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STATUS REPORT ON ENDANGERED WILDLIFE IN CANADA



Eastern cougar

COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE IN CANADA

COSEWIC

419128

INTRODUCTION

The Committee on the Status of Endangered Wildlife in Canada, COSEWIC, is an organization of specialists from federal agencies, all provincial and territorial governments, and from nationally-based private conservation organizations. The Committee considers the best available information on wild species and subspecies whose survival in Canada may be in doubt. COSEWIC's job is threefold:

- to decide which species do not have a secure future in Canada,
- to agree on a category which best describes their situation,
- to publish the information on which this decision has been made.

COSEWIC does not act to remove adverse factors affecting wildlife; that is the responsibility of the agency which has legal jurisdiction over the species, under Canadian law.

Status Reports are the complete texts of scientific manuscripts used by Committee members in arriving at their decisions. They are available at cost-plus-handling from:

Canadian Nature Federation
75 Albert Street
Ottawa, Ontario
K1P 6G1

Summary Sheets are single pages of general information summarizing species classed as either "threatened" or "endangered". They are easily reproduced on photocopy machines and this is encouraged so that teachers and others may quickly produce copies for local needs. Summary sheets are free and may be obtained from provincial, territorial and federal wildlife agencies, and from nationally-based private conservation agencies. A central source where quantities may be obtained at cost is:

Canadian Wildlife Federation
1673 Carling Avenue
Ottawa, Ontario
K2A 1C4

The COSEWIC list reflects only those species which have been considered to date.

COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA

- C O S E W I C -

LIST OF SPECIES WITH DESIGNATED STATUS AS OF APRIL 1982

*N.I.A.C. = NOT IN ANY CATEGORY

<u>BIRDS</u>		<u>MAMMALS</u>	
<u>Species</u>	<u>Status</u>	<u>Species</u>	<u>Status</u>
White Pelican	THREATENED	Eastern Mole	RARE
Double-crested Cormorant	N.I.A.C.	Vancouver Island Marmot	ENDANGERED
Trumpeter Swan	RARE	Black-Tailed Prairie Dog	RARE
Ferruginous Hawk	THREATENED	Fox Squirrel	N.I.A.C.
Gyr Falcon	N.I.A.C.	Pocket Gopher	RARE
Peregrine Falcon:		Right Whale	ENDANGERED
<u>pealei</u>	RARE	Bowhead Whale	ENDANGERED
<u>tundrius</u>	THREATENED	Swift Fox	EXTIRPATED
<u>anatum</u>	ENDANGERED	Grey Fox	RARE
Greater Prairie Chicken	ENDANGERED	Grizzly Bear	N.I.A.C.
Whooping Crane	ENDANGERED	Newfoundland Marten	N.I.A.C.
Greater Sandhill Crane	N.I.A.C.	Black-footed Ferret	EXTIRPATED
Piping Plover	THREATENED	Badger	N.I.A.C.
Eskimo Curlew	ENDANGERED	Sea Otter	ENDANGERED
Ivory Gull	RARE	Eastern Cougar	ENDANGERED
Caspian Tern	RARE	Peary Caribou	THREATENED
Burrowing Owl	THREATENED	Wood Bison	ENDANGERED
Great Gray Owl	RARE	Wolverine	RARE
Kirtland's Warbler	ENDANGERED	Long-tailed Weasel	THREATENED
Ipswich Sparrow	RARE	Humpback Whale	THREATENED
Ross' Gull	RARE		
Red-necked Grebe	N.I.A.C.		
Prairie Falcon	N.I.A.C.		
		<u>FISH</u>	
		Shortnose Sturgeon	RARE
		Speckled Dace	RARE
		Giant Stickleback	RARE
		Blueback Herring	N.I.A.C.
<u>REPTILES AND AMPHIBIANS</u>			
Leatherback turtle	ENDANGERED		
<u>PLANTS</u>			
<u>Species</u>	<u>Status</u>		
Furbish Lousewort <u>Pedicularis furbishiae</u>	ENDANGERED		
Small white lady slipper <u>Cypripedium candidum</u>	ENDANGERED		
Willow <u>Salix planifolia tyrellii</u>	THREATENED		
Thrift <u>Ameria maritima interior</u>	THREATENED		
Small whorled Pogonia <u>Isotria medeoloides</u>	ENDANGERED		

THE COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA

APPROVED DEFINITIONS

SPECIES: "Species" means any species, subspecies, or geographically separate population.

RARE SPECIES: Any indigenous species of fauna or flora that, because of its biological characteristics, or because it occurs at the fringe of its range, or for some other reason, exists in low numbers or in very restricted areas in Canada but is not a threatened species.

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 whose existence in Canada is threatened with immediate extinction through all or a significant portion of its range, owing to the action of man.

EXTIRPATED SPECIES: Any indigenous species of fauna or flora no longer existing in the wild in Canada but existing elsewhere.

EXTINCT SPECIES: Any species of fauna and flora formerly indigenous to Canada but no longer existing anywhere.

COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA

- C O S E W I C -

Status Report on
Eastern cougar
Felis concolor cougar
in Canada
1978

Prepared by G.G. van Zyll de Jong & E. van Ingen

For National Museum of Natural Sciences

Status Assigned to the Species by COSEWIC on May 2, 1978:

- ENDANGERED -

NOTES

1. This is not an official publication. It is a working document used by COSEWIC in assigning status according to criteria listed below. This report is released in its original form, in the interests of making scientific information available to the public.
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3. This report is the property of COSEWIC and the author. It may not be presented as the work of any other person or agency. When quoted as a source, following clearances noted above, both the author and COSEWIC must be credited.
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Past and present distribution of the eastern cougar is summarized. Recent sightings indicate that cougars are present in Nova Scotia, New Brunswick, Quebec and Ontario. The eastern cougar is protected by law in Nova Scotia, New Brunswick and Ontario. No reliable estimates of the number of cougars in eastern Canada exist or can be made, but numbers are probably quite low. The number of reported sightings increased in the forties and has since then levelled off or decreased slightly. Limiting factors may include low and fluctuating deer densities in the present distributional range of the eastern cougar, and human activities. However, next to nothing is known of the general biology and ecology of the cougar in eastern Canada and limiting factors cannot be identified until a field investigation is undertaken. The taxonomic status of the eastern cougar is uncertain and needs clarification.

It is recommended that a field study be initiated to confirm and document the existence of a cougar population in New Brunswick and to gather ecological information that can be used in formulating management plans. Taxonomic studies should also be undertaken in due time to assess the subspecific status of the eastern cougar.

The past and the possible present distributional range of the eastern cougar are depicted in Fig. 1 to 8. Information on distribution prior to 1971 was derived principally from Wright (1972) who reviewed the status of the animal in eastern Canada up to that time. Reported occurrences in the period 1970-1977 were gleaned from the literature and actively solicited from provincial wildlife departments and other agencies as well as from individuals (unpublished data on file in N.M.N.S.). All recent distributional data are based on sightings. Localities of extant specimens from eastern Canada and the adjacent United States have also been plotted (Fig. 8). The status and distribution of the species in North America was reviewed by Nowak (1974).

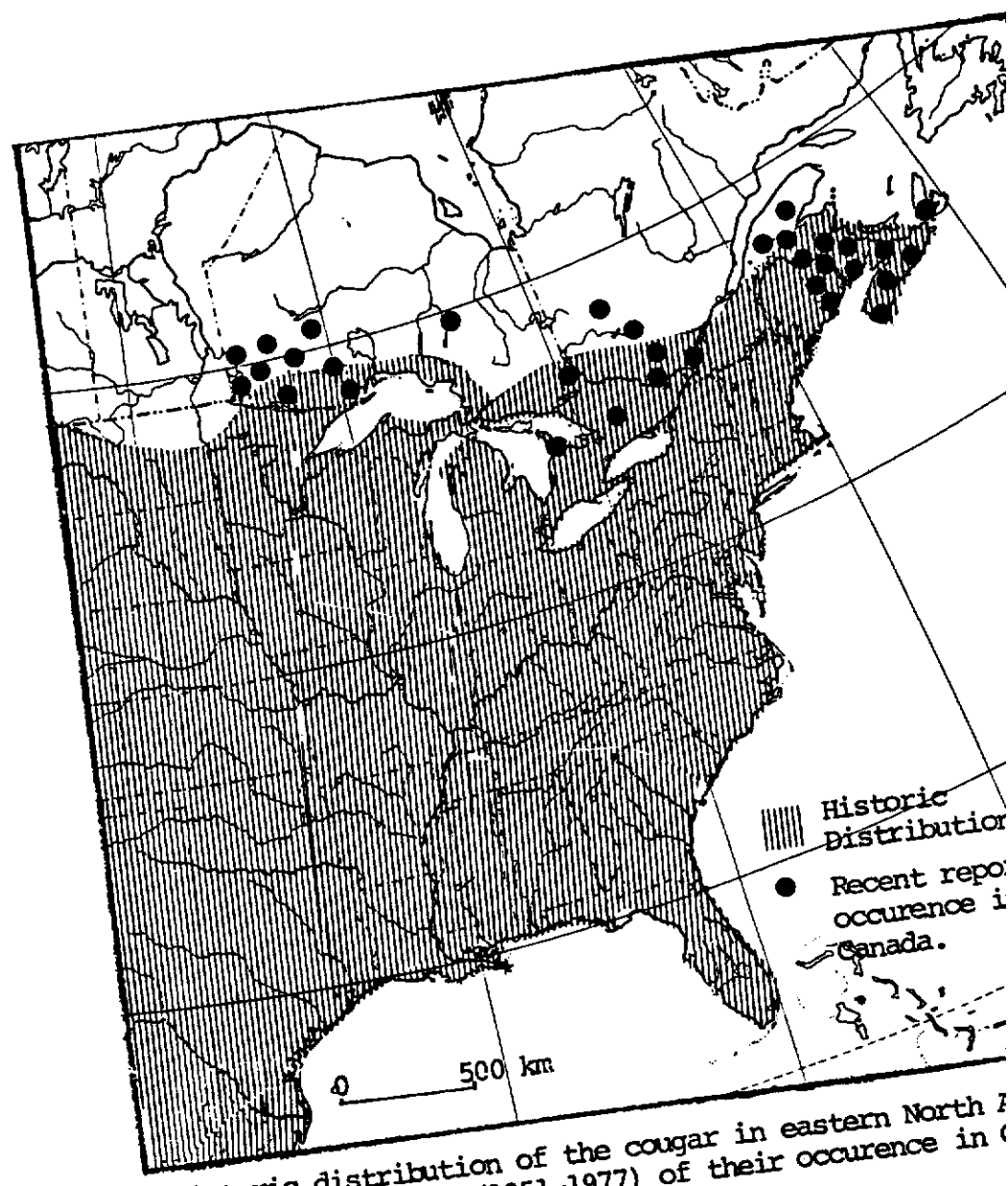
C. Protection

In Canada the eastern cougar is fully protected by law in Nova Scotia (Prime, pers. comm.), New Brunswick (Endangered Species Act 1974, Cartwright pers. comm.) and Ontario (Endangered Species Act 1971, Johnston pers. comm.). It is not protected by law in the province of Quebec (Corbeil, pers. comm.).

