 692 (incl. 14 in Upper Peninsula) |
| 1981 - 232 | 1997 - 728 (incl. 19 in Upper Peninsula) |
| 1982 - 207 | 1998 - 804 (incl. 14 in Upper Peninsula) |
| | (H. Dewar, pers. comm.) |

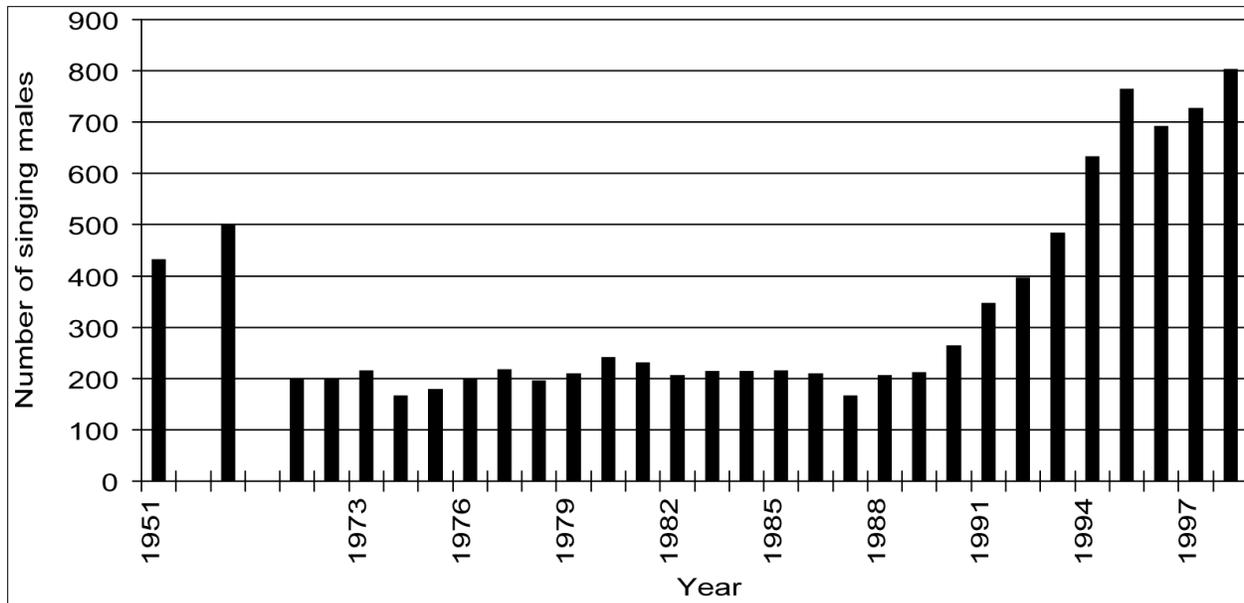


Figure 1. Numbers of singing male Kirtland's Warblers recorded in censuses in Michigan, 1951 to 1998. (from Table 1). (H. Dewar, pers. comm.)

Cowbirds had moved into the range of Kirtland's Warbler only in this century and continued to increase in numbers. In excess of 70% of warbler nests were parasitized, reducing the production of young to fewer than one young per pair per year (Ryel 1981). Cowbird control was begun in 1972 and reduced parasitism to about 3% or negligible levels (Kelly and DeCapita 1982).

With the removal of one devastating factor, the warbler population remained stable at about 200 pairs through 1989 (Table 1). However, it did not increase as expected. One of the factors operating seemed to be the rarity of the warbler, coupled with its inherent behavioural characteristics (Mayfield 1983). While adult birds show high fidelity to nesting areas, young of the year typically disperse in search of new habitat; appropriate behaviour for a species looking for early successional habitat (see Habitat below). Dispersed singing males had little chance of finding a mate when so few birds remained at all. Accumulating evidence also suggested that available habitat was probably limiting populations as well (Probst 1991).

With continued cowbird control and efforts to create additional habitat, the population has begun to increase in recent years (Table 1). Numbers of singing males increased to a new high in 1994 and have remained above that level since. Although the population has not increased steadily in the last few years, a new nesting area has been established in the Upper Peninsula of Michigan, with breeding first recorded there in 1995 (Table 1). Numbers are small, but increasing steadily there and banded birds are returning to nest again (P. Aird, pers. comm.).

