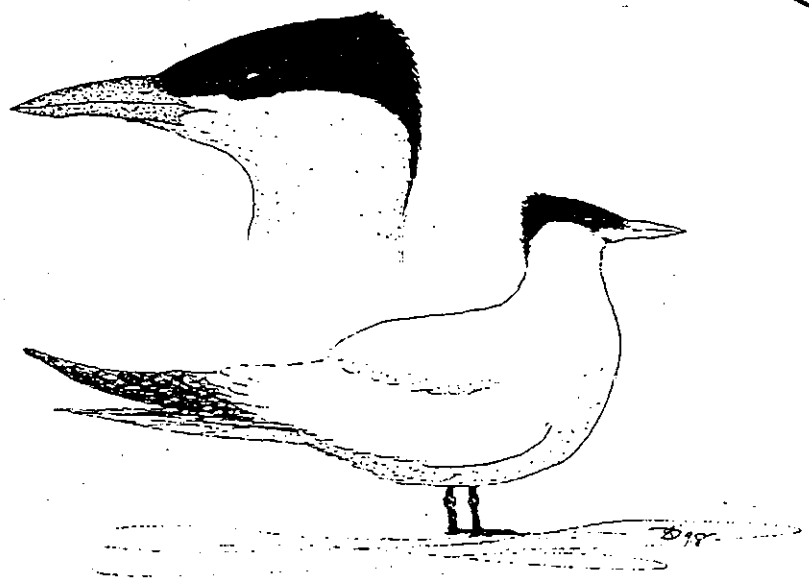
Update
COSEWIC STATUS REPORT

ON

Caspian Tern
(*Sterna caspia*)



Ross D. James

Not at Risk
1999

COSEWIC
COMMITTEE ON THE STATUS
OF ENDANGERED WILDLIFE
IN CANADA

COSEPAC
COMITÉ SUR LE SITUATION
DES ESPÈCES EN PÉRIL
AU CANADA

For additional copies contact:

COSEWIC Secretariat
c/o Canadian Wildlife Service
Environment Canada
Ottawa, ON
K1A 0H3

Tel: (819) 997-4991/(819) 994-2407
Fax: (819) 994-3684
E-mail: sylvia.normand@ec.gc.ca
shirley.sheppard@ec.gc.ca

Cover illustration: Caspian Tern - Ross D. James, Gateways Centre, R.R. No. 3, Sunderland, Ontario, L0C 1H0

Caspian Tern

Reason for status: Numbers have increased approximately threefold since the original status assessment in 1978. [Designated (rare) vulnerable in 1978 and delisted in 1999.]

Occurrence: Alberta, British Columbia, Manitoba, Newfoundland, Northwest Territories, Nunavut, Ontario, Quebec and Saskatchewan

NOTES

COSEWIC status reports are working documents used in assigning status. Reports are released in their original form in the interest of making scientific information available to the public.

 The report may be cited as follows:

James, Ross D. 1999. COSEWIC Status report on Caspian Tern, *Sterna caspia.* Committee on the Status of Endangered Wildlife in Canada. 10 + vi pp.

COSEWIC

A committee of representatives from federal, provincial and private agencies that assigns national status to species at risk in Canada and the chairs of the scientific species specialist groups

COSEPAC

Un comité de représentants d'organismes féderaux, provinciaux et privés qui attribue un statut national aux espèces canadiennes en péril ainsi que des président(e)s des groupes des spécialistes scientifiques.

Update
COSEWIC Status Report

on

Caspian Tern
(*Sterna caspia*)

by

Ross D. James
Gateways Centre
R.R. No. 3
Sunderland, Ontario
L0C 1H0

Funding provided by Canadian Wildlife Service
Environment Canada

Table of Contents

List of Tables

Executive Summary

The Caspian Tern was designated rare, now vulnerable, by COSEWIC in 1978. There was concern at that time about the effects of environmental contaminants. There was no specific data to indicate impacts, although the birds were as heavily contaminated as other fish-eating birds. Although the population was estimated to be about 5000 pairs, and there was no long term data to establish a population trend, the birds being highly colonial, were nesting in only about 20 known colony sites that were very vulnerable to disturbance.

