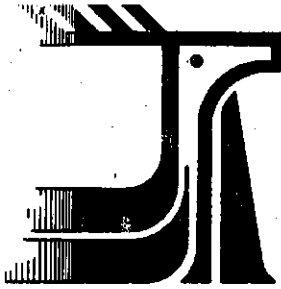


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Committee
on the Status
of Endangered
Wildlife
in Canada

Comité sur le
statut des espèces
menacées
de disparition
au Canada

Ottawa, Ont. K1A 0H3
(819) 997-4991

**STATUS REPORT ON THE SEDGE WREN
CISTOTHORUS PLATENSIS STELLARIS (NAUMANN)
IN CANADA**

BY

JARMO JALAVA

**STATUS ASSIGNED IN 1993
NO DESIGNATION REQUIRED**

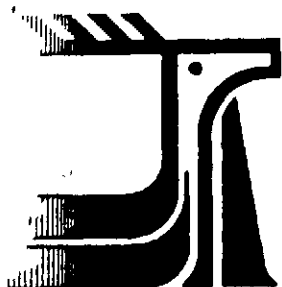
REASON: ALTHOUGH THERE HAVE BEEN SIGNIFICANT DECLINES IN SOME EASTERN PROVINCES, IT IS STILL WIDESPREAD AND RELATIVELY COMMON IN THE MAIN PART OF ITS RANGE.

OCCURRENCE: ALBERTA, MANITOBA, NEW BRUNSWICK, ONTARIO, QUEBEC AND SASKATCHEWAN

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Committee
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JUNE 1990

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EXTIRPATED SPECIES: Any indigenous species of fauna or flora no longer known to exist in the wild in Canada but occurring elsewhere.

EXTINCT SPECIES: Any species of fauna or flora formerly indigenous to Canada but no longer known to exist anywhere.

**STATUS REPORT ON THE SEDGE WREN
CISTOTHORUS PLATENSIS STELLARIS (NAUMANN)
IN CANADA**

BY

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**STATUS ASSIGNED IN 1993
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A. ABSTRACT

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The Sedge Wren (*Cistothorus platensis stellaris*) breeds in eastern and central North America, north to about the 56th parallel and south to Oklahoma. It is most common in the shrubby marsh edges of the northeastern margin of the prairies, with the highest population densities found in Minnesota, Wisconsin, north-central Michigan, southern and central Manitoba, and the Lake of the Woods area in northwestern Ontario. The species is uncommon to rare in southern and central Ontario, and elsewhere in the northeast. It is very scarce in southern Quebec, no longer breeds in New Brunswick and Maine, and is a casual non-breeding visitor to Nova Scotia and Prince Edward Island. Breeding range expansions appear to have occurred into east-central Alberta and marginally southward in southern Saskatchewan. Throughout its range, the North American race of the Sedge Wren frequents the drier sedgy borders of cattail marshes, bogs, fens, damp meadows, sewage lagoons and moist hayfields and pastures.

Declines in Sedge Wren populations were first documented in the late 1970s. The species was Blue Listed in "American Birds" in 1979, 1981, and it was a Species of Concern 1982 - 1986, due to significant declines in the northeast and parts of the midwest. Within its traditional breeding range in Canada, numbers are low in many areas, particularly in Quebec, southwestern Ontario and Alberta. Marked declines have also recently been observed in Saskatchewan.

The causes of declines in the northeast are unknown, although habitat loss due to natural succession and human development have been cited as possible factors. In the west, where the species can be common to

locally abundant, the recent prairie drought is believed to be the primary cause of declines, with habitat loss due to agricultural and other forms of human development also contributing significantly. Because the Sedge Wren remains fairly common throughout much of the core of its range, and because its declines there are likely due mainly to cyclic drought patterns, the species is not recommended for a COSEWIC category in Canada at this time. However, the species' status is "extirpated" in New Brunswick, "vulnerable" in Quebec, and is rare (but increasing) in Alberta. The national status should be reviewed if population declines continue to be observed in Canada.

B. DISTRIBUTION

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1. North America

Breeding:

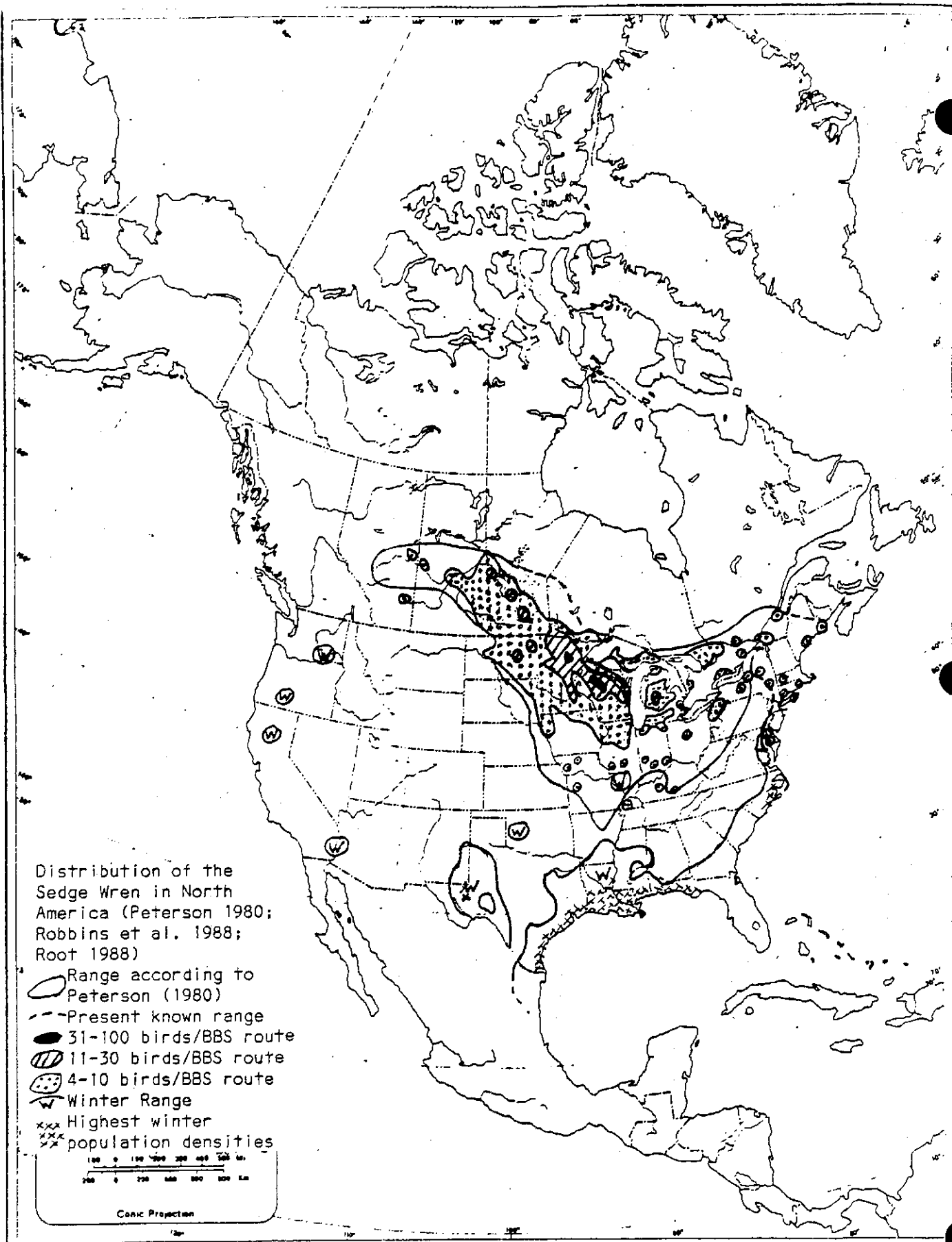
According to the American Ornithologists Union (1983) Checklist of North American Birds, the Sedge Wren breeds "from extreme east-central Alberta, central Saskatchewan, southern Manitoba, western and southern Ontario, northern Michigan, extreme southwestern Quebec, central Maine and southern New Brunswick south to east-central Arkansas, southern Illinois, central Kentucky, west-central West Virginia and southeastern Virginia, and west to central North Dakota, eastern South Dakota, eastern Nebraska, northeastern Colorado (possibly) and eastern Kansas." (Fig. 1)

Migration:

The Sedge Wren occurs sparingly in suitable habitat between its breeding and wintering ranges throughout much of eastern and central North America.