In 1919, Paul Harrington and Fred Starr, stationed at the Petawawa military base in Ontario, noted that Kirtland's Warblers were "not uncommon" over "a fairly large area" in the jack pines (*Pinus banksiana*) of the sandy plains in the area. Both men were active birders and egg collectors and felt sure the birds were breeding there. Returning there in 1939, Harrington again found them but noted only single birds on 2 occasions (Harrington 1939).

Kirtland's Warblers were probably nesting in the Petawawa area regularly in the 1800s and early 1900s, and possibly elsewhere in the country. However, the only actual breeding record in Canada was in the Barrie area of Ontario in 1945, when a pair was observed with at least one young (James 1984, Speirs 1984).

Apart from the Petawawa observations and the Barrie breeding record, there have been singing males in early successional pine habitat in Ontario on at least seven subsequent occasions (Table 2). In summer 1978, there was also a male singing on the Quebec side of the Ottawa River near Petawawa. Other birds may have gone undetected in the often unaccessible habitat patches available.

Table 2. Male Kirtland's Warblers singing in early successional pines in Ontario and Quebec, since 1945

| | |
|------|--|
| 1958 | - Bruce Peninsula, 8-30 June (Mayfield 1960, Wormington 1985) |
| 1961 | - Pointe au Baril, 17 June (Curry 1991) |
| 1964 | - Barrie, 16-21 May (Devitt 1967) |
| 1977 | - Petawawa, 9 June-14 July (Wormington 1986) |
| 1978 | - Petawawa, 2 June-18 July (Wormington 1986) - Quebec, near Petawawa (Chamberlain 1978) |
| 1985 | - near Orillia, ? June-early July (Aird and Pope 1987) |
| 1990 | - Bruce Peninsula, 26 May (Curry 1991) |

Between 1900 and the time of the 1978 COSEWIC report, there had been at least 34 records of Kirtland's Warbler in Ontario (see Chamberlain 1978). Since 1990, with the population increase in Michigan, there has been an apparent increase in the number of occurrences in Ontario, with an average exceeding one per year (Table 3). There has also been a fairly consistent appearance of at least one in Wisconsin each year since 1989; in 1997 there were five.

Table 3. Kirtland's Warbler sightings in Ontario since 1990

| | |
|------|--|
| 1990 | - Cabot Head (Curry 1991) - male, 26 May - Port Hope (Curry 1991) - male, 31 May |
| 1991 | - Toronto (Bain 1992) - ?, 22 May |
| 1993 | - Point Pelee (Pittaway 1995) - male, 9 May |
| 1994 | - Rondeau (Pittaway 1995) - ?, 18-20 May |
| 1995 | - Point Pelee (Dobos 1996) - female, 21 May |
| 1996 | - Point Pelee (Dobos 1997) - male, 10 May - Stoney Point (Dobos 1998) - ?, 14 May - Point Pelee (Dobos 1998) - ?, 16 May |
| 1997 | - St. Williams (Dobos 1998) - ?, 24 May - Thessalon area (B. Knudsen, pers. comm. to H. Dewar) - male, 4 July. |

The objective of the United States Kirtland's Warbler recovery plan is to have a self-sustaining population of at least 1000 pairs (Probst 1991). If that objective is reached, and chances now appear favourable, then we can expect to have not only continued occurrences of the species in Canada, but also the possibility that a few pairs may begin to look for nesting opportunities here. They have succeeded in establishing a new colony in the Upper Peninsula of Michigan, indicating that they are capable even now of expanding into suitable habitat at some distance from the main population.

HABITAT

The Kirtland's Warbler is a habitat specialist, breeding only in extensive homogeneous stands of young jack pine. This is a transitory phase of forest succession naturally occurring after forest fire and in a modified form after cutting and planting. Such habitat was probably most extensive in the 1880s and 1890s in Michigan, Ontario, Wisconsin, and Minnesota at the height of lumbering in the region, when forest fires were frequent and unretarded (Mayfield 1960). During the 20th century, control of fires has greatly reduced the availability of suitable habitat. These warblers definitely benefit from large forest tracts of at least 32 hectares and preferably larger than 80 hectares (Anderson and Storer 1976, Mayfield 1993). Declines in habitat have corresponded to population declines of Kirtland's Warbler (Mayfield 1983, Probst 1991).

