COMMITTEE ON THE
STATUS OF ENDANGERED
WILDLIFE IN CANADA

OTTAWA, ONT. K1A 0H3
(819) 997-4991

COMITÉ SUR LE STATUT
DES ESPÈCES MENACÉES
DE DISPARITION AU
CANADA

OTTAWA (ONT.) K1A 0H3
(819) 997-4991

STATUS REPORT ON THE YELLOW-BREASTED CHAT

ICTERIA VIRENS

IN CANADA

BY

MICHAEL D. CADMAN

AND

ANNETTE M. PAGE

STATUS ASSIGNED IN 1994
1. OKANAGAN POPULATION - THREATENED
2. EASTERN POPULATION - VULNERABLE
3. PRAIRIE POPULATION - NO DESIGNATION REQUIRED

REASON:

1. VERY SMALL POPULATIONS SHOWING DECLINES BECAUSE OF HABITAT LOSS.
2. VERY SMALL POPULATION; APPARENTLY STABLE OVERALL.
3. APPARENTLY STABLE POPULATION THAT HAS SHOWN SOME EXPANSION IN THIS CENTURY.

OCCURRENCE:

1. BRITISH COLUMBIA
2. ONTARIO
3. ALBERTA AND SASKATCHEWAN

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CSEMDC - Un comité de représentants d'oranismes fédéraux, provinciaux et privés qui attribue un statut national aux espèces canadiennes en péril.

Committee on the Status of Endangered Wildlife in Canada

Comité sur le statut des espèces menacées de disparition au Canada

JUNE 1990

OH3 (819)
Ottawa, Ont. K1A [illegible] 997-4991

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THREATENED SPECIES: Any indigenous species of fauna or flora that is likely to become endangered in Canada if the factors affecting its vulnerability do not become reversed.

ENDANGERED SPECIES: Any indigenous species of fauna or flora that is threatened with imminent extinction or extirpation throughout all or a significant portion of its Canadian range.

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 YELLOW-BREASTED CHAT

ICTERIA VIRENS

IN CANADA

BY

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STATUS ASSIGNED IN 1994
OKANAGAN POPULATION - THREATENED
EASTERN POPULATION - VULNERABLE
PRAIRIE POPULATION - NO DESIGNATION REQUIRED

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ABSTRACT

The Yellow-breasted Chat (Icteria virens) is widespread in North America, with a small portion of its range extending north into Canada where it is a regular breeder in restricted southern areas. There are two subspecies, the western Yellow-breasted Chat, I. v. auricollis (Deppe), which breeds in the southern parts of Saskatchewan, Alberta, and British Columbia, and the eastern chat, I. v. virens (Linnaeus), which breeds in southern Ontario. However, despite being the same subspecies as on the prairies, the population in British Columbia occupies a separate biogeographic area, and consequently, it is treated separately for the purpose of assigning status designations. The Ontario population is also treated separately, since it is a separate subspecies from the western population.

Fewer than 50 pairs probably breed annually in both British Columbia and Ontario, but the annual population is over 1000 pairs in each of Saskatchewan and Alberta. Although Breeding Bird Survey data indicate a significant decline in the continental and eastern North American populations, the available quantitative data are inadequate to identify trends in the Canadian or provincial populations. It is thought that the population in British Columbia is being slowly reduced through habitat destruction, and there are only a few areas left in that province which can sustain more than one chat territory. Threatened status has recently been proposed for the Yellow-breasted Chat in British Columbia. Populations in Alberta and Saskatchewan appear to be stable. The population has declined at Point Pelee National Park in Ontario, which contains a considerable proportion of the province's small population and is consequently one of the most important breeding sites in Ontario. The species no longer breeds at Rondeau Provincial Park, but the population on Pelee Island (another very important breeding location in Ontario) appears to be stable. Based upon the available evidence, it is recommended that the species be assigned a status of "Threatened" in British Columbia, "Not at Risk" in the Prairies, and "Vulnerable" in Ontario.

DISTRIBUTION

B.1. Americas

Breeding

In the Americas, the Yellow-breasted Chat breeds from southern British Columbia, southern Alberta, southern Saskatchewan, North Dakota, southern Minnesota, southern Wisconsin, southern Michigan, southern Ontario, central New York, southern Vermont and southern New Hampshire south to south-central Baja California, Jalisco, the state of Mexico, southern Tamaulipas, the Gulf coast and north-central Florida (American Ornithologists' Union 1983; see Figure 1). More specifically, the eastern subspecies breeds from northeastern North Dakota east to southern Ontario, southern Vermont and New Hampshire, and south to southeastern Texas, the Gulf states, and northern Florida (Griscom and Sprunt 1979). The western subspecies breeds from the Great Plains west to the Pacific coast, and from southern British Columbia and southern Saskatchewan south to the tableland of Mexico and Baja California (Griscom and Sprunt 1979).

Wintering

The Yellow-breasted Chat winters from southern Baja California, southern Sinaloa, southern Texas and southern Florida (casually from California, the Great Lakes region, New York and New England) south through Middle America to western Panama (western Bocas del Toro, also a sight report from Cerro Campana) (American Ornithologist's Union 1983; see Figure 1).

The eastern subspecies winters from eastern Mexico and Central America to western Panama, and the western subspecies winters from southern Baja California, southern Texas south to Colima, Oaxaca, and central Guatemala (Bent 1963; Griscom and Sprunt 1979).

Migration

In migration, the Yellow-breasted Chat occurs casually in the northern Bahama Islands (Grand Bahama, Abaco, Bimini, Andros) and Cuba. It is casual north to southern Manitoba, northern Michigan, southern Quebec, New Brunswick, Nova Scotia and Newfoundland (American Ornithologist's Union 1983). It also wanders north to northern Lake Superior and southern James Bay in northern Ontario (James 1991).

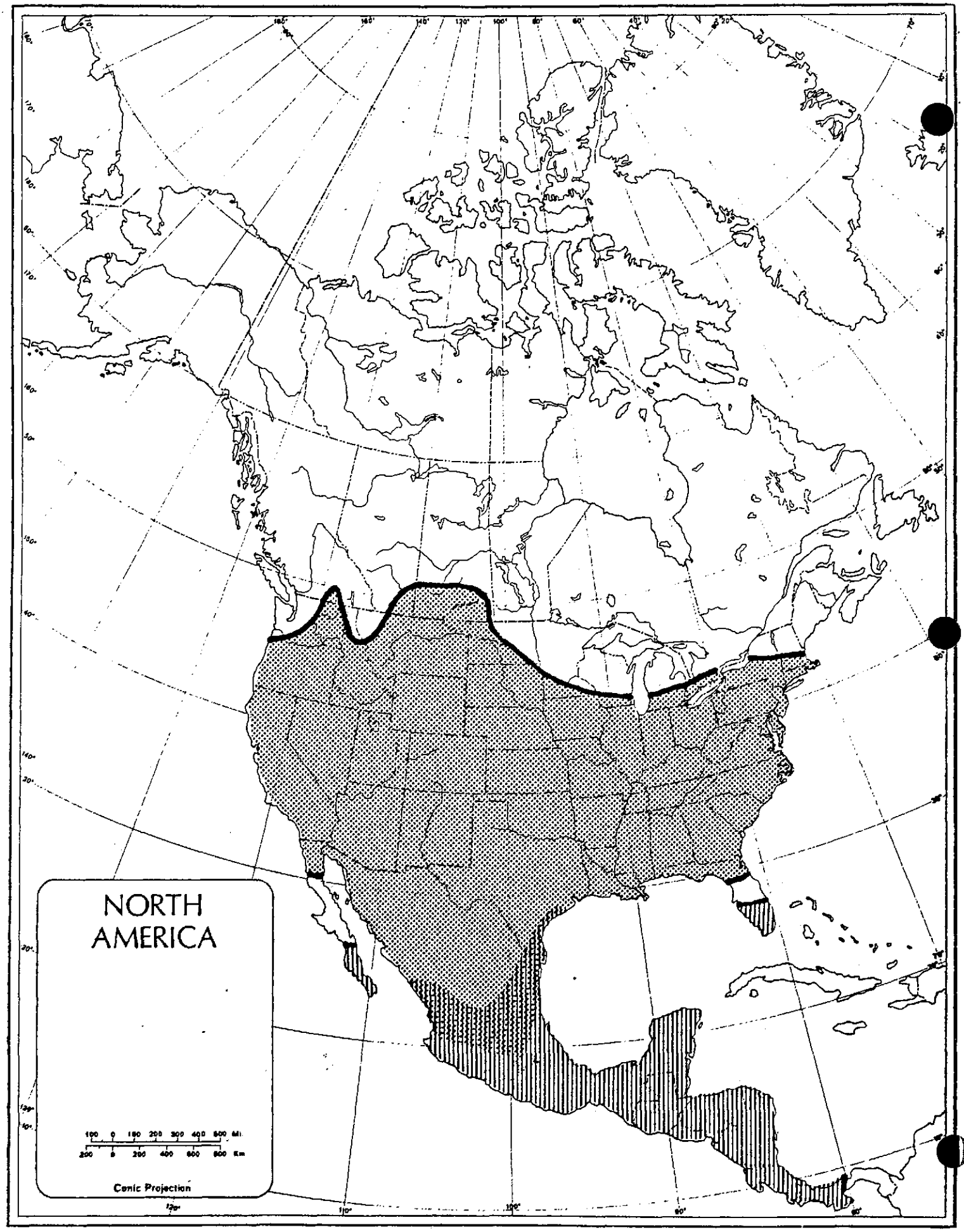

Figure 1. Principal breeding and winter ranges of the Yellow-breasted Chat in North America. Stippled area indicates the breeding range, and vertical lines indicate the winter range (from Cannings, in prep.).

B.2. Canada

The Yellow-breasted Chat reaches the extreme northern limit of its range in Canada. The western subspecies breeds in southern British Columbia, southern Alberta, and southern Saskatchewan, and the eastern subspecies breeds in the Carolinian Forest Region of southern Ontario, north to Peel Regional Municipality (eastern subspecies) (Godfrey 1986).

The Yellow-breasted Chat is a casual spring and fall vagrant in Quebec (Godfrey 1986; M. Gosselin, pers. comm. 1990), and is ranked as "accidental" in that province by the Nature Conservancy of Canada. It has been recorded at Mount Royal, Levis, Chicoutimi, and Limoilou (Ouellet 1973; Godfrey 1986), and at Cap-Tourmente in more than one year (M. Gosselin, pers. comm. 1990). The species is most often found in brushy areas near the St. Lawrence River (M. Gosselin, pers. comm. 1990).

The chat is also casual or accidental in fall and winter in New Brunswick (specimens taken at Grand Manan, Machias Seal Island, and St. Andrews), Nova Scotia (specimens taken on Brier Island and in Port Mouton), and Newfoundland (specimens taken in Cappahayden and St. John's) (Nature Conservancy ranks; Godfrey 1986), and it has been sighted in both Manitoba and Prince Edward Island (Godfrey 1986). The species has been a vagrant in the Halifax/Dartmouth area since the 1950s, and since that time hundreds of individuals have been reported, such that the species is now considered to be a regular, rare fall migrant and a regular, very rare winter resident in the area (I. McLaren, pers. comm. 1990).