In Newfoundland the population remains about the same, with only one main colony totaling about 50 pairs. In Quebec there is also only one consistent colony with about 15 to 25 pairs expected each year. The Great Lakes harbour about one third of the North American population and numbers have tripled there since the early 1960's. About 3100 to 3200 pairs are expected in Ontario, but they nest in only 11 colonies.

It would appear that nearly two thirds of the Canadian population are found in southern Manitoba, although systematic surveys are not being conducted. The population is estimated to be between 7000 and 10 000 pairs, a substantial increase from the 300 estimated in the late 1970's. There are at least 37 colony sites of note and a few other smaller ones.

In Saskatchewan there are only two colonies known with about 200 pairs, but additional sites are likely to be found if surveys of more lakes were available. In Alberta, there are six colonies known, but the largest is only about 100 pairs. Caspian Terns have only recently expanded into southern British Columbia and a few birds only nest there as yet. In the Northwest Territories there are more than 200 sites on islands in Great Slave Lake, but most are of only single pairs, the largest colony being about 110 pairs. There is also a sizable colony in James Bay that has not been accurately censused.

In terms of overall numbers the Canadian population of Caspian Terns is doing well, with substantial increases and an estimated total population probably approaching 14 000 pairs. Current levels of environmental contaminants do not appear to be having any significant effect on reproductive output.

The main concern remains with the relatively few colony sites and their vulnerability to disturbance. Most provinces have only a few colony sites. Good quality colony sites are rare on the Great Lakes at least. In southern Manitoba and Ontario, where the bulk of the population occurs, there is considerable animosity toward fish-eating birds. There is a long history in this country of raids on colonies to destroy birds and their eggs, or to gather eggs and shoot birds for food. Artificially high water levels are being maintained on many lakes, flooding colony sites and making them more susceptible to storm damage. Burgeoning

gull and cormorant populations threaten the long term viability of existing colonies. Increased boat traffic and disturbance are also potential threats.

Given the relatively few colony sites and their susceptibility to disturbance and vandalism, the retention of a vulnerable designation would be appropriate.

Résumé

La Sterne caspienne a été désignée rare, puis vulnérable par le COSEPAC en 1978. À ce moment-là, on se préoccupait des effets des contaminants environnementaux. Aucune donnée précise n'indiquait de répercussions sur l'espèce même si les oiseaux étaient aussi gravement contaminés que les autres oiseaux piscivores. Bien que la population ait été évaluée à environ 5 000 couples et qu'aucune donnée à long terme ne permettait d'établir une tendance de la population, cette espèce d'oiseaux hautement coloniale nichait dans seulement 20 colonies connues, ces dernières étant très vulnérables aux perturbations.

À Terre-Neuve, la population demeure à peu près la même, la seule colonie principale de l'espèce comptant environ 50 couples. Au Québec, il n'y a également qu'une colonie constante où on attend, chaque année, de 15 à 25 couples. Les Grands Lacs abritent environ un tiers de la population de l'Amérique du Nord, et les chiffres ont triplé à cet endroit depuis le début des années 1960. En Ontario, on attend de 3 100 à 3 200 couples, mais ceux-ci ne nichent que dans 11 colonies.

Bien qu'aucune enquête systématique ne soit menée, il semblerait que près des deux tiers de la population canadienne de Sternes caspiennes se trouvent dans le Sud du Manitoba. On estime que la population compte entre 7 000 et 10 000 couples, une augmentation importante par rapport aux 300 couples évalués à la fin des années 1970. On remarque au moins 37 colonies d'importance et quelques colonies plus petites.

En Saskatchewan, on ne connaît que deux colonies comptant environ 200 couples, mais des sites supplémentaires seraient probablement découverts si des enquêtes étaient disponibles pour un plus grand nombre de lacs. En Alberta, on connaît six colonies, mais la plus importante n'abrite que 100 couples. Tout récemment, la Sterne caspienne s'est étendue jusque dans le Sud de la Colombie-Britannique mais, à ce jour, seuls quelques oiseaux y nichent. Dans les Territoires du Nord-Ouest, plus de 200 sites se trouvent sur des îles du Grand lac des Esclaves, mais la plupart ne comptent qu'un seul couple, la plus grande colonie n'étant constituée que de 110 couples. Il existe également une colonie assez importante dans la région de la baie James qui n'a pas encore été recensée de façon précise.