Currently the breeding range of Kirtland's Warbler is still largely restricted to six counties in the northern Lower Peninsula of Michigan where they use habitat created by

federal and state habitat management programs. The available summering habitat there seems to be more than adequate to the needs of the entire population of Kirtland's Warblers (Mayfield 1983, Probst 1991). However, should the population continue to grow at present rates, there soon may be a demand for additional breeding habitat.

In wintering areas the warblers seem to prefer areas of low sparse vegetation in the Bahamas (Mayfield 1996), but the interior of the islands have been little altered by people. These infertile scrub-covered lands have few inhabitants, who have turned to the sea for their livelihood (Mayfield 1983, 1996). Wintering habitat is unlikely to be limiting at present.

There is considerable jack pine habitat in Ontario that potentially might be used by Kirtland's Warbler. This habitat is mainly found across southern Ontario from the Bruce Peninsula and Parry Sound District to the Petawawa area. However, there has not been any effort to determine just how much or where optimal habitat is available in the province (Austen *et al.* 1993). Much of it may be very inaccessible, so if warblers were present they could go undetected for some time without extensive searching.

EVALUATION AND PROPOSED STATUS

The global population of Kirtland's Warbler remains below 800 pairs, restricted mainly to a breeding range that occupies only a few counties in the Lower Peninsula of Michigan. The birds depend for their survival upon continued management activities that will provide adequate early successional jack pine habitat. The objective of the United States recovery plan is to provide enough habitat for a self-sustaining population of at least 1000 pairs of these habitat specialists.

Kirtland's Warblers are also dependent upon continued control of Brown-headed Cowbirds in nesting areas. The combination of cowbird control and habitat provision has allowed the population to slowly climb in the past decade from about 200 pairs to more than 700 pairs. However, once the recovery objective has been met, it is uncertain whether the species will continue to prosper without continued management.

There is reasonable evidence to suggest that Kirtland's Warblers formerly bred in Canada. They continue to wander regularly into Canada, and occasionally males sing on territory in the summer for as long as several weeks. If the Michigan population continues to grow, this species has the potential to re-establish a breeding population here, much as it is doing in the Upper Peninsula of Michigan at present.

There is no specific protection afforded to habitat that would be suitable for Kirtland's Warbler in Ontario, and no efforts are being made to create additional (Austen *et al.* 1993). However, it does not seem prudent at this time to be concerned about creating additional habitat. There is habitat for the occasional birds that appear, and it is likely to be a few years yet before we know how rapidly the population is going to expand and whether a breeding population will attempt to establish itself in Canada. On

sandy or rocky sites, the rate of habitat succession can be slow, and there would seem to be enough of this habitat to accommodate any vanguard of an expanding population. If breeding should begin again in Canada, then it would be necessary to re-evaluate the situation and implement the recommendations of the recovery plan (Austen *et al.* 1993) with respect to habitat provisioning.

But, given the globally endangered status of this species, and its continued regular presence in Canada, it is essential to continue to provide maximum protection for the species when it does occur. This would be particularly critical if one or more pairs attempted to nest. It is recommended that COSEWIC retain the endangered status for Kirtland's Warbler in Canada.

ACKNOWLEDGEMENTS

Thanks to Colleen Hyslop for the opportunity to prepare this report and for providing documents to assist. Paul Aird kindly provided population figures and helpful comments. George Peck helped with information. Thanks also to the numerous unnamed volunteers who contribute to, and the organizations which support, programs like the Ontario Bird Records Committee, Kirtland's Warbler surveys, and the Ontario rare breeding bird program. Funding provided by the Canadian Wildlife Service, Environment Canada.

KNOWLEDGEABLE PERSON

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contributor to, the *Atlas of Breeding Birds of Ontario*, and a coauthor of *Ontario Birds at Risk*. He is an author of two accounts for the *Birds of North America*, and has published more than 80 papers on birds. He spent more than a decade as chair and co-chair of the Birds Subcommittee of COSEWIC. In this capacity he was familiar with previous status reports and the status of this species.