B.2.1. British Columbia

The Yellow-breasted Chat's breeding distribution in British Columbia is primarily restricted to the south Okanagan and Similkameen valleys from Vaseaux Lake and Cawston south, where it has been long established (Macoun and Macoun 1909; Griscom and Sprunt 1979; Cannings, in prep.; see Figure 2). Almost all known territories are located along the Okanagan and Similkameen rivers rather than in side valleys (Cannings, in prep.). Outside of the South Okanagan, there is only one breeding record (from Lavington, in the north Okanagan), and sightings may occur at a given location one year but not the next (Cannings, pers. comm. 1993). Provincial Museum files indicate that there have been sightings of chats on Vancouver Island and in several other places in southern British Columbia (i.e. Kamloops, Armstrong, Chase, and Merritt), as far north as Clinton in the interior (M. McNall, pers. comm.; see Figure 2).

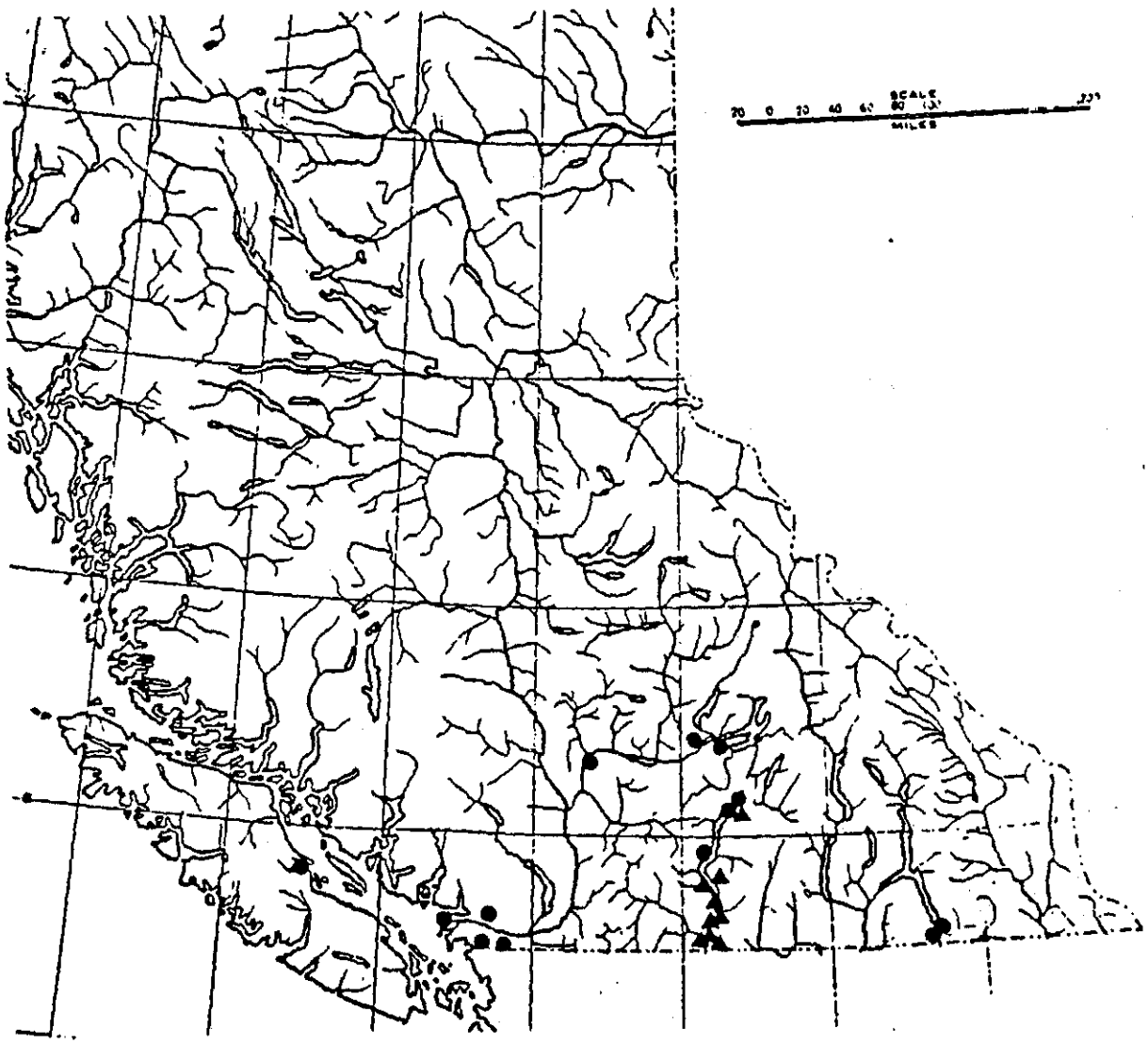

Figure 2. Breeding distribution of the Yellow-breasted Chat in British Columbia; triangles represent breeding sites, and dots represent sightings (from Cannings, in prep.).

B.2.2. Alberta

The Yellow-breasted Chat breeds locally in the Grassland Natural Region of southeastern Alberta, north to Empress and Trochu and west to Lethbridge and Beiseker (Salt and Salt 1976; Semenchuk 1992; see Figure 3). The species is generally restricted to river valleys (Pinel et al. 1991), and is predominantly distributed in the Milk, South Saskatchewan, and Red Deer river valleys and emanating coulees, as well as the slopes of the Cypress Hills on both sides of the provincial boundary (Salt and Salt 1976). It also breeds in areas south of the Cypress Hills and around Manyberries (Pinel et al. 1991), and there is one breeding season record from Waterton Lakes National Park (Semenchuk 1992).

B.2.3. Saskatchewan

The Yellow-breasted Chat breeds locally in southwestern Saskatchewan along the Frenchman, South Saskatchewan, and other rivers, at Fort San, Regina, and east to Estevan (Salt and Salt 1976; A. Smith, pers. comm. 1993; see Figure 4). The Qu'Appelle Valley is apparently at the extreme northeastern limit of the chat's range (Callin 1980). Preliminary data from the Atlas of Saskatchewan Birds (Smith and Adam, in prep.) indicate that the species is not evenly distributed within the limits of its range, with some large gaps occurring even in extreme southern Saskatchewan (see Figure 4). Godfrey (1986) stated that the species breeds in southern Saskatchewan in the Frenchman River valley, Maple Creek, Regina, Fort San, Tregarva vicinity, and rarely north to near Saskatoon. Callin (1980) stated that because of the species' elusive nature, it is probably much more prevalent along river valleys in southern Saskatchewan than records would indicate.

The species is a very rare, occasional transient and a casual summer resident in the Regina area (Belcher 1980). Records from this area include: one individual seen in Regina on May 19, 1935, and again in 1954; a pair carrying food in a coulee off Flying Creek, north of Tregarva (assumed to be breeding) on June 26, 1939, and another pair in the Flying Creek valley in 1972 (but no nest was found); a pair with one young along Boggy Creek near Tregarva on July 21, 1960; and a single individual northeast of Regina at the Provincial Correctional Centre on each of May 23, 1964, May 28, 1966, May 28, 1967, and May 30, 1970 (Belcher 1980).

Callin (1980) described the bird life in the eastern section of the Qu'Appelle River valley and surrounding area (a strip of land about 170 km long and about 40 to 50 km wide, extending from Pasqua Lake to the Manitoba border). Within this area, the Yellow-breasted Chat is an irregular and rare summer resident, having been seen in 12 of the 24 years from 1953 to 1976, in six different locations. From 1953 to 1956 inclusive, one pair summered in the same location at Fort San. In 1967, two pairs were presumed to have

nested in the same general area, in a small brushy area bordering Echo Creek about 1.5 km southwest of Fort Qu'Appelle; one pair occupied the same area for four more years, through 1971. Other records include: one in a backyard in Fort Qu'Appelle (an unusual location) for most of May 16, 1979; a few distinctive notes heard on May 31, 1954 at Ekapo Lake; song heard in the Strawberry Lakes area south of Indian Head on May 19 and 20, 1962; one heard 8 km east of Katepwa Lake on June 20, 1971; and one recorded in a breeding bird survey between Highway 9 and Tantallon on June 8, 1976 (Callin 1980). Aside from the above records, there appear to be no records for eastern Saskatchewan (Callin 1980).

The chat has been recorded as a migrant at Borden, Saskatoon, Blackstrap Lake, and Regina, and as a summer visitant at Raymore and Good Spirit Lake (Smith and Adam, in prep.; see Figure 4). It has not been recorded in the Moose Mountain area of Saskatchewan (Nero and Lein 1971).

B.2.4. Manitoba

The Yellow-breasted Chat is accidental in Manitoba (Walley 1991). There are no confirmed breeding records in the province, and it is observed only occasionally as a "very rare" spring migrant (R. Koes, pers. comm. 1990). However, there is a possible nesting record from 1968 (R. Koes, pers. comm. 1990), and on June 6, 1987 a male exhibiting territorial displays was discovered in a semi-open Bur Oak-hazelnut habitat at the base of the Manitoba escarpment, just outside the north boundary of Riding Mountain National Park (Walley 1991). The species is known to wander north after the breeding season, but that was not the case with this bird (Walley 1991). The bird was not located on any subsequent trips throughout the summer (Walley 1991). Salt and Salt (1976) stated that the species has been observed in Manitoba (with no evidence of breeding) at Brandon, Pilot Mound, Hillside Beach, Delta, Souris, Bunclody Bridge, and Whitemouth.

No Yellow-breasted Chats have been recorded in the Gainsborough-Lyleton Region of extreme southwestern Manitoba (junction of the Saskatchewan, Manitoba and North Dakota borders) (Knapton 1979), which is at the eastern edge of the species' breeding range on the prairies (Knapton 1979).