Quant aux chiffres globaux, la population canadienne de Sternes caspiennes se porte bien, avec des augmentations importantes et une population totale approchant probablement 14 000 couples. Les niveaux actuels de contaminants environnementaux ne semblent pas avoir d'incidence importante sur la reproduction.

La principale préoccupation demeure le nombre relativement peu élevé de colonies et leur vulnérabilité aux perturbations. La plupart des provinces n'ont que quelques colonies. Les colonies de qualité sont rares, du moins dans les Grands Lacs. Dans le Sud du Manitoba et de l'Ontario, où réside la plus grande partie de la population, une animosité considérable est démontrée envers les oiseaux piscivores. Dans ce pays, il y a une longue histoire de raids lancés contre des colonies en vue de détruire les oiseaux et leurs œufs ou encore de faire la collecte des œufs et de tuer les oiseaux pour se nourrir. Dans de nombreux lacs, les niveaux d'eau maintenus élevés de façon artificielle inondent les colonies et les rendent très vulnérables aux dégâts causés par les tempêtes. Les populations croissantes de mouettes et de cormorans menacent la viabilité à long terme des colonies existantes. Le trafic maritime accru et les perturbations entraînées par les bateaux représentent également des menaces éventuelles.

Étant donné le nombre relativement peu élevé de colonies et leur vulnérabilité aux perturbations et au vandalisme, il serait approprié que l'espèce garde la désignation vulnérable.

Introduction

The Caspian Tern was considered by COSEWIC in 1978 (Martin 1978). It has a very unusual distribution, being found on all continents except South America and Antarctica, yet its range is highly disjunct within and between continents. In Canada there was one main small colony in Newfoundland, one small colony in Quebec, the bulk of the population was found in the Great Lakes and larger lakes of Manitoba, and one colony in each of Saskatchewan, Alberta, and the Northwest Territories.

There was insufficient long term data to establish population trends, although the population at that time was estimated to be in the order of 5000 pairs. These birds are highly colonial for the most part, nesting in relatively few large colonies. Most of the Canadian population was found in only about 20 colonies. These were considered highly susceptible to human disturbance, and competition from burgeoning gull and cormorant populations.

Suitable nesting islands near good food sources were relatively rare. There was also concern at that time about pesticide contamination that was linked to low reproductive success in other fish eating birds. There was insufficient data on Caspian Terns to be conclusive with respect to effects, although birds and eggs were as heavily contaminated as other gulls and terns. As a result of these concerns, the Caspian Tern was designated Rare, now vulnerable, in 1978.

Population Size and Trend

The North American population of Caspian Terns has been increasing in recent years. Although not ideally suited to this species, the Breeding Bird Survey data from 1966 to 1993 indicated a significant increase of 85.9% (based on 123 routes) with the analysis from 1984 to 1993 also showing a non-significant increase of 55.5% (on 88 routes) (Price *et al.* 1995).

In Newfoundland, Caspian Terns have always been somewhat ephemeral, although records date back to the early part of this century. In 1978 there were estimated to be slightly more than 100 pairs at 3 sites (Martin 1978). The Atlantic Region Tern Management Plan (Canadian Wildlife Service 1991) also indicates only three known sites and only a relatively few pairs. More recently the largest colony is believed to be about 30 pairs in the eastern part of the province and perhaps another 20 pairs scattered elsewhere (W. Montevecchi, pers. comm. 1998).

Caspian Terns are essentially unknown as nesters in the Maritimes (Martin 1978, Canadian Wildlife Service 1991) and no records of breeding were recorded during the 1986 to 1990 breeding bird atlas program (Erskine 1992).

In Quebec there is only one nesting site that is consistently occupied, at Ile a la Brume, a migratory bird sanctuary on the lower north shore. The population there was about 200 pairs at the end of the previous century and declined to none by 1993. However, a few have returned, and in 1995 there were 14 active nests (Chapdelaine 1996). The number is variable from year to year, but the Quebec population is expected to be between 15 and 25 pairs each year (G. Chapdelaine, pers. comm. 1998).