D. Population size and trend

There is no reliable information on the populations of eastern cougars in Canada now or in the past. Wright (1959) using a formula devised by Johnson and Couch (1954), and substituting sightings for kills, estimated the number of cougars in New Brunswick in 1953 at 33. The efficiency of the estimator is unknown, and the assumptions underlying Johnson's and Couch's equation are open to criticism as is the use of sightings, many of which could not be verified. Not much reliance can therefore be placed on Wright's estimate. The subjective impression of people familiar with the wildlife of the province is that cougars are very scarce (Gorham pers.

Handwritten scribbles and lines on the left margin, including a vertical line and some illegible characters.



Historic distribution of the cougar in eastern North America and recent reports (1951-1977) of their occurrence in Canada.

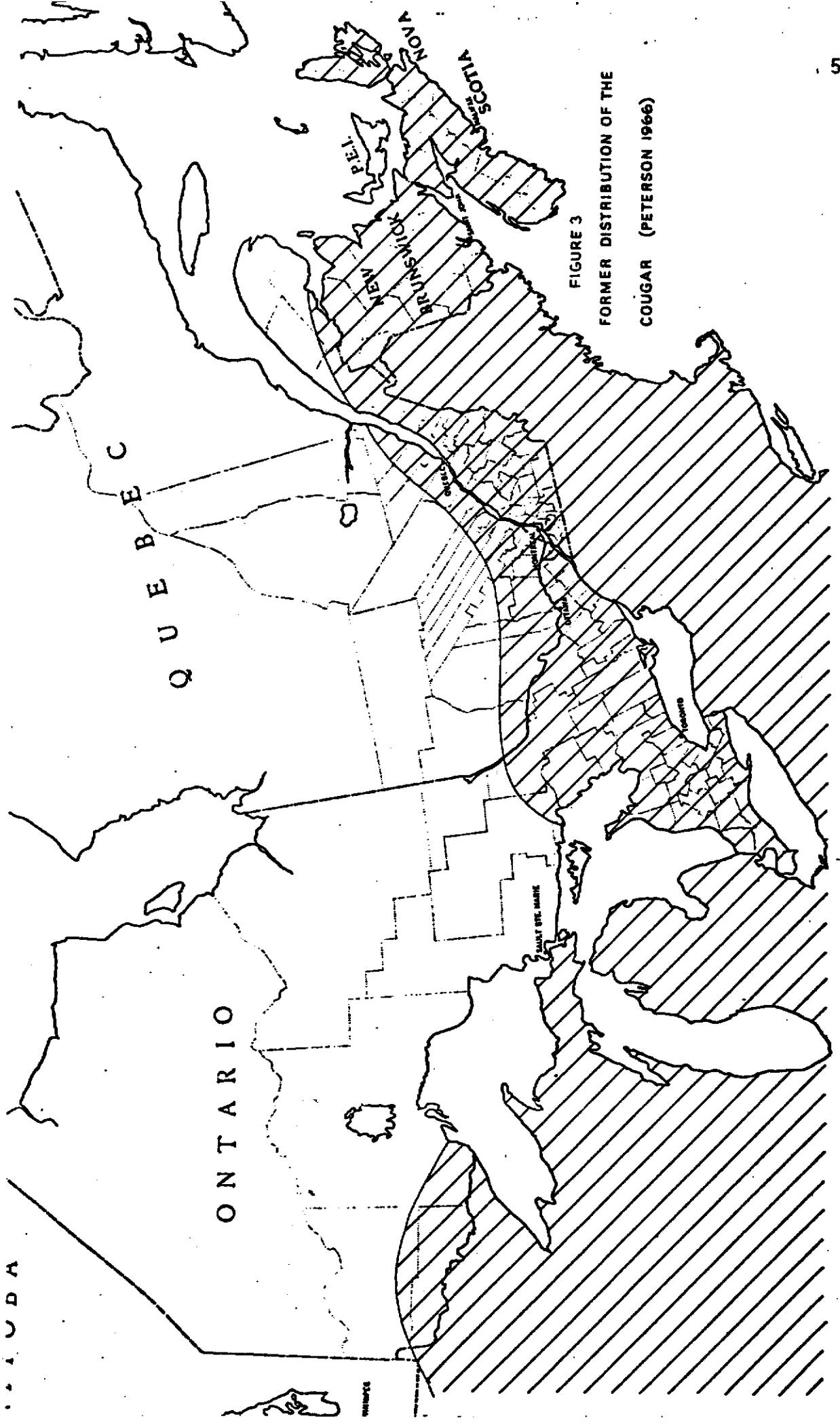


FIGURE 3
 FORMER DISTRIBUTION OF THE
 COUGAR (PETERSON 1966)