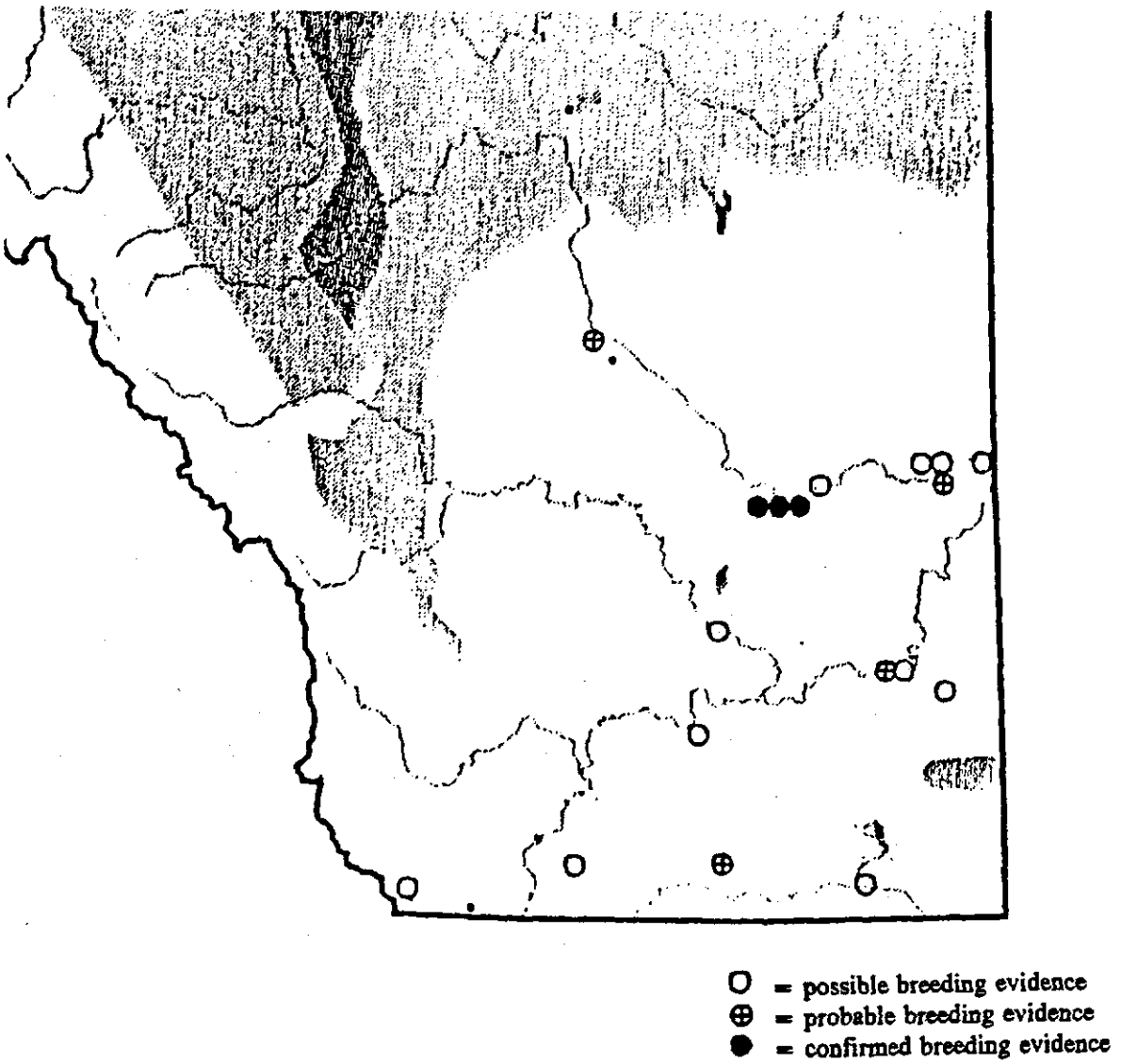

Figure 3. Breeding distribution of the Yellow-breasted Chat in Alberta (from Semenchuk 1992).

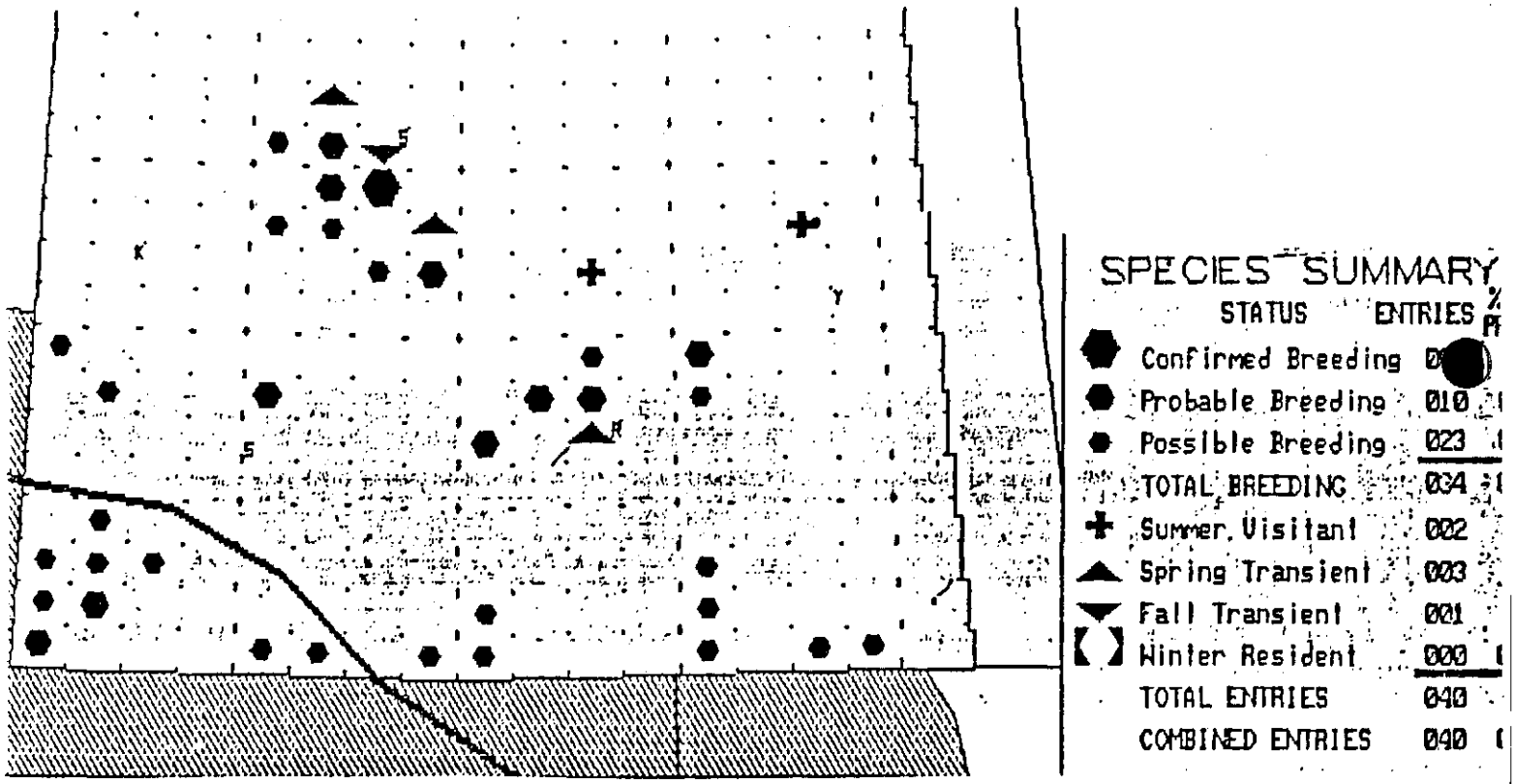

Figure 4. Breeding distribution of the Yellow-breasted Chat in Saskatchewan (from Smith and Adam, in prep.). Solid line indicates northern limit of historical breeding range.

B.2.5. Ontario

The Yellow-breasted Chat breeds only in the Carolinian Forest Region of extreme southern Ontario, north to Peel Regional Municipality (James 1991; see Figure 5). Within this restricted range, breeding populations are concentrated in a few important locations (such as Pelee Island and Point Pelee National Park), at which breeding of perhaps several pairs occurs annually. Outside of those areas, breeding has rarely been confirmed and is usually sporadic, occurring for only a short period and often for only one season (Eagles 1987). Most breeding season records have been from extreme southwestern Ontario, but the species is a rare spring and fall migrant north to northern Lake Superior and southern James Bay (James 1991), and is a vagrant in winter, having been reported at Point Pelee, London, Alma (Wellington Co.), and Peterborough (Soper 1923; James et al. 1976; James 1991).

During the Atlas project (1981-1985), the Chat was reported in 45 (2%) of all squares surveyed in southern Ontario, and in no squares surveyed in the north (Cadman et al. 1987). The majority (84%) of records were from the Carolinian Forest Region, with the rest (16%) coming from the Southern Great Lakes Forest Region. Although the species was reported from 13 counties or regional municipalities (Dufferin, Essex, Haldimand-Norfolk, Halton-Peel, Hamilton-Wentworth, Kent, Lambton, Lennox-Addington-Frontenac, Middlesex, Niagara, Oxford, Prince Edward, and Waterloo-Perth) during the Atlas project, breeding was confirmed in only four locations (Point Pelee and the Lower Thames Valley Conservation Area, Essex Co.; Rondeau Provincial Park, Kent Co.; and Wainfleet Marsh, Niagara R.M.). Probable breeding evidence was reported in 22 squares (Cadman et al. 1987). Breeding is very difficult to confirm for the Yellow-breasted Chat because of its skulking habits and its tendency to build the nest in dense thickets and tangles that are often impenetrable. However, the low number of overall records, despite the considerable effort that went into field surveys for the Atlas, indicate that the species was very scarce in Ontario between 1981 and 1985.

Breeding was not confirmed during the ORBBP (1989-1991), but possible or probable breeding evidence was reported from additional sites in Elgin and Bruce (McGregor Provincial Park) Cos., and Toronto (Highland Creek).

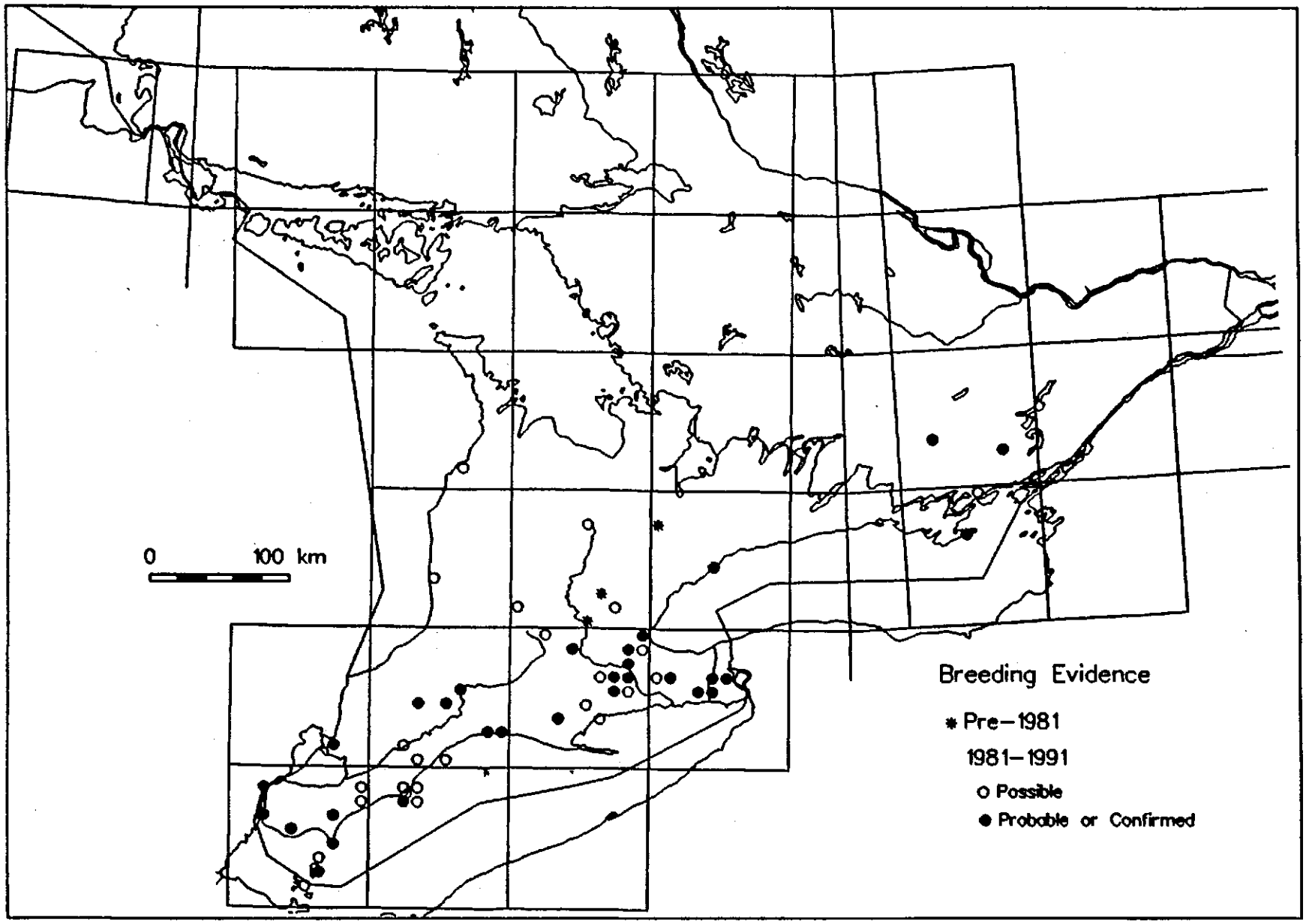

Figure 5. Symbols denote 10-km squares (within 100-km blocks) in which the Yellow-breasted Chat was reported to the Breeding Bird Atlas and the Ontario Rare Breeding Bird Program in Ontario.