In Ontario, the majority of Caspian Terns nest on islands in Lake Huron and Lake Ontario where there are 11 main colonies known. Although the population there has tripled since the early 1960s, the number of colonies with significant numbers of terns remains about the same. The total numbers nesting in these lakes is about 3100 pairs (Neuman and Blokpoel 1997). There are a number of other sites about the province where a very few pairs have tried to nest, but none is large, or persistent. The total provincial population may be in the order of 3100 to 3200 pairs today.

Numbers of Caspian Terns in the United States waters of the Great Lakes have also increased during the same time period and by about the same extent. The total Great Lakes population of about 6500 pairs is believed to be at least one third of the entire North American population (Neuman and Blokpoel 1997).

In Manitoba, there is no program to monitor colonies, and observations are opportunistic. Some nesting may even go undetected as the terns nest later than gulls, pelicans and cormorants that may be surveyed earlier (Koonz, *in litt.* 1998). Since terns may move between colonies from year to year, counts obtained over a period of years cannot just be summed. Martin (1978) estimated just in excess of 3000 pairs at 13 different sites known at that time. Today colonies are known from at least 37 different sites ranging in size from as few as one to as many as 4000 pairs. There are at least four additional sites with evidence of nesting, and with more than 500 islands identified as nesting sites for colonial waterbirds, there may be others (W. Koonz, in litt. 1998).

In Saskatchewan, only one colony of about 100 pairs was known in 1978. That colony is about the same size today and another colony as large or larger is known. In 1997 there were no nests found at the second site at the time it was checked, but 300 or more adult terns were nearby. There have been no systematic surveys in the province and it is quite likely that other sites may be found if a search were made, particularly in larger northern lakes (E. Wiltse, pers. comm. 1998).

In Alberta only one site was known, with fewer than 50 pairs (Martin 1978). Recent data from the Natural Heritage Information centre indicates six locations, but all are small, the largest being about 75 to 100 pairs. Total population is not likely much above 100 pairs.

In British Columbia, breeding was first documented on the southwest mainland coast in 1984 following increases in numbers and expansion up the west coast of North America in the 1960's and 1970's. Only a couple nestings were known (Campbell *et al.* 1990). More recently, 3 additional breeding sites have been reported from Fraser Lake and Shuswap Lake in the B.C. interior and from the lower mainland coast (W. Campbell, pers. comm. 1998). It seems likely that it will continue to increase in future.

The Northwest Territories harbours the northernmost breeding population on this continent on the islands in Great Slave Lake. They were recorded there as long ago as 1860, but only in recent years have surveys been undertaken. Martin (1987) noted only 3 pairs, but surveys between 1986 and 1995 found the species fairly common, with 236 nests spread over 62 sites. Only one pair was located at most sites and the largest colony, at 110 pairs, contained nearly half the population (Sirois *et al.* 1995). Nesting was suspected at another 19 sites and there may be considerable movement of birds from place to place from year to year. However, they do not appear to use any lakes inland from Great Slave Lake. The population is unlikely to be much higher that the above counts.

There is also a colony in Akimiski Strait in James Bay, more closely associated with Ontario. As many as several hundred pairs may nest there (Wilson and McRae 1993).

Table 1. Summary of estimates of Caspian Terns and their colony numbers in Canada.

	Pairs	Colonies
Newfoundland	50	1 main
Maritimes	--	
Quebec	15 - 25	1 main
Ontario	3100 - 3200	11 large
Manitoba	7000 - 10,000	ca 30 large
Saskatchewan	200	2 main
Alberta	100	1 main
British Columbia	30 - 35	1 main, 2 tiny
Northwest Territories	500	2 or 3 large, many tiny

Habitat

Caspian Terns are typically colonial, nesting on islands in larger bodies of water. Nesting islands are usually well offshore, but islands near shore may be used if undisturbed. They have also been known to nest on peninsulas, although in such situations the colonies tend not to persist long - ie. Tommy Thompson

Park off Toronto is now abandoned (Neuman and Blokpoel 1997) as is a sand spit in southern Lake Winnipeg (Koonz and Rakowski 1985).