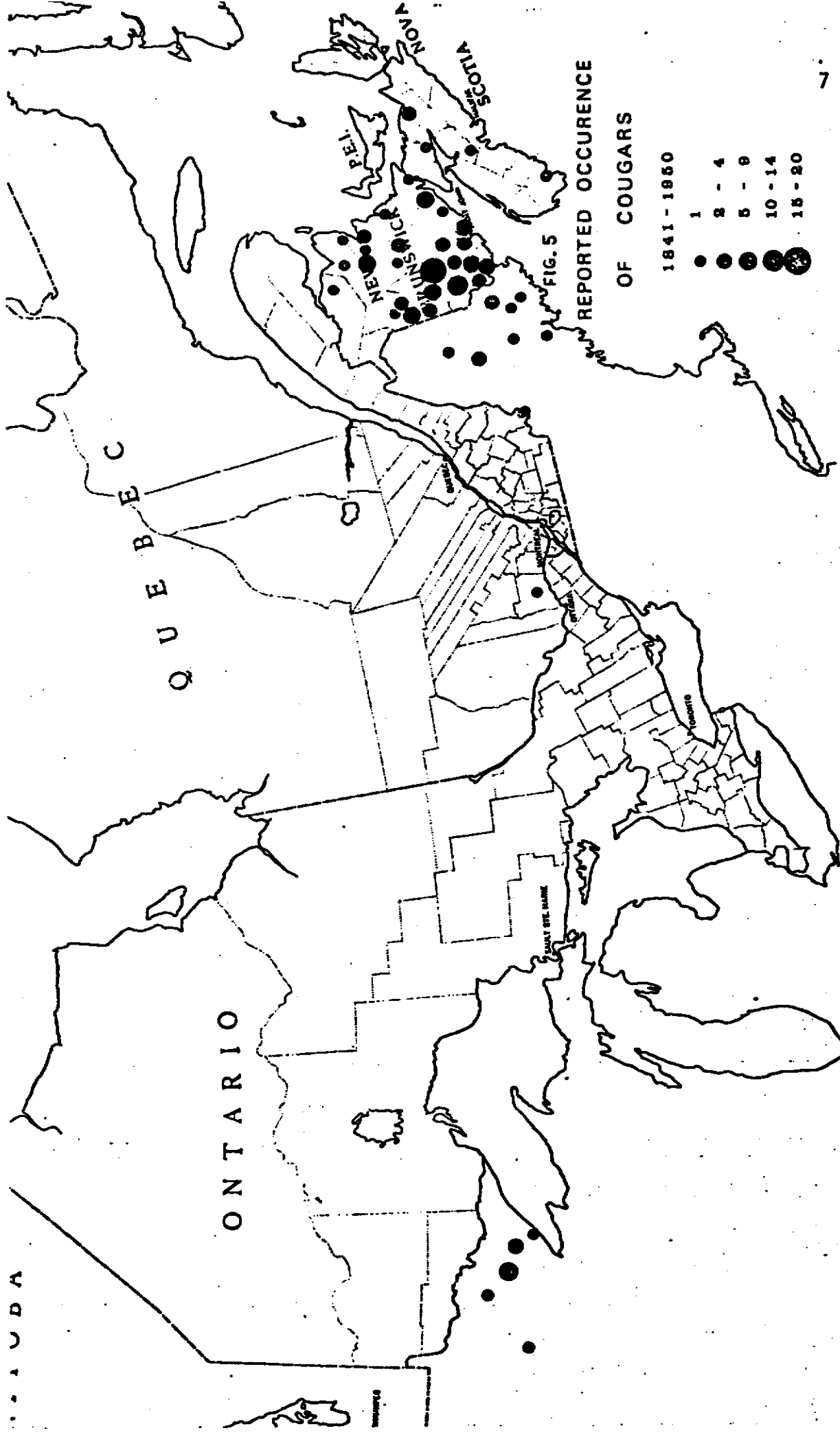


FIG. 5
REPORTED OCCURRENCE
OF COUGARS

- 1841 - 1960
- 1
 - 2 - 4