C. PROTECTION

The Yellow-breasted Chat and its nests and eggs are generally protected in Canada and the United States by the Federal Migratory Birds Convention of 1916. In addition, the species is protected under the British Columbia Wildlife Act of 1982, and about 10 chat breeding territories are protected to some degree in that province (Cannings, in prep.). Some important breeding locations in British Columbia are owned or controlled by the Canadian Wildlife Service (Vaseux-Bighorn National Wildlife Area), B.C. Wildlife Branch (Osoyoos Oxbows Wildlife Management Area and map reserves south of McIntyre Bluff), and the B.C. Parks Branch (Inkaneep Provincial Park) (Cannings, in prep.). Of 35 sites with ownership information reported to the Ontario Rare Breeding Bird Program (ORBBP), 19 (54%) are either owned by the Ministry of Natural Resources, the Federation of Ontario Naturalists, or Conservation Authorities, or are located within provincial parks (Rondeau and MacGregor).

D. POPULATION SIZE AND TREND

Globally, the Nature Conservancy considers the Yellow-breasted Chat to be demonstrably secure, and state Nature Conservancy ranks indicate that although the species is quite common throughout most of its range in the U.S., it occurs in lower numbers at the edges of its range. This is particularly noticeable in the northeast, where the species is ranked SA, S1, S2 or S3 in most states for which ranks have been decided; exceptions include Pennsylvania and Delaware, where it is ranked S5. The species has not been officially designated as rare, threatened or endangered in any of the states listed in Table 1, but Breeding Bird Survey (BBS) data from 1966 through 1988 show significant declines in both the continental and eastern North American populations. Robbins et al. (1986) report a "sharp and steady decrease in the Eastern region" from 1966 through 1979, and "a negative, but not significant tendency" in the Central region. Negative trends were reported from Illinois, Ohio, and Pennsylvania south to Alabama, Georgia, and Virginia (Robbins et al. 1986), and overall, the continental trend was significantly down (Robbins et al. 1986).

Because of some concern that the population was declining in parts of its range, the Yellow-breasted Chat was placed on the American Birds Blue List from 1976 to 1980. By 1981, only two respondents from Utah and one from central California wanted the species retained on the Blue List and it was delisted (Tate 1981). There is no mention of Canadian respondents requesting that the species be Blue Listed.

Table 1. Official State Nature Conservancy Ranks.

State	Rank	State	Rank
Alabama	S?	North Carolina	S?
Alaska	S?	North Dakota	SU
Arkansas	S4	Nebraska	S5
Arizona	S4	New Hampshire	SA
California	S3	New Jersey	S4
Colorado	S?	New Mexico	S?
Connecticut	S1	Nevada	S?
Delaware	S5	New York	S3
Florida	--	Ohio	S?
Georgia	S5	Oklahoma	S?
Iowa	S4	Oregon	S4
Idaho	S5	Pennsylvania	S5
Illinois	S5	Rhode Island	S1
Indiana	S4	South Carolina	S?
Kansas	S3	South Dakota	S5
Kentucky	S4S5	Tennessee	S?
Louisiana	S5	Texas	S?
Massachusetts	S1	Utah	S?
Maryland	S5	Virginia	S5
Maine	SA	Vermont	SA
Michigan	S4	Washington	S4
Missouri	S?	Wisconsin	S1
Minnesota	SU	West Virginia	S5
Mississippi	S5	Wyoming	S?
Montana	S5		

S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.

S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3 = Rare and uncommon in state (on the order of 21 to 100 occurrences).

S4 = Widespread, abundant, and apparently secure in state, with many occurrences, but it is of long-term concern.

S5 = Demonstrably widespread, abundant, and secure in state and essentially ineradicable under present conditions.

SA = Accidental or casual in state, including species recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range.

SU = Unrankable; possibly in peril in state but status uncertain; need more information.

S? = Unranked.

The Nature Conservancy considers the Yellow-breasted Chat to be rare or uncommon in Canada, on the order of 21 to 100 occurrences. While the species is certainly scarce nationally, there are more than 100 occurrences annually in Canada (see below).

BBS data for Canada from 1967 to 1985 are of little value for indicating population trend because the species has been reported on only 11 of over 300 routes run annually. However, the small number of routes on which it has been reported and the number of birds per route (0.01) indicate that it has a small breeding range in Canada and occurs in low numbers even within that range.

D.1. British Columbia

In British Columbia, the Yellow-breasted Chat breeds almost exclusively in the Okanagan and Similkameen valleys, but Griscom and Sprunt (1979) report that even there it is rarely a common summer resident. Cannings et al. (1987), however, describe the species as a fairly common summer resident at lower elevations in the Valley, and Chris Siddle (pers. comm. 1990) described the Yellow-breasted Chat as a regular, locally uncommon breeding summer resident in the Okanagan Valley.

The chat was reported on two of 66 Breeding Bird Survey routes in British Columbia between 1967 and 1985, and an average of 0.01 birds was reported per route. These figures suggest that the chat is scarce and restricted in its range in British Columbia, but it is under-represented on BBS routes there because no routes are near its breeding habitat (C. Siddle, pers. comm. 1990). Of 119 sites surveyed in the South Okanagan Valley in 1992, only 15 male chats were found at 12 sites, and fewer than 50 pairs likely breed annually in British Columbia at the present time (Cannings, in prep.).

There is evidence that the Yellow-breasted Chat population in British Columbia has been slowly declining since the 1960s due to the destruction/reclamation of much of the riparian habitat of brush and deciduous trees (Griscom and Sprunt 1979; C. Siddle, pers. comm. 1990).

D.2. Prairie Provinces

The Yellow-breasted Chat was not recorded on any of the approximately 84 BBS routes run annually in Alberta, Saskatchewan, or Manitoba between 1967 and 1985. Although this would suggest that the species is scarce on the Canadian prairies, R. Kreba of Saskatchewan and Wayne W. Smith of Alberta (pers. comm.) report that the bird tends to breed locally in out-of-the-way places not traversed by BBS routes. Griscom and Sprunt (1979) stated that the Yellow-breasted Chat is sometimes common locally in dense shrubbery

of willow and buckthorn found along the Frenchman and Milk Rivers, in southwestern Saskatchewan and southeastern Alberta, respectively, and that these are the only areas where the species is reported to be a common breeder on the Canadian prairies. R. Kreba and A. Smith estimate that there are probably over 1000 pairs of chats in Saskatchewan, and Wayne W. Smith estimates between 1000 and 5000 pairs in Alberta. However, breeding bird atlas results from both provinces suggest that the populations are much smaller than that (see below, and Figures 4 and 5).

The Yellow-breasted Chat has only recently become a regular nester in southern Saskatchewan (Salt and Salt 1976), where it was first recorded in the extreme southwest in 1921 (Potter 1943; Bent 1963). Breeding was first confirmed in the province in the mid-1930s (Bent 1963), and by the 1960s the species had become established as a regular, and not uncommon, summer visitant in the southwest (Bent 1963). At present, the species is locally distributed in the Grassland Region of southern Saskatchewan, where it is a fairly common summer resident in suitable habitat (Smith and Adam, in prep.; A. Smith, pers. comm. 1993).

The chat has also become much more widespread in Saskatchewan since the 1920s. It was initially restricted to the Cypress Hills area and the Frenchman River, but it has since spread northward to portions of the Aspen Grove subregion (south and west of Saskatoon and the central Qu'appelle Valley (Smith and Adam, in prep.; A. Smith, pers. comm. 1993; see Figure 4). It is unknown whether the species is continuing to expand its range in the province (A. Smith, pers. comm. 1993).

Preliminary data from the Atlas of Saskatchewan Birds (Smith and Adam, in prep.) include "confirmed" breeding evidence in one atlas grid unit (each unit is a 1:50,000 scale topographic map), "probable" breeding in 10 and possible breeding in 23 (see Figure 4). In total, breeding evidence has been reported in 5% of Atlas grid units (Smith and Adam, in prep.).

No trend in population size has been noticed in Saskatchewan by R. Kreba (pers. comm.), an active birdwatcher knowledgeable about chats, but Al Smith (pers. comm. 1993) states that it is in "good shape" in the province due to the available amounts of suitable breeding habitat. Although the exact population size is unknown, it is likely in the magnitude of a few thousand pairs (A. Smith, pers. comm. 1993). Either Saskatchewan or Alberta contains the most breeding pairs in Canada (A. Smith, pers. comm. 1993).

The Yellow-breasted Chat has only recently become a regular breeder in southern Alberta, as well (Salt and Salt 1976). It was first recorded in Alberta at Rosebud in 1941, and since then it has expanded its range and increased in numbers in the province (Salt 1973; Salt and Salt 1976). The chat is fairly common in appropriate habitat along the lower Red Deer River (Salt 1973; Wallis 1977 in

Semenchuk 1992), and it is also a regular summer resident in the Milk River valley, and in the valleys of the South Saskatchewan and Rosebud Rivers, particularly along their lower reaches (Salt 1973). Elsewhere in southern Alberta, the species is scarce and locally distributed (Salt and Wilk 1958; Salt 1973; Sadler and Myres 1976). Chat records from Alberta (listed in Salt 1973) include: common summer resident in the Milk River valley; nesting near Milk River town; summer resident at Writing-on-Stone Provincial Park; breeding specimens from Manyberries; in the Cypress Hills, inhabits most of the creeks flowing from the southern slope; nesting at Medicine Hat; June specimen from Burdett Ferry; scarce summer resident at Lethbridge; several singing on Red Deer River, near Buffalo and Atlee; regular summer resident near Empress and Steveville; seen in May and June near East Coulee; seen in August near Drumheller; specimen at Trochu Ferry; summer resident at Dinosaur Provincial Park; two records (one specimen) at Rosebud, on the Rosebud River; believed to be nesting near Beiseker in one year in the early 1970s; and one found in August 1968 at Calgary. As of the early 1970s, evidence of nesting had been found at Milk River (1945) (Rand 1950 in Salt 1973), Medicine Hat (1962) (Salt 1973), Empress (1954) (Salt and Wilk 1958), and Drumheller (1957) (Salt and Wilk 1966 in Salt 1973).

Alberta Breeding Bird Atlas data (1987-1991) generally agree with the breeding distribution mapped in Salt (1973). During Alberta's Atlas project, the Yellow-breasted Chat was reported in less than 1% of all squares surveyed, and was found only within the Grassland Natural Region (Semenchuk 1992). In total, breeding was confirmed in only three squares (Semenchuk 1992). Atlas data indicate that the chat is a rare breeding bird in Alberta, but Pinel et al. (1991) state that the species is generally restricted to river valleys in the southeast corner of the province, where it can be fairly common in the proper habitat. Wayne W. Smith, an environmental consultant very active in the field, feels that the population in Alberta is generally stable.

The Yellow-breasted Chat has never been known to breed in Manitoba, but it is a very rare, occasional spring migrant there (R. Koes, pers. comm. 1990). Manitoba lies just northeast of the species' regular breeding range (R. Koes, pers. comm. 1990).