Islands must have little or no vegetation cover, with sand or gravel for nest substrate, as well as the presence of a reliable source of food in surrounding waters. In the lower Great Lakes, suitable, uninhabited islands are scarce (Neuman and Blokpoel 1997). With more than 500 sites supporting some colonial birds the number of potential sites in Manitoba would appear to be more than adequate at present. However, it remains unclear just how many islands would actually be useable. In the Northwest Territories, in Great Slave Lake, there are obviously plenty of sites, but at that latitude the population may never become very large.

Caspian Terns are larger than other terns and can maintain territories to the exclusion of those birds. But, although Ring-billed Gulls are also smaller, they are earlier nesters, are more aggressive, often very numerous, and have usurped nesting space from Caspian Terns (Neuman and Blokpoel 1997). They face competition for space from burgeoning populations of Double-crested Cormorant, but also to some extent from American White Pelican, Herring Gull, California Gull, and Glaucous-winged Gull. The presence of numerous gulls, some of which are almost always associated with Caspian Tern colonies, add huge quantities of feces to the ground. This stimulates plant growth that may eventually limit the usefulness of an island nesting site for the terns.

Caspian Terns are also very sensitive to disturbance from people visiting the colonies. With increased boat traffic and accessibility to islands, vulnerability to disturbance remains high. Colonies may be abandoned as a result of human intrusion (Koonz and Rakowski 1985). There is also considerable animosity from fishermen directed toward Double-crested Cormorants and raids to destroy cormorants could inadvertently have serious consequences for the terns. Outright destruction of the terns and their eggs has been a problem at times (Koonz 1982). There are continuing calls for cormorant control (W. Koonz, pers. comm., Weseloh and Collier 1995) and disturbance, including destruction to colonies has been high in some areas at least (McMahon and Koonz 1991).

Toxic chemical contaminants in the waters and food of Caspian Terns were an important threat in the 1960s and 1970s (Martin 1978). The Great Lakes populations are as likely to be subject to pesticides and industrial effluents as any in Canada (Struger and Weseloh 1985), but current levels of contaminants do not appear to be affecting reproductive rates (Ewins *et al.* 1994, Neuman and Blokpoel 1997). There is concern that sub-lethal effects of persistant and still present contaminants could be having some undetected effects (Neuman and Blokpoel 1997). Contaminants are also present in sediments and may locally have disastrous effects in unusual circumstances (Ludwig *et al.* 1993).

Persistent high water levels on the Great Lakes and on Lake Winnipeg have also contributed to abandonment of colonies and loss of nesting areas. Low-lying islands have been partly flooded and have become more subject to damage by storm generated waves (Neuman and Blokpoel 1997, W. Koonz, pers. comm.).

Although it is possible to create nesting habitat that would be readily accepted by Caspian Terns (Neuman and Blokpoel 1997). it would require annual management to maintain such areas in use. This is probably practical only in a few areas close to urban centres.

Evaluation and Proposed Status

Caspian Terns nest across Canada in most provinces and territories, but they are largely concentrated into two areas, the Great Lakes and southern Manitoba. The Great Lakes are believed to host about one-third of the entire North American population when those in U. S. waters are included. Lakes Huron and Ontario have about 3100 pairs or somewhat fewer than half the Great Lakes poopulation. (Neuman and Blokpoel 1997). Southern Manitoba, mainly on Lakes Winnipeg and Winnipegosis, hosts about two-thirds of the entire Canadian population with numbers probably now approaching 10,000 pairs (W. Koonz, in litt. 1998). Other provinces and territories have few colonies or birds present by comparison (Table 1). The total number of Caspian Tern pairs in Canada would appear to be nearly three times the estimate provided by Martin in 1978.

The Great Lakes population has been subject to some of the highest levels and widest range of environmental contaminants anywhere in North America during the past 30 years (Struger and Weseloh 1985). However, current levels of contaminants do not appear to be having an effect on clutch size, hatching success, or overall reproductive output (Neuman and Blokpoel 1997). Populations in the Great Lakes and elsewhere across the country are on the increase. In terms of overall numbers and trends, there is little reason to be concerned about Caspian Terns at present.