Winter:

The species' wintering range is described as "western Tennessee and Maryland (casually farther north) south to southeastern New Mexico, western and southern Texas, San Luis Potosi, Tamaulipas, the Gulf coast and southern Florida" (A.O.U. 1983). Christmas Count records indicate that "the most concentrated populations occur in regions warmer than...4 C in January: the region along the Gulf coast of Texas



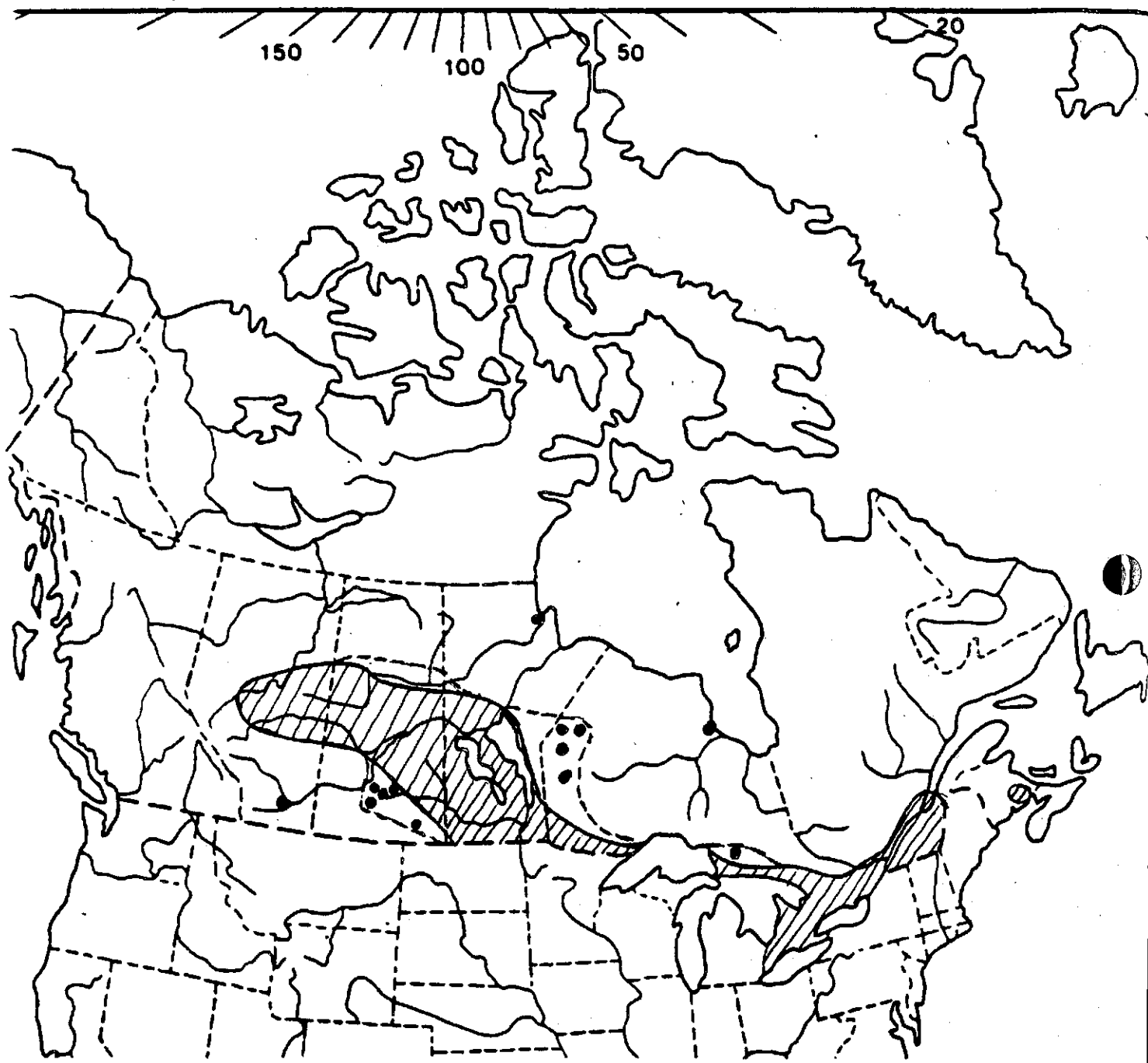
and Louisiana , with an inland extension to the northeastern border of Louisiana. Slighter abundance peaks are present in the marshy lowlands along the North Carolina coast and around Pensacola, along the Pecos River in western Texas, and in the Green Swamp near Wilmington, North Carolina" (Root 1988). It is casual in California and Wyoming, and there are sight records for Arizona (Root 1988).

(Fig. 1)


2. Canada

One subspecies is found in Canada, C. platensis stellaris (Naumann). Godfrey (1986) describes the Canadian breeding range as: "central-eastern Alberta (Cold Lake, Gainford; probably Bonnyville and Glenevis); southern Saskatchewan (Laura, Saskatoon, Nipawan, Quill Lakes, Qu'Appelle valley, Regina); southern Manitoba (The Pas, Norway House, Lyleton, Lake St. Martin, Sprague); western Ontario (Indian Bay, Wabigoon, Kenora, Thunder Bay region); southern Ontario (north to Sault Ste. Marie, Lake Nipissing, Ottawa); extreme southwestern Quebec (Perkins, Lanoraie bog, Hatley, Sorel, Cap-Tourmente); and southern New Brunswick (Midgie). Casual visitant to Nova Scotia." A northward expansion of the known breeding range has occurred in Saskatchewan to the 56th parallel, and marginal expansions southward (Hjertaas 1991; Smith 1990). Similarly, recent data reveal a northward extension of the known breeding range in western Ontario to the Sandy Lake area, and as a vagrant to Fort Albany (Cadman et al. 1987). (Fig. 2)

A.J. Erskine (1991) writes: "It seems unlikely that the Sedge Wren was established generally or commonly in eastern Canada during historic times, although conceivably it might have been during the



Breeding Distribution of the Sedge Wren in Canada

-  Range according to Godfrey (1986)
- Extra-timital breeding season records
- Approximate extended range

hypsihermal period 7,000 years ago.... Its main Canadian range in the past half-century was in the shrubby marsh-edges of the northeastern margin of the prairies, with only local and possibly relict populations farther east. Some of the peripheral eastern populations, including those in the Maritimes, have disappeared in recent decades."

Alberta:

Until recently, the Sedge Wren was not known to breed in Alberta. The A.O.U. Checklist of North American Birds (1957) describes the species as casual in Alberta, and Godfrey (1966) describes it as a "scarce straggler" to the province. Salt and Salt (1976) indicate possible breeding at Glenevis and Bonnyville, several summer sight records, but that otherwise the species "is only a rare vagrant."

Breeding Bird Survey results and preliminary Alberta Bird Atlas Project data, however, suggest that the species has gone unnoticed, or, more probably, that it has recently become much more frequent and widespread in the province. From 1987 to 1990 there were records of low numbers of territorial birds or singing males in 12 different atlas squares in central and east-central Alberta (including Val Quentin, Beaverhill Lake, Elk Island National Park, Wakomao Lake, South Flat Lake), and one observation during breeding season in the Taber Lake (Fincastle) area in southeastern Alberta (ABAP 1991).

Breeding Bird Surveys in 1990 also produced birds on these routes: Ronan, Kehiwin Lake, Marten River and Swan River. Except for 1972 (at Kehiwin Lake) and 1976 (at Cereal), there are no other BBS records, suggesting a recent resurgence to the province (CWS 1991).

Saskatchewan:

As in Alberta, recent bird atlassing and other observations have produced Sedge Wren records which extend the known breeding range. It is believed that some of these data may represent actual range expansions (Smith 1990), rather than simply being the result of more thorough coverage by observers. The A.O.U. Checklist (1957) and Godfrey (1966) had the species breeding only in the southeastern half of central Saskatchewan (Nipawin, Quill Lakes, Yorkton District). Godfrey (1986) has the species breeding across an 800 to 1200 kilometre wide band from the southernmost extremity of the Manitoba border north to near the Churchill River and westward across the centre of the province to the Alberta border. Hjertaas (1991) reports having observed 5 individuals at MacDonald Creek Marsh along the Reindeer River, north of the Churchill River on July 17, 1974. This record, along with bird atlas records of possible breeding as far north as the 56th parallel, represent further extensions of the known range. Bird atlas records of possible breeding in the southwest of the province, and along a band marginally farther south than Godfrey (1986), also represent extensions of the known range, or are actual expansions.