D.3. Ontario

During the breeding season, the Yellow-breasted Chat is primarily restricted to the Carolinian Forest Region of southern Ontario. The species has occurred in small numbers north of Lake Ontario (Quilliam 1965; Tozer and Richards 1974; James 1991; Weir 1989), but many of these records are of spring overshoots, and although some breeding evidence has been observed, breeding has not been confirmed east of Peel Co. Seventeen nests from eight southwestern counties have been reported to the Ontario Nest Record Scheme, further indicating the species' restricted breeding range in the province.

The Nature Conservancy considers the Yellow-breasted Chat to be imperiled in the province, and James (1991) describes the species as a rare to locally uncommon summer resident in the Carolinian Forest Region. No population trend can be determined using BBS data in Ontario because the species has been reported on only five of 72 Breeding Bird Survey routes run annually. However, the low number of routes that the species was recorded on, plus the very low average number of birds reported per route (0.04) indicate that the species is a very scarce breeding bird in Ontario.

The Yellow-breasted Chat was first recorded in the province at Point Pelee, Essex Co. in 1879 (Taverner and Swales 1908), and a pair bred on the north shore of Lake Erie, near Point Pelee, in 1884 (Macoun and Macoun 1909). At that time, the species was considered to be a very rare summer resident of southwestern Ontario (Nash 1908). By 1936, the chat had been reported north to Middlesex and east to Peel and Prince Edward Cos., although it was known to breed only in Elgin and Essex Cos. (Baillie and Harrington 1937; Snyder et al. 1941). In the 1960s, the species was thought to be breeding regularly and to have recently increased in numbers on the Niagara Peninsula (Beardslee and Mitchell 1965), but there is nothing to indicate that it was not a rare bird. As of 1991, breeding had been confirmed in the province in Elgin, Essex, Halton, Kent, Lambton, Middlesex, and Peel Cos., and Niagara R.M. (Eagles and McCauley 1982; Cadman et al. 1987), and it had been recorded in summer in Bruce, Dufferin, Durham, Haldimand-Norfolk, Hamilton-Wentworth, Lennox-Addington-Frontenac, Ottawa, Oxford, Perth, Peterborough, Toronto, Waterloo, and Wellington Cos. and R.Ms. (Tozer and Richards 1974; Brewer 1977; Eagles and McCauley 1982; Sadler 1983; Cadman et al. 1987; ORBBP files). However, rather than a significant change in the species' range in Ontario over time, the above records are more likely a reflection of the increased knowledge of the range in more recent years (Eagles 1987).

In the early 1900s, the Yellow-breasted Chat was a constant and not very rare resident of the vicinity of Point Pelee (Macoun and Macoun 1909). Taverner and Swales (1908) described the species as a common summer resident at Point Pelee, and stated that Point Pelee is the only locality in Canada where the species is any more than a rare accidental straggler. The chat is still considered to be a regular breeder and spring migrant there (A. Wormington, pers. comm. 1990), and Point Pelee National Park is one of the two strongholds of the species in Ontario (A. Woodliffe, pers. comm. 1993).

Wormington (1982) stated that the population at Point Pelee National Park is probably the largest in Ontario, but information suggests that the number of chats breeding in the park has declined. Historically, the population was probably higher than at present, with the upper limit likely approximately 20 pairs, even if optimal habitat was available (A. Wormington, pers. comm. 1990).

In 1982, 10 pairs were reported nesting inside the park, while by 1990 the population was thought to be only four to six localized pairs (A. Wormington, pers. comm. 1990). The decline was thought to be the result of maturation of overgrown fields that provide suitable breeding habitat (Wormington 1982), and Wormington (pers. comm. 1990) notes that Parks Canada is undertaking measures to revegetate the park's open areas, which will further harm the chat population. However, Tom Hince (pers. comm. 1993) states that the population seems to be relatively stable in the park, and that it is probably the same as it was ten years ago. He also states that there have been some changes in habitat over the past 10 years, but because there are lots of open areas in the park, as some areas grow up and become unsuitable, others are becoming suitable. He believes that anywhere from five to 10 pairs breed annually in the park.

During the Atlas project (1981-1985), Pelee Island was the area of highest population in the province, with over 10 pairs estimated (Cadman et al. 1987), and it is probably the primary stronghold of the species in the province (A. Woodliffe, pers. comm. 1993). A detailed survey of the island in 1991 found one pair at Old South Quarry and three pairs at Stone Road Alvar (ORBBP files). Other suitable areas on the island include the Mill Point area, and Fish and Lighthouse Points (A. Woodliffe, pers. comm. 1990). Most of the suitable breeding habitat on the island was covered during the 1991 survey, but undoubtedly a few out-of-the-way areas were missed (M. Cadman, pers. comm. 1993). At present, there are several hundred acres of suitable breeding habitat (in several good-sized areas) on the island, and the species is widely scattered throughout these key breeding areas (A. Woodliffe, pers. comm. 1993). In 1990, Woodliffe (pers. comm.) estimated an annual breeding population of six to 15 pairs on the island. However, a lot of areas are difficult to access, making it hard to estimate the number of breeding pairs, but there is potential habitat for a minimum of several dozen pairs to breed (A. Woodliffe, pers. comm. 1993). Habitat availability is generally static, although there may be some losses due to infilling of open and edge habitats (A. Woodliffe, pers. comm. 1990). Overall, Woodliffe (pers. comm. 1993) feels that the chat is "doing well" on Pelee Island.

Prior to 1980, the Yellow-breasted Chat was not known to breed at Rondeau Provincial Park, but severe winters and tree blowdowns from 1976 to 1978 led to the creation of shrubby openings and a profusion of raspberries in the park (A. Woodliffe, pers. comm. 1993). The chat first bred in the park in 1980, following the creation of suitable habitat, and at least one pair (but sometimes two to three) nested there for the following two to three years (A. Woodliffe, pers. comm. 1993). In the last six to eight years, deer have become plentiful, there have been no more blowdowns, and grass in the forest understorey has increased (and raspberries have decreased), resulting in a gradual decline in numbers of breeding chats (A. Woodliffe, pers. comm. 1993). At present, the species is known only as a regular spring migrant in small numbers (two to 15 per spring) at Rondeau (A. Woodliffe, pers. comm. 1993).

Scott Connop (pers. comm. 1990) stated that fewer than 10 pairs of chats breed annually in Lambton Co., almost all of which are found on the Walpole Island Indian Reserve, an important breeding location in Ontario. Allen Woodliffe (pers. comm. 1990) knew of no records from anywhere else in Lambton Co., which contains very little suitable breeding habitat. A detailed inventory of Walpole Island in 1985-1986 found a total of two pairs of Yellow-breasted Chats, but because so much of the land is private and difficult to access, there were probably more pairs that went overlooked (A. Woodliffe, pers. comm. 1993). The chat is probably more thinly distributed on Walpole than on Pelee Island because Walpole is further north, and there is not much shrubby habitat on Walpole due to frequent burning practices that keep the shrubby layer fairly open (A. Woodliffe, pers. comm. 1990 and 1993; Woodliffe, in prep.). Suitable habitat is declining at Walpole because of increased land use, and this may explain the slow decline noted in Lambton Co. between 1980 and 1989 (S. Connop, pers. comm. 1990); Brown-headed Cowbirds may also be a problem on the island (S. Connop, pers. comm. 1990).

The Yellow-breasted Chat is rare and very local in Haldimand-Norfolk R.M., and although confirmed breeding has never been properly documented there, nests have been found just outside the region, and there is one vague breeding record of adults feeding young at Turkey Point in the 1930s (McCracken 1987; J. McCracken, pers. comm. 1993). The species was first recorded in the region at Long Point on June 14, 1927, and since that time it has been recorded on several occasions, and is now annual at Walsingham and a few other stations (McCracken 1987; J. McCracken, pers. comm. 1993). There are many possible and probable breeding records from Haldimand-Norfolk, including both males and females on territory, meaning that the species is undoubtedly breeding in the region in very low numbers (one to three pairs annually) (J. McCracken, pers. comm. 1990 and 1993). Although there is a substantial amount of suitable habitat in the region (more than in Essex Co.), the Natural Areas Inventory conducted in 1986 found the species in fewer than five stations in the region (J. McCracken, pers. comm. 1993). The fact that they are less abundant here than in Essex Co., despite a greater quantity of suitable breeding habitat, is likely temperature-related; Haldimand-Norfolk lies further north than prime breeding areas in Essex Co. (J. McCracken, pers. comm. 1993). Jon McCracken (pers. comm. 1993) believes that the species is not expanding its range in the area.

The chat was first recorded in Kingston region on October 4, 1905, and one was shot near Picton on June 30, 1930 (Weir 1989). After the formation of the Kingston Field Naturalists in 1949, coverage, and consequently the number of records, increased. In the 1960s, the species was described as a casual visitor, with two recent records (Quilliam 1965). During the Atlas, four pairs were recorded in the area, and in 1989 the species was considered to be a rare, frequent summer resident in the Kingston region (Weir 1989;

R. Weir, pers. comm. 1990). Spring patterns remain similar to the Atlas years, but there have been no breeding season records since the Atlas; the species is a regular overshoot in spring, remaining through May and early June, but then seemingly disappearing (R. Weir, pers. comm. 1993). There have never been any July records in the Kingston region (R. Weir, pers. comm. 1993).

Using Atlas data, a population of 78 to 190 pairs were estimated to be breeding in Ontario in any one season between 1981 and 1985, but that estimate assumes that the majority of pairs go undetected each year and may be an overestimate. Eagles (1987) stated that the population is likely around 50 pairs in any breeding season. Abundance estimates were provided for 23 of the 45 squares that the species was found in, and all but one are of populations from one to 10 pairs per square; the only square estimated to contain more than 10 pairs was the Pelee Island square (Cadman et al. 1987). These estimates suggest that the species had a small population everywhere that it was found in Ontario during the Atlas (Eagles 1987).

In 1990, American Birds correspondents and other knowledgeable individuals within the species' breeding range in Ontario provided estimates of pairs of birds and population trends (Table 2). An annual breeding population of 18 to 38 pairs can be derived using these estimates, which is lower than the population size estimated during the Atlas, but is very close to Eagles' (1987) estimate of around 50 pairs.

Table 2. Estimated number of breeding pairs and population trend for various locations in Ontario (1980-1989).

Location	Number of pairs	Population trend
Kent Co.	1-5	Stable
Rondeau Prov. Park	0	Decline (see text)
Oxford Co.	0-2	Irregular
Frontenac, Lennox-Addington & Price Edward Cos.	4 (1981-1985)	Slow increase
Durham R.M.	0	Stable
Walpole Island	1-2	Slow decline
Haldimand-Norfolk R.M.	1-3	Stable
Niagara R.M.	1	Irregular
Hamilton-Wentworth R.M.	Unknown	Unknown
Point Pelee National Park	4-6	Slow decline
Pelee Island	6-15	Unknown

D.4. Northeastern United States

In New York, the Yellow-breasted Chat's breeding distribution is restricted to certain brushy hillsides or brushy tangles in the lowlands, mainly below elevations of 305 m (1000 feet) (Eaton 1988). It is an uncommon and local breeder in the state, and may have decreased in southcentral and southeastern portions since the early 1900s (Eaton 1988). At that time, the species was a common summer resident in the lower Hudson Valley and on Long Island (Eaton 1914 in Eaton 1988), but during New York's Breeding Bird Atlas (1980-1985), "confirmed" breeding evidence was discovered in only five blocks on Long Island, one block on Staten Island, two blocks in Westchester Co., and none in Rockland Co. where it historically bred (Eaton 1988). North of Rockland and Orange Cos. along the Hudson Valley, the species is now almost entirely absent (Eaton 1988). In other sections of southern, central, and western New York, the Yellow-breasted Chat is extremely local, and its distribution has changed little over the years (Eaton 1988). In western New York the chat is a rare breeder (Beardslee and Mitchell 1965), and breeding was "confirmed" during the Atlas in only three widely scattered locations in the Niagara Frontier region (Andrle and Carroll 1988).