However, in the Canadian Great Lakes area, almost all Caspian Terns occupy only 11 sites. Preferred nesting sites are scarce. Nesting space on these islands has been reduced through competition with burgeoning gull and cormorant populations and encroaching vegetation encouraged by the presence of the more numerous gulls (Neuman and Blokpoel 1997).

In southern Manitoba, most Caspian Terns are found on about 35 sites and there would appear to be numerous alternate sites available should conditions deteriorate on existing colony sites. Caspians will move readily to establish new colonies if they are available (Neuman and Blokpoel 1997). But,

there is increased disturbance to colonial birds with increased boat traffic and considerable animosity directed particularly at cormorants, but even the terns themselves (W. Koonz, Pers. Comm.). Destruction of colonies is a distinct and ongoing probability there and in Ontario.

In the other provinces, there are relatively few sites and/or small colonies where they do occur. Only in the Northwest Territories does there appear to be plenty of nesting sites, and a situation where they are likely to be relatively undisturbed. But, even in the typically remote offshore islands chosen by Caspian Terns, there is a long history of destruction by those who shoot birds or remove eggs for food, shoot them for curiosity, or wantonly kill them as perceived competitors for fish (Martin 1978). Those threats have not been eliminated.

Given the relatively few colony sites occupied by this species, and the susceptibility of those sites to disturbance, it would be appropriate if COSEWIC retained the Vulnerable designation for Caspian Tern.

Acknowledgements

Thanks to Colleen Hyslop for the opportunity to prepare this report and to the Canadian Wildlife Service, Environment Canada, for funding. Many people were helpful in providing information and personal comments including: W. Montevecchi and J. Brazil, Newfoundland, G. Chapdelaine, Quebec, R Harris, Ontario; W. Koonz and F. Blouin, Manitoba, E. Wiltse and J. Keith, Saskatchewan, W. Nordstrom, Alberta.

Thanks also to numerous unnamed volunteers across the country that make contributions to, and the organizations that support, breeding bird atlases, conservation data centres, nest records schemes, breeding bird surveysand similar programs.

Knowledgeable Persons

Hans Blokpoel, Environment Canada, CWS Ontario Region, 49 Camelot Drive, Nepean, ON. K1A 0H3 (613) 952-2410

Wayne Campbell, B.C. Ministry of Environment, Lands and Parks, Wildlife Branch, P.O. Box 3974 STN PROV GOV., Victoria, B.C.
V8W 9M4 (250) 356-1376

Gilles Chapdelaine, Environment Canada, SCF Region du Quebec, 1141, route de l'Eglise, C.P. 10 100, Ste-Foy, PQ. G1V 4H5 (418) 649-6127

Bill Koonze, Manitoba Dept. of Natural Resources, Wildlife Branch, Box 24, 200 Saulteau Crescent, Winnipeg, MB. R3T 3W3. (204) 945-6811

Bill Montevecchi, Ocean Sciences Centre, Memorial University of Newfoundland, St. John's, NF. A1B 3X9 (709) 737-7673

Wayne Nordstrom, Alberta Natural Heritage Information Centre, Alberta Environmenntal Protection, 2nd Floor, Oxbridge Place, 9820 - 106 Street, Edmonton, AB. T5K 2J9 (403) 427-5209

Jacques Sirois, Environment Canada, CWS Prairies and Northwest Territories Region, 9th floor, Bellanca Bldg., P.O. Box 637. Yellowknife, NT. X1A 2N5

Chip Weseloh, Environment Canada, CWS Ontario Region, Canada Centre for Inland Waters, P.O. Box 5050, Burlington, ON. L7R 4A6
(905) 336-4968

Earle Wiltse, Wildlife Branch, Dept. of Environment and Resource Management, Government of Saskatchewan, 3211 Albert Street, Regina, SK. S4S 5W6.
(306) 787-2892.

Literature Cited

Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990. The birds of British Columbia. Volume 1. Royal British Columbia Museum and Canadian Wildlife Service.

Canadian Wildlife Service. 1991. Atlantic Region tern management plan. C.W.S., Atlantic Region, Halifax.