Manitoba:

Taylor (1991) states that the species is "a common resident of wet meadows and sedge marshes in parts of southern Manitoba....It is most common in remnant wetlands in the farmland-parkland region, and marshy areas along the fringe of the boreal forest, but penetrates to isolated pockets of suitable habitat deep in the forest. It is

locally common farther north on marshy lakeshores, e.g. Lake Winnipegosis. In the west, it has been found common as far north as The Pas....East of Lake Winnipeg, it is scarce north of the Winnipeg River watershed, but has been found at Flintstone Lake in Nopiming Provincial Park....Godfrey (1986) cites a record from Norway House. Accidental at Churchill (one summer record)." Descriptions in Macoun (1904) suggest that the species' Manitoba distribution has not changed substantially during the past century.

Ontario:

As in Alberta and Saskatchewan, breeding bird atlas surveys produced breeding season records considerably beyond the previously known range. Gould (1987) describes the distribution thus: "In southern Ontario, the present breeding range corresponds closely to its historical range. Baillie and Harrington (1937) described the distribution as being from the southern portion of the province north to Kenora, southern Sudbury District, and Carleton County, and also called it an irregular breeder throughout its range. The results of the Breeding Bird Survey for the period 1968 to 1977 reaffirmed this distribution pattern in the southwestern and southcentral portions of the province, where it was described as being rare to uncommon (Speirs 1985). James et al. (1976) described it as being uncommon in Ontario north to Kenora and Lake Nipissing, and occasional to rare farther north to Kirkland Lake."

According to Gould (1987), "The majority of records come from southern Ontario. The intensively cultivated... southwest contains few

records, although there are some from protected areas such as Rondeau Provincial Park and Long Point. Records increase with the percentage of neglected farmland in Wellington, Grey, and Bruce Counties and near the margin of the Canadian Shield. On the Shield, pockets of former agricultural land, marshes and wet beaver meadows probably account for the majority of the records. Except for a few new northern records, the species is concentrated in the Great Lakes - St. Lawrence Forest region, both in northwestern and in southern Ontario." There are nine atlas records of territorial birds for the Sandy Lake area, approximately four hundred kilometres north of Kenora. These records are not inconsistent with occurrences in pockets of suitable habitat in boreal forest in adjacent Manitoba. There is also an isolated record of a singing male in the Fort Albany area (Gould 1987).

Quebec:

The Sedge Wren breeds very locally and unpredictably in the extreme south of Quebec. The species was not known to occur in the province at the turn of the century (Dussault & Proulx 1906). Terrill (1921) states that "at least a few observers have been aware of its occurrence in the Montreal district for several years past." There are sight records for: "near Montreal" in 1911; "1 mile north of Hatley" on May 21, 1917; 2 miles south of Hatley, September 10, 1919; at Lanoraie (recently fledged young, specimen taken), July 7, 1926; and near St. Hubert in 1933 (The Auk, 51:4, pp.439-445). Since then, data suggest that the Quebec range of the species has not changed substantially (Cayouette and Grondin 1972; Ouellet 1974; David 1980).

Robert (1989) describes the current Quebec range as "breeds locally in the St. Lawrence lowlands (up to Cap-Tourmente), southern Appalachians, and possibly southern Laurentians. Very few breeding sites are presently known. Between 1984 and 1988, breeding...was confirmed in only one location (Eardley) for the Quebec Breeding Bird Atlas. Nevertheless, we know that this small wren probably nests in the Gatineau, Plaisance, Dundee, Lake Saint-Pierre (Ile du Moine), Saint-Ours, Farham, Val-Alaion, and Eastern Townships (Lake Memphremagog, and Lake Lovering) (CWS unpublsh data; EPOQ)."

Atlantic Provinces:

A.J. Erskine (1991) writes: "This species does not at present breed in the Maritimes, and it is a rare vagrant here.

"Breeding was never proved to occur in the Atlantic Provinces, and only the repeated occurrence, of several singing birds, in the same area of New Brunswick in succeeding years, suggested that it bred here in the past. The Maritimes Breeding Bird Atlas project (field work in 1986-90) received only two reports....Our data agree with those in the breeding bird atlas of Maine, which concluded that the species no longer breeds in that state.

Squires (1976) describes the species' status in New Brunswick as: a "very rare summer resident....A colony was found in the Midgic Marsh, Westmoreland County, in July 1949....A specimen was collected at that time by C.E. Addy of the U.S. Fish and Wildlife Service. None could be found there in 1960 or succeeding years until 1973 when seven were located there on July 11 by Davis Finch. As many as six were found at

Kingston Lake on June 25, 1965, by Jim Wilson. James Bond found a singing male at Lower Burton on July 1, 1951, and other individuals have been seen at New Maryland on August 9, 1963, and at Kellock Creek, Kent County, on May 25 and 28, 1971."

Tufts (1986) describes the species as a "rare vagrant" in Nova Scotia, indicating a total, since the first in 1967, of 17 documented provincial records, 5 in spring, 8 in fall, and 2 in December. Writes Tufts, "Most unusual were 2 singing males resident in a sedge marsh in the town of Yarmouth during July 1975 (several observers and photos)."

Prince Edward Island, where the Sedge Wren has occurred as a vagrant, has few records, and the species has not been recorded in Newfoundland (Erskine 1991).

C. PROTECTION

The Sedge Wren is protected by the Migratory Birds Convention in Canada and the United States. The Convention serves to protect the species from direct persecution by humans, but does not provide protection against habitat destruction (including mowing for hay), environmental contaminants, and other indirect forms of persecution.

Additional protection is provided where the Sedge Wren breeds in national, provincial and state parks and refuges.

D. POPULATION SIZE AND TREND

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The Sedge Wren is a shy, secretive species, which tends to remain hidden in vegetation in marshy habitat that is often difficult for humans to access. It is most conspicuous when singing males announce their territories from shrubby perches, but even then the song is relatively quiet and unfamiliar to most observers. To compound the difficulties in assessing populations of this species, it will often delay breeding until July or even August, long after most breeding bird surveys have ceased. It is also "an opportunistic breeder, showing little site tenacity from year to year" (Ehrlich 1988). For these reasons, absence or low numbers of records from a given area in a given year do not necessarily provide a reliable picture of the species' population in the region, especially where the species typically only occurs in small numbers. Correspondingly, increases in records for given regions do not necessarily reflect population increases or range expansions, but may simply be the result of more intensive coverage by observers. Significant trends are nonetheless believed to have occurred in parts of North America.

1. North America

The Sedge Wren was Blue Listed in 1979 and 1981, and received Special Concern designations in 1982 - 1986. The most significant declines have occurred in the northeastern part of its range, and in portions of the midwest. Robbins et al. (1986) notes that for the period 1965 -1979 "this species declined in the central region and in the Great

Lakes and Northeastern States as well as across the continent. There was also a decline in the Drift Prairie and in Wisconsin, where the [Sedge] Wren was detected on 63 of 70 routes. Distribution of this species was strongly clustered; birds were especially abundant in sedge meadow habitat. More than half of the birds counted were in the Great Lakes Transition and the Black Prairie. The only States that averaged more than one-half bird per route were Minnesota, Wisconsin, and North Dakota. More than three birds per route were recorded in Minnesota and Wisconsin." The species is designated "threatened" in Vermont, and is a "species of concern" in New York.

2. Canada

Alberta:

A marked increase in breeding season records in central and east-central Alberta suggests that the species' population may be growing in the province. These increases may represent pioneering birds as the drought of the late 1980's and early 1990's causes former breeding sites in adjacent Saskatchewan (and elsewhere in the Prairies and Great Plains) to dry up. Numbers in Alberta, however, are probably so low as to be insignificant, relative to the overall Canadian and North American populations.