The Yellow-breasted Chat is a widespread summer resident in Ohio (Peterjohn and Rice 1991). It is a fairly common to locally abundant nesting bird in the south, becoming a locally distributed and uncommon to fairly common resident within the glaciated central counties, and a casual to locally uncommon resident in the north; it is absent from many northwestern counties (Peterjohn 1989). The centre of its distribution lies within the southern and unglaciated eastern counties, and it is widespread throughout the Unglaciated Plateau and Illinoian Till Plain regions (Peterjohn and Rice 1991). The species has always been least common and most locally distributed within the intensively farmed western and central counties where agricultural activities have eliminated most suitable habitats (Peterjohn 1989; Peterjohn and Rice 1991). Although the species' distribution in Ohio has remained relatively unchanged since the 1930s, numbers have steadily declined in some areas (Robbins et al. 1986 in Peterjohn and Rice 1991; Peterjohn 1989). The chat abruptly declined in abundance at Toledo after 1948 (Campbell 1968 in Peterjohn and Rice 1991), and populations throughout the farmlands of western and central Ohio were probably declining in the 1940s, and are still declining today. However, the species was thought to be increasing at Cleveland in the late 1940s, and healthy numbers remain in many unglaciated counties (Peterjohn and Rice 1991).

The species has also been declining in Indiana and Illinois since 1965 as a result of habitat destruction on farmlands and around expanding cities; habitat loss as a result of successional changes (second growth woods replacing the dense shrubby thickets and other preferred successional habitats); and possibly cowbird

parasitism, as cowbirds are plentiful in these habitats (B. Peterjohn, pers. comm. 1990). The declines noted in Ohio can be largely attributed to the above factors, as well (B. Peterjohn, pers. comm. 1993).

The Yellow-breasted Chat is a local summer resident in Michigan, being common in the southernmost counties but uncommon in the rest of southern Michigan (Payne 1983). Its distribution is restricted almost entirely to the southern Lower Peninsula, but there are a few records from the Upper Peninsula (Reinoehl 1991); it is occasionally observed in the northern Lower Peninsula and on islands in Lake Michigan (Payne 1983). At the turn of the century, the Yellow-breasted Chat was confined to areas south of the 43rd parallel, and was regular but not common in counties where it occurred (Barrows 1912 in Reinoehl 1991). At present, the species is very little known in most of the state, but Atlas surveys (1983-1988) found the current range to be similar to that described by Barrows (1912). Atlas data also revealed an apparent concentration in the southwestern corner of the state, probably due to the availability of more suitable habitat as well as more intense coverage in the southwest (Reinoehl 1991). Because Michigan is at the northern edge of the species' range, the yearly population fluctuates considerably, and north of the 43rd parallel most of the few locations are probably not occupied every year (Reinoehl 1991). The Yellow-breasted Chat was found in 109 (6%) of 1896 townships surveyed during the Atlas project, indicating that it is a rare breeding bird in Michigan (Brewer et al. 1991). However, in some southern counties (i.e. Hillsdale Co.) the species is quite common (Reinoehl 1991), and according to the Nature Conservancy, the Yellow-breasted Chat is widespread, abundant, and apparently secure in Michigan, with many occurrences, but it is of long-term concern.

E. HABITAT

The Yellow-breasted Chat breeds in dense thickets and tangles of tall shrubbery or brush around wood edges, streams, ponds, and old overgrown clearings and fields (Godfrey 1986; McCracken 1987). Areas of essentially impenetrable thickets with few tall trees appear to be important (Cannings, in prep.). Although the species often breeds along streams and at swamp margins (Ehrlich et al. 1988), it is equally contented in upland thickets (Chapman 1907). It often lives close to human habitation (Griscom and Sprunt 1979), and is typically associated with the early successional stages of forest regeneration (Thompson and Nolan 1973).

In British Columbia, the Yellow-breasted Chat breeds in tangled, dense thickets of wild rose, hawthorn, or snowberry, usually bordering deciduous or mixed riparian forests (Cannings et al. 1987; Cannings, in prep.). Gibbard and Gibbard (1992 in Cannings, in prep.) describe preferred breeding habitat in the South Okanagan as "dense to very dense wild rose thickets

exhibiting vigorous growth and in close proximity to or containing large shrubs or medium height trees." Breeding habitat is declining throughout the southern half of B.C. (C. Siddle, pers. comm. 1990), and seems to be severly limiting there (D. Cannings pers. comm. 1994). Chat habitat is protected in the Vaseux-Bighorn National Wildlife Area (2 or more territories), Inkaneep Provincial Park (2 territories), and the Osoyoos Oxbows Wildlife Management Area (5 territories) (Cannings, in prep.). A significant number of territories are located on Indian Reserves, which are presently undergoing intense development in British Columbia (R. Cannings, pers. comm. 1993).

Chat habitat in British Columbia has almost certainly declined this century due to its' vulnerability to clearing for agriculture and residential/industrial development (Cannings, in prep.). At present, there appear to be only five suitable breeding sites remaining in British Columbia: the south Similkameen valley, which probably contains the most extensive habitat in the province; Osoyoos Oxbows; the Okanagan River between Inkaneep Provincial Park and McIntyre Bluff; Vaseux Lake, primarily at the north end but previously at the south end, as well; and woodlands along the Okanagan River on the Penticton Indian Reserve (Cannings, in prep.).

In Alberta and Saskatchewan, the species nests along the banks of prairie rivers and creeks, where ancient cottonwood stands consisting of dense willow, birch, saskatoon, and rose undergrowth are found (Salt 1973; Salt and Salt 1976). In particular, impenetrable thickets of buffalo berry, hawthorn, and rose growing along shady banks are preferred (Salt 1973; Salt and Salt 1976). Salt and Wilk (1958) describe the usual chat habitat in Saskatchewan as "dense shrubbery such as the tangles of willows, hawthorn, saskatoon, and chokecherry which border our southern rivers." In some prairie coulees in Alberta away from rivers, the species inhabits thorny thickets of buffalo berry even where tall trees are absent (Salt 1973). Although the species has a local distribution in Saskatchewan, there is enough suitable habitat available to sustain a healthy chat population in the province (A. Smith, pers. comm. 1993). Dale Hjertaas (pers. comm. 1994) states that suitable chat habitat may slowly be disappearing in Saskatchewan as a result of land clearing and cultivation. For example, there is concern that by eliminating floods, the Raferty Dam on the Souris River would allow farming of more of the floodplain, and would consequently eliminate some of the riparian thickets which the Yellow-breasted Chat inhabits (D. Hjertaas, pers. comm. 1994). A dam project also threatens the Old Man River in Alberta (D. Cannings, pers. comm. 1994). However, Hjertaas does not perceive these threats to habitat as substantial enough to warrant listing of the chat in Saskatchewan.

Chats have been reported in Manitoba in densely vegetated coulees in the southwest, often along rivers or streams; habitat in Manitoba is considered to be stable (R. Koes, pers. comm. 1990).

In Ontario, the species has been found breeding in shrubby fields and pastures overgrown with dogwood, hawthorn, raspberry, wild rose, grape vine, and willow, and in open deciduous woods, and clearings in woods, with undergrowths of raspberry, grape vine, and other shrubs (Peck and James 1987). At Point Pelee, one of the most important chat breeding sites in Ontario, the species is found in open situations where there is an abundance of thickets (i.e. hedgerows, grapevine tangles, bramble patches, and stands of sumac and dogwood) (Wormington 1982). From 1980 to 1982, breeding pairs were found in the successional growth along the west side of Point Pelee's tip. On Walpole Island, the species is usually found in open woods (particularly Oak-Savannah) with heavy brush associations, and hawthorn scrub near deciduous woods (S. Connop, pers. comm. 1990). A small amount of suitable habitat exists in other areas of the province, but it is widely scattered and subject to change as natural processes such as succession make some areas unsuitable and other areas suitable.

Throughout the Yellow-breasted Chat's breeding range, suitable habitat disappears as the human population increases and development expands (Chapman 1907). Because land is so productive for agriculture in southwestern Ontario, it is very seldom allowed to revert to shrub once it has been cleared, resulting in a lack of suitable habitat that may be a limiting factor in many parts of southwestern Ontario (Eagles 1987). However, the eventual maturing of overgrown fields at Point Pelee National Park will have a negative effect on the chat population there, and this process has been accelerated by the elimination of farming within the park (Wormington 1982). In 1982, most fields at Point Pelee appeared to contain optimal breeding habitat for chats, but habitat has continued to decline since then (A. Wormington, pers. comm. 1990). According to Alan Wormington (pers. comm. 1990), Parks Canada is planning to revegetate open areas of the park, which will further harm the chat population at Point Pelee. Although habitat may have declined somewhat on Pelee Island, there are still several hundred acres of suitable breeding habitat scattered in large areas throughout the island (A. Woodliffe, pers. comm. 1993). Suitable habitat is also decreasing on Walpole Island due to increased land use (S. Connop, pers. comm. 1990), and in Niagara R.M. due to urban expansion (M.E. Hebb, pers. comm. 1990). Habitat in Haldimand-Norfolk R.M. is stable, or perhaps even increasing as more edge habitat is created (J. McCracken, pers. comm. 1990). A small amount of suitable breeding habitat was created at Rondeau Provincial Park following a period of severe winters and tree blowdowns in the late 1970s, but this has since virtually disappeared, and the species no longer breeds at Rondeau (A. Woodliffe, pers. comm. 1993).

In winter, the Yellow-breasted Chat establishes territories in young second-growth forest and scrub (Thompson and Nolan 1973; Morse 1989).

F. GENERAL BIOLOGY

F.1. Reproductive Capability

The nesting (and other) habits and behaviours of the western and eastern subspecies of the Yellow-breasted Chat do not seem to differ materially from each other (Bent 1963; Griscom and Sprunt 1979). Like other small passerine species, the Yellow-breasted Chat matures in one year and generally has a short life span, but the longevity record is eight years, 11 months (Klimkiewicz et al. 1983). The female builds the nest and normally lays three to five eggs, but up to six have been recorded (Bent 1963). In British Columbia, three to four eggs are usually laid (Cannings, in prep.). In Ontario, the average clutch size (based on eight nests) is four to five eggs, but anywhere from one to five eggs have been reported (Peck and James 1987). Three to five eggs are usually laid in Alberta (Salt 1973). Incubation, conducted entirely by the female, takes 11 to 15 days to complete (Bent 1963; Griscom and Sprunt 1979; Peck and James 1987; Semenchuk 1992). The female broods the nestlings, but both parents apparently feed the young (Bent 1963; Semenchuk 1992), which usually fledge after eight to 11 days (Bent 1963; Griscom and Sprunt 1979).