Chapdelaine, G. 1996. Caspian Tern. In Gauthier, J, and Y. Aubry, eds. The breeding birds of f Quebec: atlas of the breeding birds of southern Quebec. Association quebecoise des groupes d'ornithologues, Province of Quebec Society for the Protection of Birds, Canadian Wildlife Service, Environment Canada, Quebec Region, Montreal. Pp. 530-531.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime provinces. Nimbus Publishing and the Nova Scotia Museum, Halifax.

Ewins, P.J., D.V. Weseloh, R.J. Nordstrom, K. Legierse, H.J. Auman, and J.P. Ludwig. 1994. Caspian Terns on the Great Lakes: organochlorine contamination, reproduction, diet, and population changes, 1972-1991. Occasional Papers No. 85. Canadian Wildlife Service, Ottawa, Ontario.

Koonz, W.H. 1982. Vandalism in a Manitoba Caspian Tern colony. Blue Jay 40:48-49.

Koonz, W. H. and P.W. Rakowski. 1985. Status of colonial waterbirds nesting in southern Manitoba. Canadian Field-Naturalist 99:19-29.

Ludwig, J.P., H.J. Auman, H. Kurita, M.E. Ludwig, L.M. Campbell, J.P. Giesy, D.E. Tillitt, P. Jones, N. Yamashita, S. Tanabe, and R. Tatsukawa. 1993. Caspian Tern reproduction in the Saginaw Bay ecosystem following a 100-year flood event. J. Great Lakes Research 19:96-108.

Martin, M. 1978. Status report on Caspian Tern Sterna caspia in Canada. COSEWIC, Ottawa.

McMahon, B. and W. Koonz. 1991. Abundance and reproductive success of colonial waterbirds on Lake Winnipegosis, 1987-1989. Manitoba Natural Resources, Manuscript Report 91 - 02.

Neuman, J. and H. Blokpoel. 1997. The terns of the Canadian Great Lakes. Canadian Wildlife Service, Great Lakes Fact Sheet.

Price, J., S. Droege, and A. Price. 1995. The summer atlas of North American birds. Academic Press, New York.

Sirois, J., M.A. Fournier, and F.M. Kay. 1995. The colonial waterbirds of Great Slave Lake, Northwest Territories: an annotated atlas. Canadian Wildlife Service, Occasional Paper 89.

Struger, J. and D.V. Weseloh. 1985. Great Lakes Caspian Terns: e

Weseloh, D.V. and B. Collier. 1995. The rise of the Double-crested Cormorant on the Great Lakes: winning the war against contaminants. Canadian Wildlife Service, Great Lakes Fact Sheet.

Wilson, N.C. and R.D. McRae. 1993. Seasonal and geographical distribution of birds for selected sites in Ontario's Hudson Bay Lowland. Ontario Ministry of Natural Resources.

BIOGRAPHICAL SUMMARY OF AUTHOR

Ross James is a Departmental Associate and former Curator of Ornithology at the Royal Ontario Museum in Toronto, Ontario. He studied the foraging behaviour of vireos in southern Ontario, and the ecological and behavioural relationships of Blue-headed and Yellow-throated Vireos for masters and doctoral research at the University of Toronto. He has also conducted bird population studies in boreal forest and southern woodlands and wetlands. He is interested in the status and distribution of birds in Ontario, authoring an Annotated checklist of Ontario Birds, and coauthoring two volumes on the Breeding Birds of Ontario. He was a committee member for and a contributor to the Atlas of Breeding Birds of Ontario, and a coauthor of Ontario Birds at Risk. He is an author of two accounts for the Birds of North America, and has published more than 80 papers on birds. He spent more than a decade as chair and cochair of the Birds Subcommittee of COSEWIC. In this capacity he was familiar with previous status reports and the status of this species.

MANDATE

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

MEMBERSHIP

COSEWIC is comprised of representatives from each provincial and territorial government wildlife agency, four federal agencies (Canadian Wildlife Service, Parks Canada, Fisheries and Oceans, Canadian Museum of Nature), three national conservation organizations (Canadian Nature Federation, Canadian Wildlife Federation, and World Wildlife Fund Canada) and the chairs of the scientific species specialist groups. The Committee meets annually in April to consider status reports on candidate species.

DEFINITIONS

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

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

Environment Canada
Canadian Wildlife Service

Environnement Canada
Service canadien de la faune

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