Saskatchewan:

Breeding Bird Survey data revealed a 1.0% decrease ($n = 12$; $x = 0.20$) between 1966 and 1989, but a 16.1% increase ($n=7$; $x = 0.21$) between 1980 and 1989. However, Kreba (1991) suggests that "drought and

agricultural practices have caused major habitat loss" for breeding Sedge Wrens. He states that the actual population is unknown, but it is probably more than 1,000 pairs, whereas it was "certainly 1,000's of pairs 10 years ago." He describes the population as decreasing in the province, but that if the drought is cyclical "it is possible that the species may return to former dried up habitat." Smith (1990) agrees that widespread drought is very likely a major factor in Saskatchewan's recent Sedge Wren population declines.

Manitoba:

Of the Canadian provinces, Manitoba has the highest, densest and perhaps the most stable population of Sedge Wrens. Macoun (1904) describes the species as "a summer resident of erratic distribution in Manitoba; soon after the first of May, every little sedgy pool and slough in the Assiniboine Valley, from Carberry to Pelly, is vocal with the merry chatter of this bird." Macoun describes it as "tolerably common summer resident at Aweme" and notes "a few" records for Indian Head.

Breeding Bird Survey data revealed a non-significant decrease of 3.2% annually based on the 15 routes where the species has been found; however, since 1980, Sedge Wrens have increased at an annual rate of 3.8% ($n = 14$; $x = 1.85$) in the province (De Smet 1991). No data were found which would allow a current population estimate. Taylor (1991) notes that the species is "common and widespread in the prairie/forest ecotone," but that "no hard numbers" are available. Taylor speculates that the population is relatively stable in the province, but notes

"that prairie populations are most susceptible to habitat alteration and drought." Taylor writes that the more resilient populations in the prairie/forest ecotone are facing substantial habitat alteration due to clearing of land for agriculture, peat extraction and other human development. He notes that occasionally these practices prove beneficial to the species. However, the net effect on the population is probably negative.

The population in isolated pockets of suitable habitat in the boreal forest is probably too small to have significance to the overall population (Taylor 1991).

Ontario:

Abundance estimates from bird atlas surveys in the early 1980's would place the Ontario population of Sedge Wrens somewhere between 500 and 5,000 pairs. More precise population estimates for this secretive species are not available, with the lower figure probably being more accurate. The Sedge Wren is rare in the extreme southwest of the province (Oldham 1989), scarce elsewhere in the extreme south, and uncommon and local from the Bruce Peninsula to extreme southeastern Ontario northward to the Lake Nippising - Sault Ste. Marie areas. It is "abundant" in the Lake of the Woods area in northwestern Ontario (Wormington 1991).

Breeding Bird Survey data revealed increases of 3.6% ($n = 28$; $x = 0.22$) between 1966 and 1989 and 8.5% ($n = 14$; $x = 0.95$) between 1980 and 1989, suggesting that the Ontario population was at least stable, if not actually increasing during those periods.

McCracken (1991) states that the population fluctuates with lake levels along Lake Erie shore, where numbers, though always very low, rise with decreases in lake levels. Hebb (1991) cites no current breeding season records for the Niagara Peninsula although the species occasionally breeds there. Dobos (1991) was not aware of 1991 nestings in the Hamilton - Wentworth region. Intermittently a few pairs may turn up in hay fields in this region, but these are often unsuccessful breeders due to mowing. Cadman (1991) notes that a few scattered pairs are found irregularly during breeding season in the Guelph area.

Weir (1991) writes that 180 (+/-10%) pairs nest in the eastern Ontario region (which includes Frontenac, Lennox-Addington, Leeds, Prince Edward, Hastings, Wolfe and Amherst Islands). The population appears to be stable there. Bird atlas study revealed that the species was "more common than previously thought, and easily overlooked."

No data were found indicating population size and/or trends in central Ontario, and I would speculate that the species is sparsely distributed to locally fairly common in suitable habitat there, with no significant recent population declines. I am aware of recent breeding in wet pastures and marginal farmland on the Bruce Peninsula, Parry Sound district, Carden Township and other areas on the Canadian Shield. As in Manitoba and Saskatchewan, the species probably ventures into pockets of suitable habitat in the boreal forest beyond the presently documented range, as it was discovered breeding in the Sandy Lake area during bird atlas study in the mid-1980's (Cadman et al. 1987).

Quebec:

Currently, and historically, the Quebec population of Sedge Wrens is limited to only a few sites in the extreme south. It was not known to occur in the province (Dionne 1889; Dionne 1906) until the 1900's, suggesting that it has always been rare. However, it appears that the species was much more common in the Mascouche River area just north of Montreal in the 1920's than it is today. Terrill (1921) writes that it is "common and well distributed in loose colonies" in the Montreal district. "100 pairs would be a low estimate" for the area between forested sand-hills and the Mascouche River, and extending for several miles in a northeasterly direction. At the northeastern apex, on June 24, 1920, 9 individuals were counted in a 1 mile radius. Terrill (1921) also notes that in a sphagnum bog in Berthier County (40 miles northeast of Montreal), a "large number" were seen on May 29, 1921, and on June 17 of the same year, when 20 individuals were counted at the site.

Larrivee (EPOQ 1991) writes that spring and fall records for the province for the period 1969 - 1988 indicate a decline in numbers of observations of the species. In this period there were a total of 113 observations of the species in a total of 94605 sessions of observation, indicating that, according to EPOQ, the species is "very rare." However, as in the northeastern United States, the meagre population seems to fluctuate considerably, with abundance estimates in 1983 and 1984 (5 and 6 per 1,000 sessions of observation, respectively) being almost equal to those in the high years of 1969 and 1970 (6 per 1,000 sessions of observation, both years). In the

following year, 1985, there was less than one observation of Sedge Wren per 1000 sessions of observation in the province. In 1986 and 1987, the abundance index rose slightly, to one observation per 1000 sessions (in 1987). In 1988, there were 4 observations per 1000. If Quebec trends resemble those in the nearby Hudson - Delaware region of the U.S., the declines in the mid to late 1980's may have been followed by a slight increase, but this is pure speculation. In the Quebec City area (50 km radius), the present northeastern limit of the species' range, the frequency of observations in the period 1955 - 1971 was 2.9 birds per 1000 sessions of observation (David 1978).

The above figures suggest that though the species has never been common in Quebec, declines during the past 70 years, especially in the Montreal area, have been significant. EPOQ data, combined with David (1978) data for the Quebec City area, suggest that the major declines occurred at some time prior to 1969, and that although a slight downward trend continues, the species may be tenuously holding its own in the province.

Atlantic Provinces:

The species has never been common in the northeastern part of its range (Erskine 1991; Perkins 1991; Paxton 1991). During six years of bird atlas surveys, two singing males were found in areas where the species had not been found in previous years, if ever (Erskine 1991). It apparently no longer breeds in the Maritime Provinces, though breeding was never proven there, and numbers have always been very low

(Erskine 1991), with the total number of breeding season records being less than twenty.

3. Adjacent United States

New England region:

Perkins (1991) describes probable long-term (more than 20 years) range contraction due to habitat loss in the New England region. He writes that the species' "status has changed little in the past 20 years. In this period the species has remained a rare, local, sporadic breeder." One to five pairs are found in all of New England, though the species "probably does not breed every year," indicating an extremely low, fluctuating population. Erskine (1991) writes that bird atlas study in Maine concluded that the species no longer breeds in that state.

Hudson - Delaware region:

Paxton (1991) is unaware of significant changes in distribution in the Hudson - Delaware region in the long-term. Although "always very local," he notes a slight increase during the past 2 to 3 years, with small colonies of 2 to 3 pairs in both New Jersey (Cape May) and Delaware (Bombay Hook N.W.R.), suggesting a very low, fluctuating population in the region. Paxton writes, however, that "the species is too irregular here to generalize about -- there is more habitat available than there are birds to fill it."

Western Great Lakes:

Payne (1983) describes the species as uncommon in Michigan, but "numerous around Munuscong Bay" in the Sault Ste. Marie area, and also at Saginaw Bay. In southern Michigan the species is "rather local [though] it was more common in 1900 - 1920 when it nested in inland marsh meadows near Waterloo, Jackson County. The former wet grassy meadows are no longer cut for hay and the habitat is nearly gone in Michigan." Erskine (1991) writes that it was the most common wren in the Seney National Wildlife Refuge in north-central Michigan in 1957. No hard numbers showing population trends in this area were available at the time of writing.