In the Okanagan Valley of British Columbia, most clutches are initiated in the second week of June, with dates ranging from May 12 to June 23 (mean of June 9 and a median of June 13) (Cannings et al. 1987), suggesting that second broods are possible there (Cannings, in prep.). Dates for flightless young range from late May to mid-July, and the young have generally fledged by mid-July; the latest recorded nest contained almost-fledged young on July 12 (Cannings et al. 1987). Only two full clutches have been recorded in the Okanagan, one with three eggs and the other with four (Cannings et al. 1987). In Alberta, the Yellow-breasted Chat is a late nester, and fledging does not occur until mid-July; consequently, only one brood is raised, but it is known to raise two broods in other parts of its range (Ehrlich et al. 1988; Semenchuk 1992). Breeding records in Alberta (as of the early 1970s) include: an adult carrying food at the Dominion Range Station, Milk River, on July 24, 1945 (Rand 1950 in Salt 1973); a nest with three eggs and two cowbird eggs at Medicine Hat on June 23, 1962 (Salt 1973); young about one week old at Empress on July 23, 1954 (Salt and Wilk 1958); and young a few days old 18 miles north of Drumheller on July 2, 1957 (Salt 1973). One nest found in the Qu'Appelle Valley region of Saskatchewan contained four eggs and one cowbird egg on June 27, 1953 (the cowbird egg was removed), and on July 6 the nest contained three young birds and an infertile egg (Callin 1980).

Egg dates in Ontario range from June 2 to July 1 (six of 19 nests contained eggs from June 8 to June 15) (Peck and James 1987; James 1991), while in New York they range from May 25 to July 13

(Bull 1974). In Michigan, the chat nests primarily in June and July (Reinoehl 1991), but nests and eggs have been found from the last week in May to late June (Wood 1943). In Ohio, nests with young have been reported by May 26 and recently fledged young by June 2, indicating that some clutches are produced before May 15 (Peterjohn and Rice 1991). However, most young do not fledge in Ohio until June 15 to July 5 (Peterjohn and Rice 1991). Second broods are fairly frequently produced and account for clutches through July 12 and adults with fledglings into the first half of August (Peterjohn and Rice 1991). In New York, nestlings have been reported from June 8 to July 17, and fledglings on June 22 (Bull 1974). In Ontario, nests with young have been reported from June 18 to July 19, and fledged young on June 25 (Rondeau), June 27 (Point Pelee National Park), and July 21 (Bronte Woods, Halton Co.) (ONRS data).

Nesting success, average annual survival rate, reproductive rate, growth potential, and age/sex ratio of the existing Yellow-breasted Chat population in Canada are virtually unknown. Cannings (in prep.) roughly calculated the breeding success rate in British Columbia to be 48%, but this is based on very few data. A five-year study conducted in Indiana in the late 1960s and early 1970s found that nest success in any one breeding season ranged from 0.0% to 38.5% (average of 22.4%), and that predators accounted for approximately 94% of the failures (Thompson and Nolan 1973). On the other hand, only 19.2% of all nests found over the entire study period were successful, and the proportion of nestlings that survived to fledging varied from none to 100% (pooled mean of 69.8%). All nestling mortality was apparently due to predation (Thompson and Nolan 1973). Based on studies of other parulids, Thompson and Nolan (1973) assumed the annual adult mortality rate of the population to be no lower than 30% and no higher than 60%, and the annual juvenile mortality rate (from fledging to first anniversary) to range from 60% to 90%; these numbers can probably be applied to populations breeding in Canada, as well.

F.2. Species Movement

The Yellow-breasted Chat is generally a late spring migrant (Peterjohn 1989), leaving for its breeding grounds about the middle of April (Bent 1963). In the Qu'Appelle Valley region of Saskatchewan, the average arrival date is June 1, with the earliest being May 19, 1962 (Callin 1980). The species usually arrives in southern Alberta quite late in May or in early June (Salt and Salt 1976). If conditions in Michigan are favourable, large numbers of chats arrive by mid-May, but if May is cool and damp, some territories may be unoccupied until June or not occupied at all (Reinoehl 1991). Because the species is at the northern limit of its range in both Michigan and Canada, spring weather conditions likely similarly affect chat populations in Canada.

After the males quit singing in early July, they become remarkably inconspicuous and secretive (Peterjohn 1989), and fall migrants are regularly overlooked (B. Peterjohn, pers. comm. 1990). Although the species seems to leave the breeding range early in the fall (Harrison 1984), it is subject to wide scale wandering northward after the breeding season, and actually departs for the tropics much later (Dennis 1967). Large numbers of chats commonly appear in the northern states (especially New England) and the Maritime provinces in August, September, and October, and occasionally into winter (Dennis 1967; Harrison 1984). Banding records indicate that this tendency has increased in recent years (Harrison 1984). Dennis (1967) stated that "although there are many gaps in knowledge, it is possible to visualize departure from the breeding grounds in July and August, arrival in New England and the Northeast in late August and September, and departure for the tropics anywhere from early September to early December." Evidence suggests that, like Starlings (Dorst 1962 in Dennis 1967), it is primarily the immatures (immediately after fledging) which travel northward at the end of a breeding season, before they begin the fall migration southward (Dennis 1967). With Starlings, these are merely premigrational movements that have nothing to do with the main migration of the species (Dorst 1962 in Dennis 1967), and this is likely the case with chats, as well.

Chats usually return to the Okanagan Valley of British Columbia in the third week of May or shortly after (Cannings et al. 1987). First-arrival dates include May 18 and May 23, and a very early first-arrival date of May 12 suggests that the species arrives earlier in some years (Cannings et al. 1987). There are few records from the Okanagan after mid-July, and it appears that most birds have left by the end of that month, although there is one record of an immature male taken on September 21, 1928 at Osoyoos (Cannings et al. 1987; Cannings, in prep.).

Southern Alberta marks the northern limit of the Yellow-breasted Chat's breeding range, and consequently its migrations are confined to the extreme southern portions of the province (Salt 1973). Because there are few permanently located observers in that area, few migration data are available for Alberta, but the species is thought to arrive on the breeding grounds in late May to early June (Salt and Salt 1976; Semenchuk 1992). The fall departure time can not be accurately determined from the limited records (Semenchuk 1992), but all fall observations have occurred in August (Salt and Salt 1976). West of its range in Alberta there have been a few sightings in August and one in September (Semenchuk 1992). Arrival and departure times are probably similar for southern Saskatchewan.

In Ontario, the Yellow-breasted Chat usually arrives in early May and leaves by mid-September, but it has been recorded as early as late April and as late as early January (James 1991). Locations of out-of-range spring sightings in the province include Durham

R.M.; Great Duck Island, Manitoulin District; Northumberland Co.; Toronto; and Wellington Co. Out-of-range fall sightings include Algonquin Provincial Park; Caribou Island, Lake Superior; Durham R.M.; Great Duck Island; North Bay, Nipissing District; Orillia, Simcoe Co.; North Point, James Bay; Northumberland Co.; Peterborough Co.; and Toronto. The species generally occurs in small numbers on migration, but there appears to be a preference for shoreline areas during migration (Wormington 1990) and it has been seen regularly at a few localities such as Point Pelee National Park, Rondeau Provincial Park, and Prince Edward Point (Kelley et al. 1963; Stirrett 1973; Weir 1989; A. Woodliffe, pers. comm. 1990). The species is present every spring at Rondeau, and numbers range anywhere from two to 15 individuals per spring (A. Woodliffe, pers. comm. 1993). Stirrett (1973) reported a chat at Point Pelee as early as April 25 and a maximum of 12 on May 12, and only had one fall record at Pelee (October 12). Allen Woodliffe (pers. comm. 1993) states that the species is probably a more common migrant at Point Pelee than Rondeau, but Tom Hince (pers. comm. 1993) reports that it is not common on migration at Pelee, and that many of the May observations at Pelee tend to be individuals that are establishing territories, rather than migrants. Ussher (1965 in Speirs 1985) gave May 9 as his 19-year average arrival date at Rondeau Provincial Park, with the earliest on April 27, and gave September 19 as his latest date. In Haldimand-Norfolk R.M., the Yellow-breasted Chat was observed during five to 10 spring migrations, and eight to 10 fall migrations, between 1981 and 1990 (J. McCracken, pers. comm. 1990). In 1983, 19 chats were reported from May 4 to 27 near Long Point (Speirs 1985), and the latest date at the Long Point Bird Observatory is September 12 (Speirs 1985). An average of four to eight individuals are usually recorded in spring at Long Point, but a number of these are probably overshoot migrants (J. McCracken, pers. comm. 1993).

Further east, the Yellow-breasted Chat is a rare regular visitor in spring, and casual in autumn, at Prince Edward Point (Weir 1989). At least one chat has been observed at the Point each May from 1970 to 1983 (with the exception of 1981) (Weir 1989), and as of 1990, there had been 36 spring sightings there (T. Sprague, pers. comm. 1990). The average annual arrival at Prince Edward Point is May 12 (earliest arrival May 8, 1979), and the average spring departure is May 23 (latest May 28, 1976) (Weir 1989). As of 1989, there had been only five fall records at Prince Edward Point, defining an average last sighting of September 27 (latest September 30, 1968) (Weir 1989).

During the breeding season, chat populations in Canada are concentrated in a few areas in southern British Columbia, southeastern Alberta, southwestern Saskatchewan, and southern Ontario. In British Columbia, the species is restricted to areas within the Okanagan Valley; significant breeding areas include the south Similkameen valley; Osoyoos Oxbows; the Okanagan River

between McIntyre Bluff and Inkaneep Provincial Park; Vaseux Lake; and Okanagan river riparian woodland on Penticton Indian Reserve (Cannings, in prep.). The stronghold in Ontario is primarily limited to several locations on Pelee Island (including the entire Stone Road Alvar area which contains a substantial amount of excellent breeding habitat), and also the western side of Point Pelee National Park (Wormington 1982; A. Woodliffe, pers. comm. 1993; ORBBP files). Other important breeding locations in Ontario, where breeding evidence has been recorded in more than one year, include Ojibway Prairie Provincial Nature Reserve, Essex Co. (1990-1991); Rondeau Provincial Park (1981-1985) and the Lower Thames Valley Conservation Area (1982-1984, 1987), Kent Co.; Walpole Island Indian Reserve, Lambton Co.; Komoka Swamp, Middlesex Co. (1982, 1989); Wainfleet Bog, Niagara R.M. (six years between 1980 and 1989, 1990-1991); Port Robinson, Niagara R.M. (1983, 1985); and Iroquois Heights Conservation Area, Hamilton-Wentworth R.M. (1970-1984; most habitat now destroyed by residential development) (Atlas and ORBBP data).

There is little information regarding the species on its wintering grounds, and it is unknown whether it concentrates in any specific areas during the winter.

F.3. Behaviour/Adaptability

Although the Yellow-breasted Chat occasionally nests in loose colonies when optimal habitat is available, males defend individual territories against other males (Ehrlich et al. 1988). A study conducted on 18 ha of upland deciduous scrub habitat near Bloomington, Indiana found that territories ranged from 1.12 ha (2.8 acres) to 1.58 ha (3.9 acres), with a pooled mean of 1.24 ha (3.1 acres) (Thompson and Nolan 1973). Territories in Virginia ranged from 0.5 to 1 ha (Dennis 1958 in Cannings, in prep.), and the minimum size of occupied rose thickets in the South Okanagan was found to be 9 m^2 (Gibbard and Gibbard 1992). Thompson and Nolan (1973) also found that when territorial males disappeared, the vacancies in most cases were filled either by the settlement of new males or the expansion of the territorial boundaries of neighbours. Evidence from the Smokey Valley in Nevada over several years (Linsdale 1938 in Bent 1963) suggested that the species may have exhibited an especially strong tendency to return to the same site in successive years. However, the breeding population in Indiana studied by Thompson and Nolan (1973) exhibited very low site tenacity; three of 23 resident males (13%) on the study area returned to the study area plus nearby inspected fields (a total of 67 ha) in the year following their first capture (Thompson and Nolan 1973), but no females or nestlings returned to either the study area or the total inspected area in following years (Thompson and Nolan 1973). Thompson and Nolan (1973) speculated that unfavourable characteristics of an area (such as nest predation)

may only become apparent after the birds are subjected to them, and this may account for the large number of resident males that left the study area during the breeding season, and the low number of adults that returned.