 - 5 - 9
 - 10 - 14
 - 15 - 20

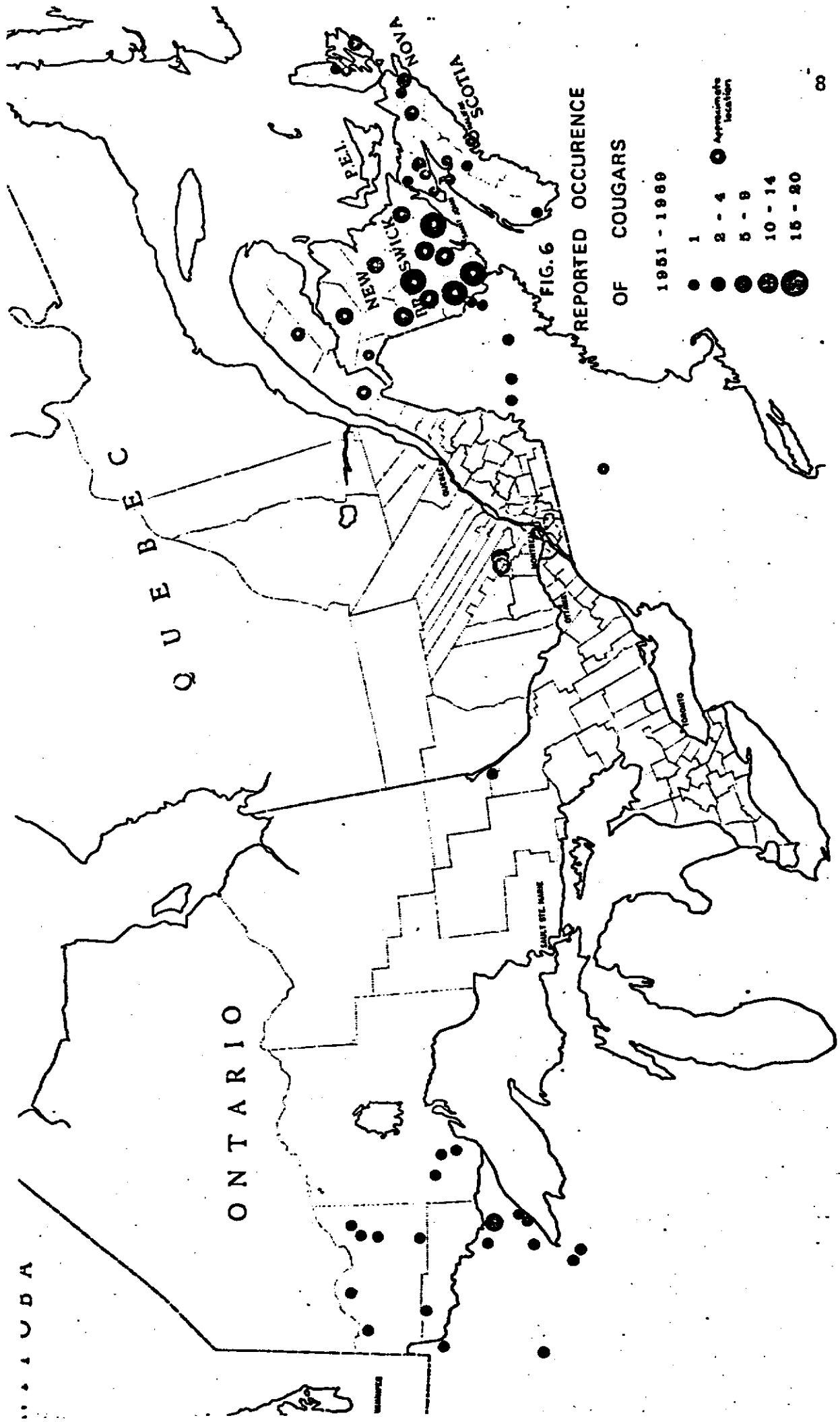
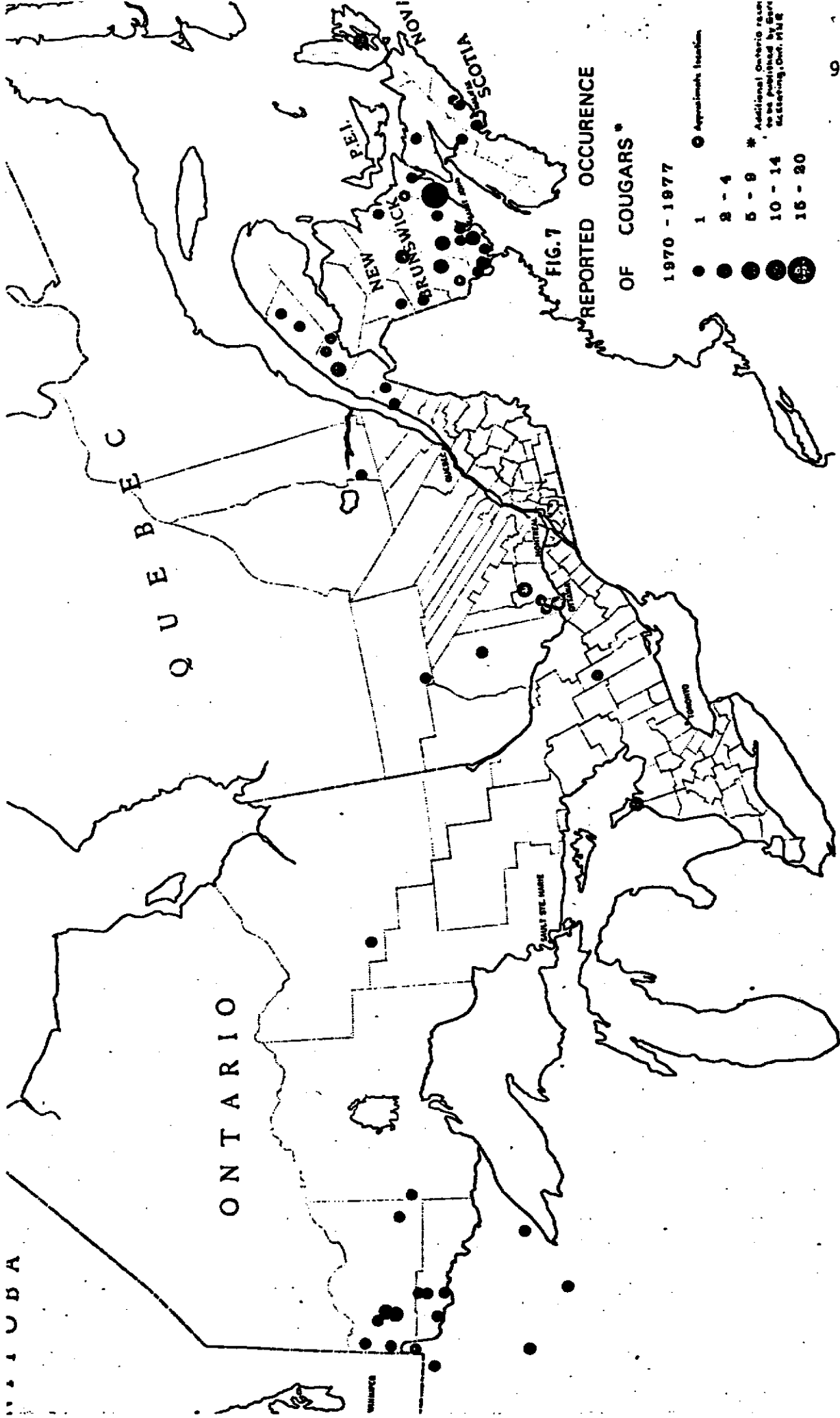