Minnesota and Wisconsin:

This area forms the hub of the North American Sedge Wren population. BBS data reveal that the continent's highest densities occur in central and northwestern Wisconsin and in Minnesota.

In Minnesota, Janssen (1987) describes the species as a "well-represented and widely distributed resident throughout the state where grassy marshes and wet grassy uplands are present. Most numerous in western and central regions, least numerous in the northeastern region." Niemi (1985) describes the Sedge Wren as "the most abundant species in the shrub-vegetation in Minnesota. BBS data reveal that during the period 1966 - 1989 there was a significant (at $p < 0.05$) increase of 4.9% in Minnesota. For the period 1980 - 1989 the data show an insignificant increase of 0.7% in the state.

Northern Great Plains:

Lambeth (1991) is unaware of long-term distributional and populational trends in the Northern Great Plains region (which includes the Dakotas, and Montana east of the Rocky Mountains). However, he describes a "very marked [rangel] contraction during the drought, now in its 3rd year. It seems that [the species is] passing up even the suitable habitat that remains....In North Dakota, the density decreases to practically zero as one goes from the east to the Montana border. Montana has very few records in the extreme northeast. In drought years, the range limit is probably shifted eastward by hundreds of miles."

4. Synopsis

The overall population of Sedge Wrens is declining or fluctuating in the extreme northeastern part of its range (Quebec, the Atlantic Provinces, New England), where the population has always been low. It is probably stable, with local fluctuations, in most of Ontario and the Hudson - Delaware region, but declining or locally absent (due possibly to cyclic local fluctuations) in southwestern Ontario. In the core of its range, Wisconsin and Minnesota, the population appears to be stable or increasing slightly, although recent drought may be causing some dispersal to wetter areas. Very recent, marked declines appear to be occurring in Saskatchewan, the Dakotas and Montana, and are likely the result of drought.

Range expansions in Alberta and southern Saskatchewan may be the result of birds seeking suitable habitat for breeding as the drought causes former sites to dry up. The species is noted for its low site

tenacity. Thus, local and regional fluctuations, range expansions and contractions, may be part of long-term cycles rather than steady increases or declines. Habitat loss due to human activities, however, is almost universally cited as an important factor in local and regional declines.

Probably less than 35 - 40% of the North American population of Sedge Wrens breeds in Canada.

E. HABITAT

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1. Habitat Requirements

In North America, the Sedge Wren is a bird of dense cover, preferring moist but not wet environments. In contrast, South American subspecies prefer drier upland meadows for breeding (Wiens 1989; AOU 1983). In North America, the species is most commonly found in grass or sedge marshes, the drier sedgy borders of cattail marshes, in bogs, fens, damp meadows, and wet fields and pastures (including hay fields). Peck and James (1987) note that the species will nest in "dry" situations quite regularly, but this is presumably a question of definition, since the weight of evidence indicates that the Sedge Wren is seldom found far from wetter environments or saturated ground. Most authors note the presence of willows or other shrubs (often used as singing perches) where Sedge Wrens breed.

Water levels play an important role in determining the species' presence or absence in otherwise suitable habitat. Both drought (Hjertaas 1991; Smith 1990; Taylor 1991) and high water levels (McCracken 1991; Rogers 1931) may prevent the species from breeding in a normally suitable area. Sedge or grass height has also been noted as an essential element for breeding. Rogers (1931) writes, "evidently [the wrens] wait until the grass has grown to a height of 1.5 to 2 feet before nesting." Sutton (1967) notes that in Arkansas "nesting fields were those with the rice furthest along in development in early August, and those with a greater number of weeds (sedges and grasses)". Niemi (1985) found that it is a species of relatively low

ground cover, high sedge density, low forb density, moderately high shrub density, moderate shrub height, low overall vegetation height and very low tree density.

Breeding Bird Censuses support these descriptions of preferred habitat. A 1972 census near Mafeking, Manitoba yielded very high concentrations. The Sedge Wren was found to be the most abundant species (53 pairs in the 18 ha site or 294 pairs/100 ha) in a "shrubby marsh based on a quaking sedge mat. Major elements in the ground cover include[d] 3 species of sedges (Carex lacustris, C. prairea and C. lasiocarpa), with Sweet Gale (Myrica gale), and 4 species of willows (Salix candida, S. planifolia, S. maccalliana and S. pedicellaris). Other important species include[d] Water Horsetail (Equisetum fluviatile), Common Cattail (Typha latifolia), Marsh Cinquefoil (Potentilla palustris), and Dwarf Birch (Betula glandulosa var. glandulifera)" (Erskine 1972). Other bird species common in the habitat, in order of declining abundance, were Swamp Sparrow (17 pairs/18 ha), Common Yellowthroat (16) and Le Conte's Sparrow (4.5). Other BBC's have found Sedge Wrens common to fairly common in: "unburned reeds (phragmites)" at Delta, Manitoba in an abundance of 77/100ha (Erskine 1976); "sprangle-top meadow" also at Delta in an abundance of 39/100ha (Erskine 1976); "whitetop meadow" at Delta, 163/100ha; and a sedge meadow at Fesserton, Ontario in an abundance of 36/100ha.

Peck and James (1987) describe typical habitat in Ontario as "both wet (19 nests) and dry (16 nests) areas: in sedge and/or cattail meadows and marshes (17 nests); in uncultivated and cultivated long-grass

fields and pastures (15 nests, 2 of which were in strawberry patches); in bogs (2 nests); and in an old, overgrown wet gravel pit (1 nest). Although...nest areas were somewhat more often wet than dry, nests were rarely over water. Nest habitats were usually open, but scattered trees and shrubs were sometimes present." Taylor (1991) notes that in Manitoba the species "readily colonizes wet spots along power-line rights of way, and in the vicinity of sewage lagoons, as well as natural wetlands."

In North Dakota, "fens appear to represent the optimum breeding habitats, particularly those that are dominated by such species as fowl mannagrass, northern reedgrass, tufted hairgrass, water sedge, beaked sedge, and narrowleaf cottongrass. These habitats also contain shrub willows and numerous forbs....Stands of river bulrush in semipermanent ponds and lakes also were found to be favored habitats, and occasional pairs inhabited shallow-marsh emergent associations including whitetop and slough sedge. Locally, considerable numbers occurred on retired cropland fields, particularly those with established plant growth composed of mixtures of sweetclover, alfalfa, wheatgrasses, and brome grasses. A few pairs were recorded in alfalfa hayfields. In addition...a high-density breeding population was found utilizing an unusually luxuriant stand of Kentucky bluegrass that had developed on a newly plowed tract of native prairie" (Stewart 1975).

In summary, sedge meadows, open bogs and fens, the sedgy borders of cattail marshes, and wet fields and pastures of marginal farmland, comprise the essential habitat in North America. In the eastern part of its range, there is more such habitat than there are Sedge Wrens to

fill it (Paxton 1991; personal observations). In the west, where populations are larger and denser, the Sedge Wren appears to utilize suitable habitat wherever it is available. Thus, the species' population as a whole is probably more vulnerable to habitat loss, whether due to natural or human causes, in the west than it is in the east.

2. Distribution of Habitat

Optimum Sedge Wren habitat of shrubby marsh edges, peatlands and fens is widespread in Minnesota, Wisconsin, eastern North Dakota, southern portions of northwestern Ontario, southern and central Manitoba and in parts of central Saskatchewan. In the east, Sedge Wren habitat is restricted and generally very fragmented. However, there may have been some increases since European settlement in parts of the east with clearing of wet areas for farming and other human uses. The species also occurs in isolated locales in wet clearings well into the boreal forest zone.

3. Habitat Trends

Questionnaire respondents cited four major factors affecting the quality and quantity of Sedge Wren habitat. These were drought, flooding, natural succession of meadows and modification of habitats for human use. Overall, there was agreement that critical habitat for the species has been significantly reduced over the past century, due both to natural and human causes. One respondent noted the possible link between the prairie drought and global warming (Hjertaas 1991).

Mowing for hay was cited by a number of respondents as a significant local factor in habitat loss (Dobos 1991; Perkins 1991).

Drought and human development of habitats were cited as major factors affecting the species in the prairie provinces (Hjertaas 1991; Smith 1990; Taylor 1991) which contain most of Canada's Sedge Wren population. As early as 1926, substantial losses of prairie wetland and fringe habitats have been cited as an effect of agricultural development (Criddle 1926).