The Yellow-breasted Chat is usually monogamous. A study in Indiana in the late 1960s and early 1970s found that males either formed pair-bonds with a succession of females in one season, remained paired to one female the entire time they were on the study area, or were for a time paired to one female and for a time unpaired; only one male exhibited polygyny (Thompson and Nolan 1973). However, nesting success apparently had a profound effect on the stability of the pair bond. Pairs that experienced no nest failure in a particular breeding season remained together throughout the season, and about 50% of males that experienced nest failure bred again to new mates (Thompson and Nolan 1973).

Nests are large and bulky, but well-concealed within shrubs, bushes, small saplings and trees, or bushy tangles (Forbush 1939; Griscom and Sprunt 1979), sometimes on the ground but more often from 1 to 2 m (or 1 to 5 feet) above the ground (Griscom and Sprunt 1979; Semenchuk 1992). Frequently, the nest is impossible to investigate (or locate) due to its placement in often impenetrable thorn scrub and dense thickets (Bull 1974). The nest is composed of dead leaves, coarse grass and straw, sheds of bark, and weed stalks, and is lined with fine grasses (Ehrlich et al. 1988; Godfrey 1986).

In Ontario, nests have been found in shrubs and vines (including raspberry, grape vine, dogwood, hawthorn, cedar, fragrant sumac, and a few other unspecified bushes), and are usually in dense growth (Peck and James 1987). Heights of 15 nests ranged from 0.5 to 1.8 m (1.5 to 6 feet), with seven averaging 0.9 to 1.2 m (3 to 4 ft) (Peck and James 1987). Nests have been described as bulky (1 nest), flimsy (1 nest) structures composed of grasses, bark strips, leaves, and rootlets, and lined with grasses (Peck and James 1987). Of 15 nests recorded in British Columbia, all were located less than one metre up in bushes, and rose and snowberry seem to be favoured (Cannings et al. 1987). One nest found in the Qu'Appelle Valley region of Saskatchewan was located about 1 m up in a very small saskatoon shrub (Amelanchier alnifolia), amid thick shrubbery and scattered small poplars on a gentle slope at the lower end of the valley (Callin 1980). Nests in Alberta are usually located within the densest part of an inaccessible thicket (Salt 1973). Coarse grasses are used to either bind the nest to several small vertical stems or to hold it in a crotch two to three feet above the ground (Salt 1973). Finer grasses are used to line the nest (Salt 1973).

During the breeding season, the chat's diet consists principally of insects such as weevils, beetles, ants, moths, bees, wasps, mayflies and caterpillars, and berries (including wild strawberries, grapes, blackberries, raspberries, whortleberries, and elderberries) make up a large portion of its diet in late summer (Bent 1963; Griscom and Sprunt 1979; Semenchuk 1992). Young are apparently fed only insects (Ehrlich et al. 1988). The main method of obtaining food during the breeding season is gleaning from foliage and occasionally from branches (Ehrlich et al. 1988), and although both the male and female are foliage gleaners, the female tends to forage lower in the shrubbery and on the ground (Semenchuk 1992).

The Yellow-breasted Chat is fairly well-known to bird watchers, but its secretive habits make it difficult to observe. The species is highly vocal (and the song or chatter is quite distinctive and loud), and it is conspicuous when singing, meaning that it is usually found by its call (Eagles 1987; Semenchuk 1992). The male often sings at night, usually from a low perch encased by thick shrubbery (Semenchuk 1992), and it sometimes seems to mimic the songs of other species (Harrison 1984; Ehrlich et al. 1988). Because it is quite secretive and shy, and actual nest sites are often impenetrable, direct human disturbance is apparently not a threat. However, indirect disturbance, primarily in the form of habitat destruction, may be a serious threat to the species, especially in Ontario and British Columbia. Because a large portion of the Yellow-breasted Chat's diet consists of insects, pesticide use may also be a problem.

The Yellow-breasted Chat's normal behaviour does not expose it to danger, and it is not susceptible to special conditions such as fire, fluctuating water levels, severe winters, or wet or dry seasons, but it is susceptible to cold spells or other conditions that affect insect populations. Captive breeding and transplanting programs have never been attempted in Ontario, and are not recommended or necessary at this time.

G. LIMITING FACTORS

The Yellow-breasted Chat is somewhat limited by its preference for early successional habitats (fairly open areas with dense shrubs and thickets) for breeding. As succession continues, these areas become more overgrown, and will eventually become unsuitable. Conversely, cleared areas that were once unsuitable for breeding may become suitable as a result of succession. Although some human activities have led to the destruction of suitable breeding habitat, others (such as clearing of forests) have actually increased the amount of available habitat. Therefore, human activities and succession have caused both habitat losses and increases, and it is unknown how this has affected chat populations in most of Canada. In British Columbia, however, habitat availability is severly limiting and is likely the primary factor limiting increases of local populations (Cannings, in prep.).

The Yellow-breasted Chat is frequently parasitised by the Brown-headed Cowbird (Bent 1963; Semenchuk 1992), and occasionally by the Bronzed Cowbird (Ehrlich et al. 1988). Bent (1963) stated that the chat will often desert its nest after a cowbird egg is deposited, but Thompson and Nolan (1973) found only one nest deserted out of at least 11 that had been parasitized. Dr. Friedmann (1929 in Bent 1963) stated that "normally a Cowbird's egg has little chance of ever being hatched by a Yellow-breasted Chat." Also, it appears that young cowbirds in the nest may not affect the growth of young chats (Thompson and Nolan 1973). Four of 16 nests (25%) reported to the Ontario Nest Records Scheme had been parasitised by the cowbird (Peck and James 1987), and three of 14 nests (21%) from the Okanagan Valley in British Columbia contained from one to four cowbird eggs (Cannings et al. 1987; Cannings, in prep.). One nest found at Medicine Hat, Alberta, contained three eggs and two cowbird eggs (Salt 1973). As of 1980, only one nest had been discovered in the Qu'Appelle Valley region of Saskatchewan, and it contained one cowbird egg which was removed by the author (Callin 1980).

H. SPECIAL SIGNIFICANCE OF THE SPECIES

There are two subspecies of the Yellow-breasted Chat, Icteria virens virens (Linnaeus), found in Canada only in southern Ontario, and I. v. auricollis (Deppe) (formerly known as the Long-tailed Chat), which breeds in British Columbia, Alberta, and Saskatchewan (Griscom and Sprunt 1979; Godfrey 1986). The nesting habits and behaviour of the two subspecies are alike, but they differ somewhat in appearance (Bent 1963; Ouellet 1973; Griscom and Sprunt 1979). I. v. auricollis has more greyish upper parts, the white of the malar region is more extended, the yellow of the under parts is deeper, and the wings, tail, and bill are longer than those of I. v. virens (Griscom and Sprunt 1979; Godfrey 1986).

The chat's taxonomy is somewhat unclear, and many authors over the years have stated that the species is out of place in the wood warbler family (Forbush 1929; Bent 1963; Griscom and Sprunt 1979; Harrison 1984; Speirs 1985). Structurally it seems to be most closely related to the wood warblers, having nine primaries, a partly booted tarsus, and a deeply cleft inner toe (Bent 1963). However, it has many unwarbler-like characteristics: it and its eggs are much larger; it has different proportions (i.e. a larger, heavier and more curved bill, shorter and more rounded wings, and a relatively longer and more graduated tail); and it has strikingly different behaviour from other wood warblers (i.e. it holds food with its foot, and it has a unique song and aerial courtship displays) (Bent 1963; Harrison 1984). It seems to be the only wood warbler that develops no natal down, and the only one that has a complete post-juvenile moult (Bent 1963; Harrison 1984). Despite this, DNA-hybridization techniques indicate that the chat is a wood warbler, and has no genetic affiliation with any non-warbler group (Harrison 1984; Ehrlich et al. 1988). Because of these taxonomic discrepancies, the chat is of great scientific interest.

At the present time, the Yellow-breasted Chat is unclassified throughout Canada, but "Threatened" status has recently been proposed for British Columbia (Cannings, in prep.), and "Rare" status has been proposed for Ontario. The species is on the British Columbia Wildlife Branch Red List of Candidate species to be considered for legal designation under the B.C. Wildlife Act as Endangered or Threatened, and it is considered a Priority 2 species by the South Okanagan Critical Areas Programme (Cannings, in prep.).

On Walpole Island in Ontario, the Yellow-breasted Chat has been observed in the same habitat as the Orchard Oriole and the Northern Bobwhite, two other rare bird species. On Pelee Island, there is some overlap in habitat preferences of the chat and the Blue Racer, an endangered snake species found only on that island (A. Woodliffe, pers. comm. 1993). In British Columbia, chat habitat is utilized by other species of concern to wildlife biologists, including the Painted Turtle (Chrysemys picta), Long-eared Owl (Asio otus), Lewis' Woodpecker (Melanerpes lewis), and Bobolink (Dolichonyx oryzivorus) (Cannings, in prep.).

I. EVALUATION AND PROPOSED STATUS

The Yellow-breasted Chat is widespread in North America, with only a small portion of its range extending north into Canada. The Canadian population is small enough that it is probably of little significance to the population of the entire species. However, it might be argued that the birds in Canada have unique genetic or cultural characteristics because they occur at the extreme of the species' range and are thus worthy of special consideration.

Breeding Bird Survey data show a decline in both the continental and eastern North American populations, but too few birds are reported to determine a trend in provincial populations. It is thought that the population in British Columbia is being slowly reduced through habitat destruction, and fewer than 50 pairs are estimated to be currently breeding there. Threatened status has been proposed for the species in British Columbia. The chat is a recent arrival in both southern Alberta and southern Saskatchewan, and since then it has become a regular, locally common breeder in both of those provinces. A few thousand pairs are estimated to be breeding in Saskatchewan, and between 1000 and 5000 pairs are thought to be breeding in Alberta. There is very little information on which to base a determination of population trend, but there is no indication of a decline in either Alberta or Saskatchewan, and the species is in no danger of extirpation from either province at the present time.

Only around 50 pairs breed annually in Ontario, most of which are found in a few isolated localities (Point Pelee National Park and Pelee Island); outside of these areas, breeding is scattered and sporadic. The population has declined at Point Pelee, and the chat no longer breeds at Rondeau Provincial Park, but the population on Pelee Island (perhaps the primary stronghold of the species in Ontario) appears to be healthy (although small) at the present time. "Rare" status has been proposed for the Yellow-breasted Chat in Ontario (Austen et al. 1994; Cadman 1994).

Based upon the available evidence, it is recommended that the Canadian Yellow-breasted Chat population be designated as "Threatened" in British Columbia, "Not at Risk" on the Prairies, and "Vulnerable" in Ontario. The small population and signs of decline in both Ontario and British Columbia indicate the need for conservation measures and the commencement of recovery activities.

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