FIG. 6
REPORTED OCCURRENCE
OF COUGARS
1951 - 1989



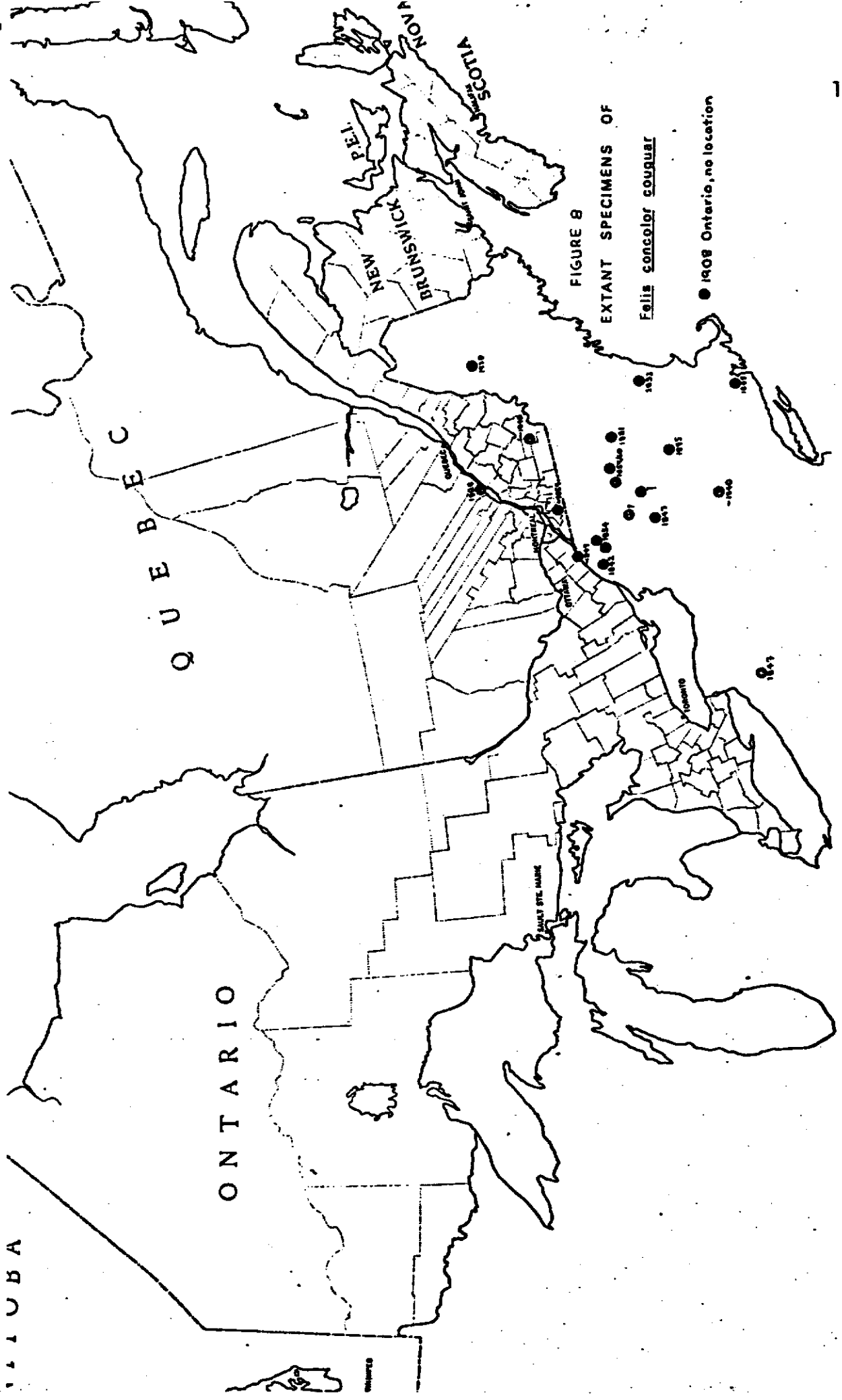


FIGURE 8
EXTANT SPECIMENS OF
Felis concolor couguar

● 1908 Ontario, no location

ONTARIO

QUEBEC

NEW BRUNSWICK

NOVA SCOTIA

PEI

ST. CATHARINES

WINDSOR

TOLEDO

DETROIT

WASHTON

PHILADELPHIA

NEW YORK

CONNECTICUT

MASSACHUSETTS

VERMONT

N.H.