In Saskatchewan (prior to the 1991 breeding season) "what habitat there is is generally either dry or threatened by farmers" (Hjertaas 1991). Reduction of critical habitat in the province is described as significant, "up to 50%," and has been rapid over the last ten years. This is supported by North American Waterfowl Management Program figures (NAWMP 1991), which indicate a 50% reduction in May (duck-breeding) ponds in Saskatchewan since the mid 1970's. Hjertaas writes that "the major problem is climatic change; legislated protection would have to be aimed at curbing global environmental damage and resulting changes ('greenhouse effect'). Locally, agricultural policies that promote cultivation of marginal land are detrimental." Smith (1990) writes, "the recent drought has undoubtedly affected the availability of habitat in recent years." Hjertaas also notes that Saskatchewan's agricultural program ("Growth Revenue Insurance Program") promotes break up of habitat for cultivation. On the other hand, the goal of NAWMP to enhance waterfowl habitat to restore populations to 1970's levels would undoubtedly be beneficial

to the Sedge Wren, which often nests in the margins of waterfowl habitat.

In nearby North Dakota "most of the habitat will recover with return of normal precipitation," and there may actually be increases during the next eight or so years due to the Conservation Reserve Program (Lambeth 1991). Kautrud (1981) notes that Sedge Wrens, among other passerines (including Le Conte's Sparrow) "were greatly reduced or extirpated by heavy grazing" in the Agassiz Lake Plain of North Dakota in 1974.

In Manitoba, Taylor (1991) writes, "I suspect that prairie [Sedge Wren] populations are most susceptible to habitat alteration and drought. Populations in the prairie/forest ecotone are perhaps more resilient, but there is a lot of habitat alteration going on. Sometimes there are at least temporary benefits for this species, especially if land-clearing is delayed and wet willow swales sprout up where spruce forest has been felled or abandoned. Similar situations arise along power-line rights of way, and may be more or less sustained by vegetation control by the utilities. However, some natural sedge fens are being destroyed by agricultural development or peat extraction, and this is undoubtedly detrimental to Sedge Wrens." Taylor believes habitat is being reduced at a "moderate" rate in the province.

Drainage of marshes and development of farmland are probably the most significant factors affecting Sedge Wren habitat in the more heavily populated areas of Ontario. And drought may have recently been a factor in the southwest, where the species is rare regardless.

Mayfield (1988) writes that around the western end of Lake Erie "it is difficult to be precise about the birds that inhabited the original wet prairies because no true examples of the habitat remain [but] Sedge Wrens...have probably declined severely."

Elsewhere in the province, habitat loss is probably relatively slow. Cyclical flooding is cited as a factor along the shores of the Great Lakes (McCracken 1991). Mowing for hay is cited as a problem for the few pairs that occasionally are found in the Hamilton - Wentworth region (Dobos 1991). In eastern Ontario, habitat availability is described as relatively constant in some areas, whereas other areas are too dry in some summers and the species abandons them. Overall Weir (1991) cites an "insignificant reduction" in critical habitat, and describes the rate of change as slow. Weir notes the "general problem of agricultural and housing policies that encourage the destruction of marshes. Specifically the matter of petition drains should be changed." Overall, however, Weir has observed no significant declines of Sedge Wrens in eastern Ontario. Destruction of habitat due to human development and/or climatological factors is probably no more severe in south-central, central and northwestern Ontario than in Eastern Ontario.

In Quebec, factors similar to those in Ontario (i.e. development of Sedge Wren habitat for human uses, and mowing for hay) are likely having some effect, but no data were found to indicate the rate and extent of critical habitat change in that province. The great decline in Sedge Wren populations in the Montreal area since the 1920's is

probably due at least in part to habitat loss resulting from urban sprawl and other forms of human development.

In New Brunswick, writes Erskine (1991), "the Sedge Wren's disappearance...might have been (partly or wholly) a result of the widespread manipulation of local wetland habitats, including both drainage and flooding, since 1955. For a species scattered at the extreme limit of its range, any change might make the local environment unsuitable, but the critical change equally might have been in its survival on the wintering area or during migration." Presumably, however, as in the Hudson - Delaware region and elsewhere in the northeast, "there is more habitat available than there are birds to fill it" (Paxton 1991). Development and natural succession were cited as probably the most significant factors in the progressive loss of wet meadows in New England, especially since the decline of farming activities in the latter half of this century (Perkins 1991).

4. Protection of Habitats

The Sedge Wren occupies primary wetland and moist human-modified and regenerating habitats. Although the Sedge Wren is dependent to a considerable degree on water levels and on the height of herbaceous cover, it utilizes a wide variety of open, moist habitats for breeding. It is also noted for its opportunism and low site fidelity, with mobility possibly compensating to some extent for its specific habitat requirements.

Because of the relatively extensive Canadian distribution of the species, its locally sporadic breeding habits and its low detectability, it is difficult to give a reasonable estimate of size of the area presently occupied by breeding Sedge Wrens. Therefore, neither can the proportions owned by government agencies (particularly in Manitoba, Saskatchewan and northwestern Ontario, the hub of the species' Canadian distribution) be estimated.

The most serious immediate threats to Sedge Wren habitats occur with natural drought cycles and natural succession, drainage of wetlands for agriculture, the flooding of wetlands which occurs with hydro-electric projects, the effects of other agricultural and urban development, and mowing for hay. Given that the species quite readily adapts to human modified environments such as cleared wet power-line rights-of-way, wet hayfields and pastures, the fringes of sewage lagoons and clear-cut spruce bogs, habitats could conceivably be managed to benefit this species. For example, a significant increase in Sedge Wrens was noted at Luther Marsh, Ontario, following fresh water impoundment (de Vos 1964).

As long as populations in the core of the species' range remain at or near their current levels, and some relief is seen in the prairie drought, there is little reason to believe that Sedge Wren breeding habitats in Canada are facing serious immediate threats. On the other hand, where the species' hold is tenuous at best, such as in Quebec and in southwestern Ontario, further reductions in available habitat could result in local extirpations; though, as noted above, in the

eastern part of its range suitable habitat appears to be more plentiful than there are birds to fill it.

In Canada, particularly in the prairie provinces and northwestern Ontario, any wetland protection or reclamation programs are likely to benefit this species to some extent, particularly if the definition of wetlands is broad enough to include the drier fringes of marshes and other ecological communities which go through seasonal or longer term wet-dry cycles. Especially important and vulnerable habitats for the Sedge Wren are natural sedge fens and the drier fringes of marshes and sloughs in southern Manitoba, northwestern Ontario and central Saskatchewan.

F. GENERAL BIOLOGY

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1. Reproduction

The Sedge Wren is a colonial or occasionally solitary breeder in suitable habitat throughout much of its range. Most literature suggests that the species has fairly specific habitat requirements but that it is quite opportunistic in its ability to seek out such requirements. The species has been observed to wait until herbaceous cover reaches a height of at least 0.5 metres before nesting (Sutton 1967; Burns 1982), and will occupy or abandon breeding sites depending on water levels.

The species is often polygynous, with polygyny observed among 30 - 50% of males in one study (Burns 1982). The males build well-concealed, domed nests of grasses and sedges, including "dummy" nests, which are important in courtship, for nesting, as dormitories, and possibly as decoys against predators (Burns 1982). These nests are often built late into the season, with the number of nests being proportional to the number of mated females in a given area (Burns 1982). Territory size is variable and is tenaciously defended by males against other males. A Minnesota study found the average territory size to be 1780 square metres in a formerly grazed but recently relatively undisturbed grass - sedge meadow which was flooded with approximately 20 cm of water in early May but had no standing water by late July; a total of 12 males occupied this site (Burns 1982). The males in this study appeared to cease defending some parts of their territories and to shift to new parts as the season progressed (Burns 1982). Burns

hypothesizes that females selected males on the basis of the degree of protection offered by the vegetation in their territories.

Females line the nest with feathers, and lay their first egg on or around the third day of nest-lining, continuing to lay one egg per day for 4 to 6 days. Nesting success is high (68%-69%), as would be expected in a species which builds domed nests (Burns 1982).

Predation and infertility have been found to be primary causes of nest failure (Burns 1982). Both males and females destroy the eggs of their own species and other small sympatrically nesting birds, which may be an important cause of reproductive failure in this species (Picman and Picman 1980). Egg destruction is likely to reduce competition with its own and other species (Picman and Picman 1980).

