Update
COSEWIC Status Report

on the

Kirtland's Warbler
Dendroica kirtlandii

in Canada

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TABLE OF CONTENTS

INTRODUCTION 3
POPULATION SIZE AND TRENDS 3
HABITAT 6
EVALUATION AND PROPOSED STATUS 7
ACKNOWLEDGEMENTS 8
Knowledgeable Person 8
LITERATURE CITED 8
THE AUTHOR 9

List of figures

Figure 1. Numbers of singing male Kirtland's Warblers recorded in censuses in Michigan, 1951 to 1998. 4

List of tables

Table 1. Numbers of singing male Kirtland's Warblers recorded in censuses in Michigan, 1951 to 1998 3
Table 2. Male Kirtland's Warblers singing in early successional pines in Ontario and Quebec, since 1945 5
Table 3. Kirtland's Warbler sightings in Ontario since 1990 6

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.)

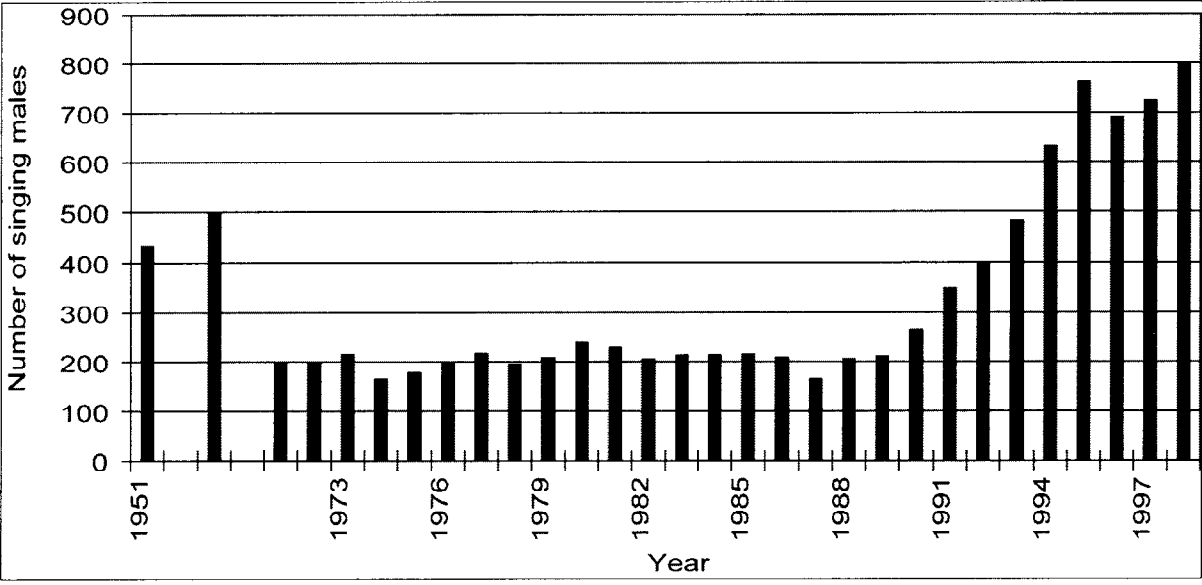

Figure 1. Numbers of singing male Kirtland's Warblers recorded in censuses in Michigan, 1951 to 1998. (from Table 1). (H. Dewar, pers. comm.)

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 popoulation 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.

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