R.I.

CT.

NY.

PA.

OH.

MI.

IN.

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comm.). It appears to be unrealistic at present to attempt an estimate in the absence of more reliable data.

Aside from scattered references in the literature, there is no information useful for the estimation of relative abundance of the species during the early historical period. However, it appears that its numbers were probably relatively low in view of the peripheral nature of the range in Canada and the probably relatively low ungulate densities in the then prevailing virgin forests. The last authentic specimens taken in eastern Canada would indicate that the species disappeared from the area in the latter half of the nineteenth century (Fig. 8).

The only available evidence for assessing possible current trends in abundance are reported sightings. Reported sightings have been plotted for Nova Scotia, New Brunswick and Quebec. Recent sightings for Ontario have been compiled by McKeating (pers. comm.) and these will be published by him in the near future.

The number of reported sightings remained at a low level from 1900 to the forties; there was roughly one report recorded per year (maximum 4 in 1939). This was followed by a marked increase reaching an all time high in 1948. (Fig. 9). To what extent this increase is an artifact of Wright's interest in the cougar, and the accompanying publicity, which began around this time, cannot be ascertained. However, if we accept the evidence at face value, it appears that the population existed at a very low level during the first forty years of this century and then increased markedly. During the last thirty years, numbers appear to have remained relatively stable or have decreased slightly.

E. Habitat

Habitat itself does not appear to be a critical factor. We may

FREQUENCY OF REPORTED COUGAR SIGHTINGS
1940 - 1977

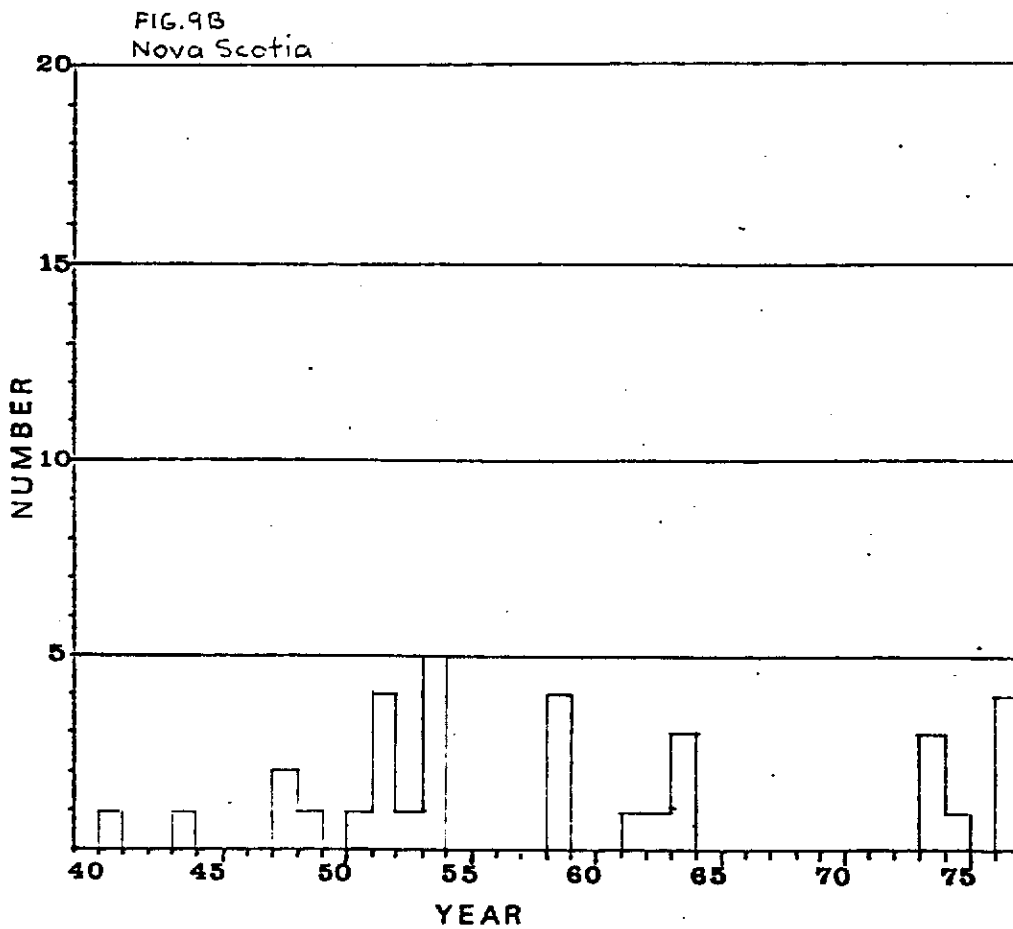
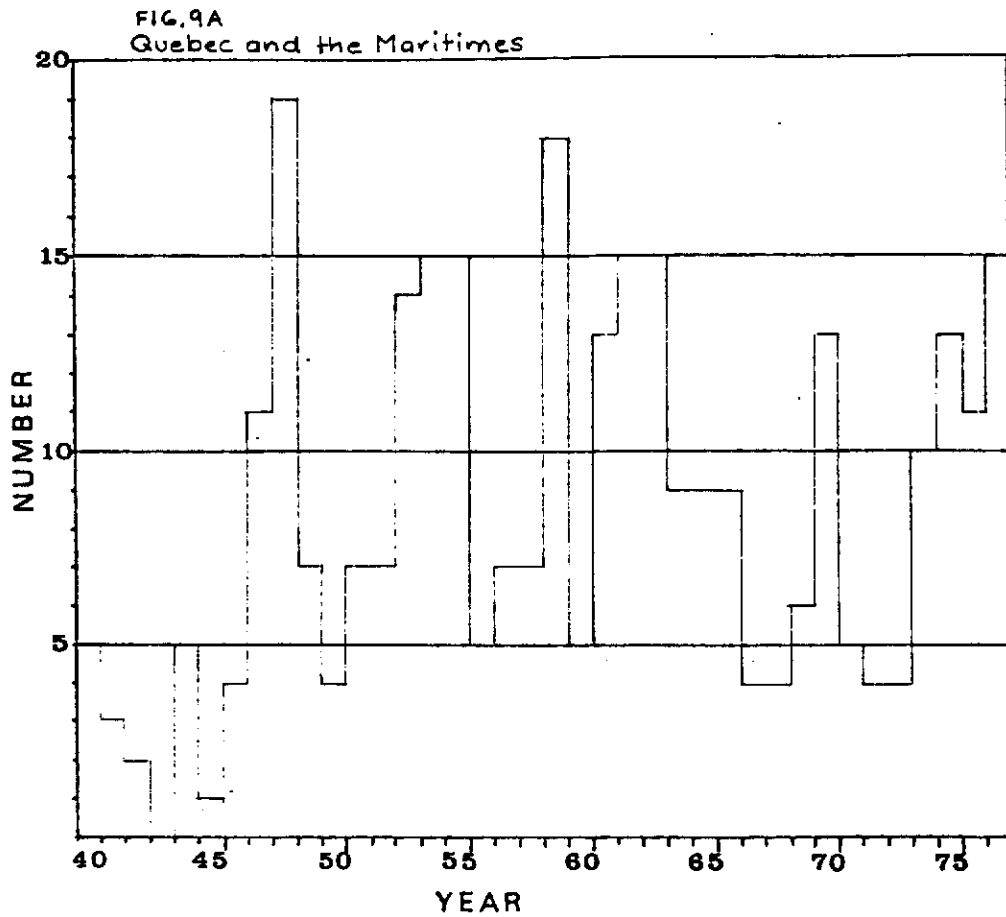