Females in some populations have been found to be double-brooded (Burns 1982), while others are not (Crawford 1977). Earlier nesting and monogamous pairs were found to generally be double-brooded and to have the greatest clutch-size, young production and fledgeling success, with later nesting, monogamous males and females having least reproductive success (Burns 1982). Egg dates in Ontario ranged from 5 June to 22 July, with the majority (19 of 37 nests) occurring between 13 June and 8 July (Peck and James 1987).

Crawford (1977) states that "age, pairing status and food may be important factors affecting nesting chronology, clutch size and fledgeling success," and that these factors require further study. No data were found which would indicate the current reproduction/mortality ratio of the Canadian Sedge Wren population. Given the species reproductive opportunism and high rate of fledgeling success,

the growth potential of Sedge Wren populations in suitable habitat is presumably relatively high.

2. Species Movement

The Sedge Wren is migratory. Because it is so secretive, the species is infrequently seen in migration. My personal experience indicates that the species uses similar habitats in migration as it does for breeding. It is undoubtedly dependent on the quality of coastal and inland marsh fringes and other drier wetland areas in the southern and central United States for migration and wintering.

3. Sensitivity

The sensitivity of the Sedge Wren to natural cyclic (and/or human-caused) droughts and flooding throughout its Canadian range have been discussed above. The species is not rare, however, at the core of its range in Canada, which is adjacent to its major North American populations in Minnesota and Wisconsin. Current population levels would appear to be sufficient to ensure that the recent prairie drought does not have catastrophic consequences.

The Sedge Wren is insectivorous, and has been found to feed on moths, spiders, mosquitoes, flies grasshoppers, bugs, ants, weevils, ladybird beetles, caterpillars, locusts, crickets and grasshoppers (Bent 1948). It would undoubtedly be affected to some degree by pesticide use, particularly where the species nests in agricultural areas.

Factors such as its low breeding site tenacity, ability to delay nesting until suitable conditions arise, polygyny, relatively high reproductive success, apparent range expansions, and its colonization of various human-modified environments, suggest that the Sedge Wren's opportunism may partly balance out its specific habitat needs. Its low site tenacity may in fact be an evolutionary adaptation to its typically occupying early successional habitats, which by definition undergo (often rapid) change. Habitat loss due to urbanization and agricultural development are nevertheless having a detrimental effect on Sedge Wren populations in many areas, particularly in Saskatchewan, parts of Manitoba, southwestern Ontario and possibly Quebec.

G. LIMITING FACTORS

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The main factor limiting the size of Sedge Wren populations in the western part of its range, where the majority of the population is found, would appear to be habitat availability. Some new habitat may be being created in boreal areas with the clearing of wet forests, and elsewhere with recent wetland reclamation and rehabilitation projects, but overall, urban and agricultural development are undoubtedly continuing to reduce available habitat. Natural succession has been cited as a probable limiting factor in the northeastern and central portions of its range, with the gradual reforestation of previously cleared marginal farmland. I would speculate that in Quebec and parts of the northeastern United States, numbers may be too low to maintain long-term viable populations, with predation, the hazards of migration and other factors preventing the species from colonizing many areas of apparently suitable habitat. The causes of the Sedge Wren's decline in the northeast warrant further investigation.

H. SPECIAL SIGNIFICANCE OF THE SPECIES

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The North American race of the Sedge Wren appears to be doing fairly well in the core of its range in Minnesota, Wisconsin and Manitoba, and it continues to be a common bird in many areas, although declines have undoubtedly occurred in some localities. Its population appears to be suffering considerably due to habitat loss, however, due mainly to drought, in Saskatchewan and North Dakota. Ontario populations are probably quite stable, with declines in the extreme south. The species appears to be approaching extirpation in some of the northeastern United States, New Brunswick, and it is rare and vulnerable in Quebec.

Because of its secretive habits and subtle coloration, the Sedge Wren is not a familiar bird to most people. However, this species contributes in its uniqueness to the natural aesthetic, to biological diversity and to scientific interest, and may be an indicator of the quality and abundance of wet meadow and marsh fringe habitats throughout much of its range.

The statuses of Central and South American races of Sedge Wren are not well documented. The Marsh Wren (Cistothorus palustris), of the same genus, which breeds in deeper-watered cattail marshes, has also shown declines in North America due to habitat loss. The Sedge Wren is neither hunted, captive reared, commercially exploited, nor subject to adverse public attitudes (aside from obliviousness) in Canada or the United States.

Because of the Sedge Wren's low site tenacity, it is possible that there is considerable genetic interchange in regional populations. The degree of genetic difference between the vulnerable northeastern population of the species and the more common western population is not sufficiently known. In the northeast the Sedge Wren may share its moist pasture and hayfield habitat with the threatened Henslow's Sparrow.

I. EVALUATION

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It is not possible to be certain that the Sedge Wren population in Canada is facing an ongoing decline, and most experts confer that the primary cause of recent declines is the drought of the 1980's in the prairies. Wetland reclamation programs may actually bring about local increases, as would an end to the drought. At present, the Sedge Wren populations in Manitoba, central Saskatchewan and the southern part of northwestern Ontario are sufficiently large to warrant not placing the species in a COSEWIC category. It would be wise to re-evaluate the species' status in five years or so, to determine if wetter weather has served to restore populations or if ongoing drought has reduced populations to more alarming levels.

The species is probably extirpated from New Brunswick, has been designated vulnerable in Quebec, was on the threshold of being considered "a species of concern" in Ontario (Cadman 1991), is probably declining in Manitoba, is declining considerably in Saskatchewan, and is probably expanding its range but rare in Alberta. The individual provinces in which the Sedge Wren has been known to breed would do well to evaluate the species' provincial status, and to consider implementation of conservation measures where necessary.

Further studies into the Sedge Wren's population dynamics and size, habitat requirements, movements during breeding season (in light of its low site tenacity) are recommended. Such studies might or might not discover the presence of more serious threats to the species' continued survival, especially in areas where numbers of this little known and understudied wren are already very low.

J. References

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- A.B.A.P. 1991. Alberta Bird Atlas Project. Data provided by Carolyn Seburn, Provincial Museum of Alberta, Edmonton.
- A.O.U. 1983. American Ornithologists' Union. Checklist of North American Birds, Sixth Edition. Allen Press Inc., Lawrence, Kansas.
- A.O.U. 1957. American Ornithologists' Union. Checklist of North American Birds, Fifth Edition. Port City Press Inc., Baltimore, Maryland.
- Baillie and Harrington 1937. J.L. Baillie and P. Harrington. The Distribution of the Breeding Birds of Ontario. Contr. Royal Ontario Museum, No 8., Toronto.
- Bent 1948. Arthur Cleveland Bent. Life Histories of North American Nuthatches, Wrens, Thrashers and their allies. U.S. National Museum Bulletin No. 195. Washington D.C., Smithsonian Institute.
- Burns 1982. Jeffrey T. Burns. "Nests, Territories and and Reproduction of Sedge Wrens," in The Wilson Bulletin, 94:3.
- Cadman 1991. M.D. Cadman, co-ordinator, Ontario Rare Breeding Bird Program, personal communication, January 1991.
- Cadman et al. 1987. M.D. Cadman, P.F.J. Eagles and F.M. Helleiner. Atlas of the Breeding Birds of Ontario. University of Waterloo Press, Waterloo, Ontario.
- Cayouette and Grondin 1972. Raymond Cayouette and Jean-Luc Grondin. Les Oiseaux du Quebec. Orainville, Que., La Societe Zoologique de Quebec, Inc..
- Crawford 1977. "Polygynous breeding of Short-billed Marsh Wrens." Auk, Volume 94, April 1977, pp. 359 - 360.
- Criddle 1926. N. Criddle. "Agricultural Development as a factor in wild life reduction." Canadian Field Naturalist, Vol. 40, pp. 135-6.
- C.W.S. 1991. Canadian Wildlife Service. Unpublished computer printout of Breeding Bird Survey data. Environment Canada, Ottawa.
- David 1978. Normand David. Etat et Distribution des Oiseaux du Quebec Meridional, Cahier d'ornithologies Victor Gaboriault No. 1. Club des Ornithologues du Quebec, Inc., Bibliotheque Nationale du Quebec, p. 30.

- David 1980. Normand David. Ibid., No. 3, p. 117.
- De Smet 1991. Ken De Smet, non-game specialist, Wildlife Branch, Natural Resources (Manitoba), correspondence of 7 January, 1991.
- De Vos 1964. A. de Vos. "Recent changes of birds in the Great Lakes region." American Midland Naturalist, Vol. 71, pp. 489-502.
- Dionne 1889. Charles Eusebe. Catalogue des oiseaux de la province de Quebec avec des notes sur leur distribution géographique. Quebec, des presses a vapeur de J. Dussault, 1889.
- Dionne 1906. C.E. Dionne. Les Oiseaux de la Province de Quebec. Quebec, Dussault et Proulx, 1906.
- Dobos 1991. R. Dobos, subregional editor (Hamilton - Wentworth) for American Birds, personal communication, July 1991.
- Ehrlich et al. 1988. P.R. Ehrlich, D.S. Dobkin and D. Wheye. The Birder's Handbook. Simon and Schuster, 1988.
- EPOQ 1991. Etudes des populations d'oiseaux du Quebec data provided by Jacques Larrivee, Fichier, EPOQ, Rimouski.
- Erskine 1972. Anthony J. Erskine. "Shrubby Marsh" B.B.C. plot no. 81. American Birds, 26:992-993.
- Erskine 1976. Anthony J. Erskine. "A Preliminary catalogue of bird census plot studies in Canada, part 3" in Progress Notes, Canadian Wildlife Service, No. 59, January, 1976.
- Erskine 1991. Anthony J. Erskine, correspondence of 18 January, 1991.
- Godfrey 1986. W. Earl Godfrey. The Birds of Canada, Revised Edition. National Museums of Canada, Ottawa, Ontario.
- Godfrey 1966. W. Earl Godfrey. The Birds of Canada. National Museums of Canada, Bulletin No. 203. Biology Series No. 73. Ottawa.
- Gould 1987. Joyce Gould. "Sedge Wren" in Cadman et al 1987, Atlas of the Breeding Birds of Ontario. Waterloo, University of Waterloo Press, 1988.
- Hebb 1991. Mary-Ellen Hebb. Subregional editor for Niagara, American Birds, personal communication, July 1991.
- Hjertaas 1991. D. Hjertaas, endangered species ecologist, Wildlife Branch, Parks and Renewable Resources (Saskatchewan), correspondence of 14 February, 1991.

- James et al. 1976. R.D. James, P.L. McLaren and J.C. Barlow. Annotated Checklist of the Birds of Ontario. Royal Ontario Museum Life Sciences Miscellaneous Publication.
- Janssen 1987. R. B. Janssen. Birds in Minnesota. University of Minnesota Press, Minneapolis.
- Kantrud 1981. H.A. Kantrud. "Grazing intensity effects on the breeding avifauna of North Dakota native grasslands." Canadian Field Naturalist, 95:404-417.
- Knapton 1979. R. W. Knapton. "Birds of the Gainsborough-Lyleton region." Special Publication No. 10, Saskatchewan Natural History Society, Regina, pp. 72-3.
- Kreba 1991. R. Kreba. Museum of Natural History (Saskatchewan), correspondence of April 5, 1991.
- Lambeth 1991. D. Lambeth. Regional editor, "American Birds", Northern Great Plains Region. Correspondence of Spring 1991.
- Lemieux 1978. Serge Lemieux. "Les oiseaux de la reserve nationale de faune du Cap Tourment, Quebec," in Le Naturaliste Canadien, Vol. 105, pp. 177-193.
- Macoun 1904. John Macoun. Catalogue of Canadian Birds, part III, sparrows swallows, vireos, warblers... Ottawa, 1904.
- McCracken 1991. Jon McCracken, Long Point Bird Observatory. Telephone conversation of February, 1991.
- Mayfield 1988. H. F. Mayfield. "Changes in bird life at the western end of Lake Erie (1820 to 1890)," in American Birds, 42:5.
- N.A.W.M.P. 1989. North American Waterfowl Management Program Saskatchewan Implementation Strategy, Prairie Habitat Joint Venture (publication obtained from Saskatchewan Parks, Recreation and Culture, Regina).
- Niemi 1985. G.J. Niemi. "Patterns of Morphological Evolution in Bird Genera of New World and Old World Peatlands." Ecology 66:4, 1985, pp. 1215-1228.
- Oldham 1989. M. Oldham, assistant regional ecologist, Southwestern Region, Ontario Ministry of Natural Resources. Correspondence of September 1989 to John Riley, regional ecologist, Central Region, OMNR.
- Ouellet 1974. Henri Ouellet. "Les oiseaux des collines noteregiennes et de la region du Montreal, Quebec, Canada." National Mus. of Canada, Publ. in Zool. No. 5, Ottawa.

- Paxton 1991. R.O. Paxton. Regional editor, Hudson-Delaware, for American Birds, correspondence of March 1991.
- Payne 1983. Robert B. Payne. A Distributional Checklist of the Birds of Michigan. Misc. publications. Museum of Zoology, University of Michigan, No. 164. Ann Arbor, 1983.
- Peck & James. G.K. Peck and R.D. James. The Breeding Birds of Ontario: Nidology and Distribution, Volume 2: Passerines. Life Sciences Misc. Pub., Royal Ontario Museum, Toronto.
- Perkins 1991. Simon A. Perkins. Regional Editor, "American Birds", New England Region. Correspondence of March 1991.
- Peterson 1980. Roger Tory Peterson. A Field Guide to the Birds of Eastern North America, Fourth Edition. Houghton and Mifflin, Boston.
- Picman & Picman 1980. J. Picman and A. K. Picman, "Destruction of Nests by the Short-billed Marsh Wren". Condor, 82:176-179.
- Robbins et al. 1986. Chandler S. Robbins, Danny Bystrak and Paul H. Gelsser. The Breeding Bird Survey: Its First Fifteen Years, 1965-1979. U.S. Dep't of the Interior Fish and Wildlife Service, Resource Publication No. 157. Washington, 1986.
- Robert 1989. Michel Robert. The Threatened Birds of Quebec. Environment Canada, Canadian Wildlife Service, publ. no. 1kCW66-105/1989E.
- Rogers 1931. Fred J. Rogers. "The Short-billed Marsh Wren" in Bird-lore, Vol. 33, pp. 115-117.
- Root 1988. Terry Root. Atlas of Wintering North American Birds: an analysis of Christmas Bird Count data. University of Chicago Press, Chicago.
- Salt & Salt 1976. W. Ray Salt and Jim R. Salt. The Birds of Alberta with their ranges in Saskatchewan and Manitoba. Edmonton, Hurtig, 1976.
- Smith 1990. A. R. Smith, Canadian Wildlife Service, Saskatoon. Correspondence of 21 December, 1990.
- Speirs 1985. J.M. Speirs. Birds of Ontario, vol. 2. Natural Heritage, Toronto.
- Squires 1976. W. Austin Squires. The Birds of New Brunswick, Second Edition. Monographic Series No. 7. St. John, The New Brunswick Museum, 1976.

- Stewart 1975. Robert E. Stewart. Breeding Birds of North Dakota. Minneapolis, Land Press, 1975.
- Sutton 1967. G.M. Sutton. Oklahoma Birds. Norman, OK, University of Oklahoma Press.
- Taylor 1991. Peter Taylor, Manitoba author and ornithologist. Correspondence of Spring 1991.
- Terrill 1921. L.M. Terrill. "The Short-billed Marsh Wren in the Montreal District" in Auk, 39, pp. 112-115.
- Tufts 1986. Robie W. Tufts. Birds of Nova Scotia, Third Edition. Halifax, Nimbus Publishing Ltd, 1986.
- Weir 1991. Ron D. Weir. Regional Editor, "American Birds", for Ontario Region. Correspondence of spring 1991.
- Wiens 1989. John A. Wiens. The Ecology of Bird Communities, volume 1. Foundations and Patterns. Cambridge University Press, Cambridge, 1989.
- Wormington 1991. Alan Wormington. Ornithologist. Personal communications, December 1991.

K. Acknowledgements

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L. PROPOSED STATUS

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Given the current data base, I recommend that the Sedge Wren not be placed in a COSEWIC category at the present time, with the recognition that the species is declining in parts of its range and that its status may need review in future years.