FIG. 9C
New Brunswick

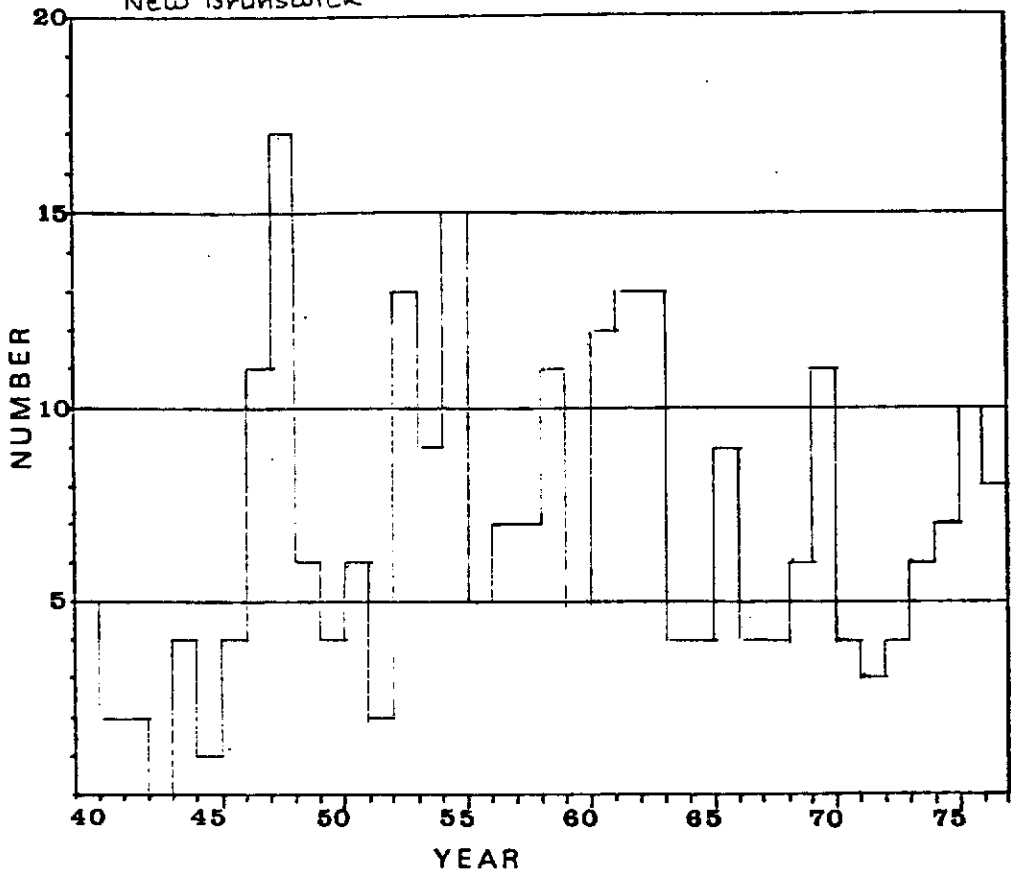
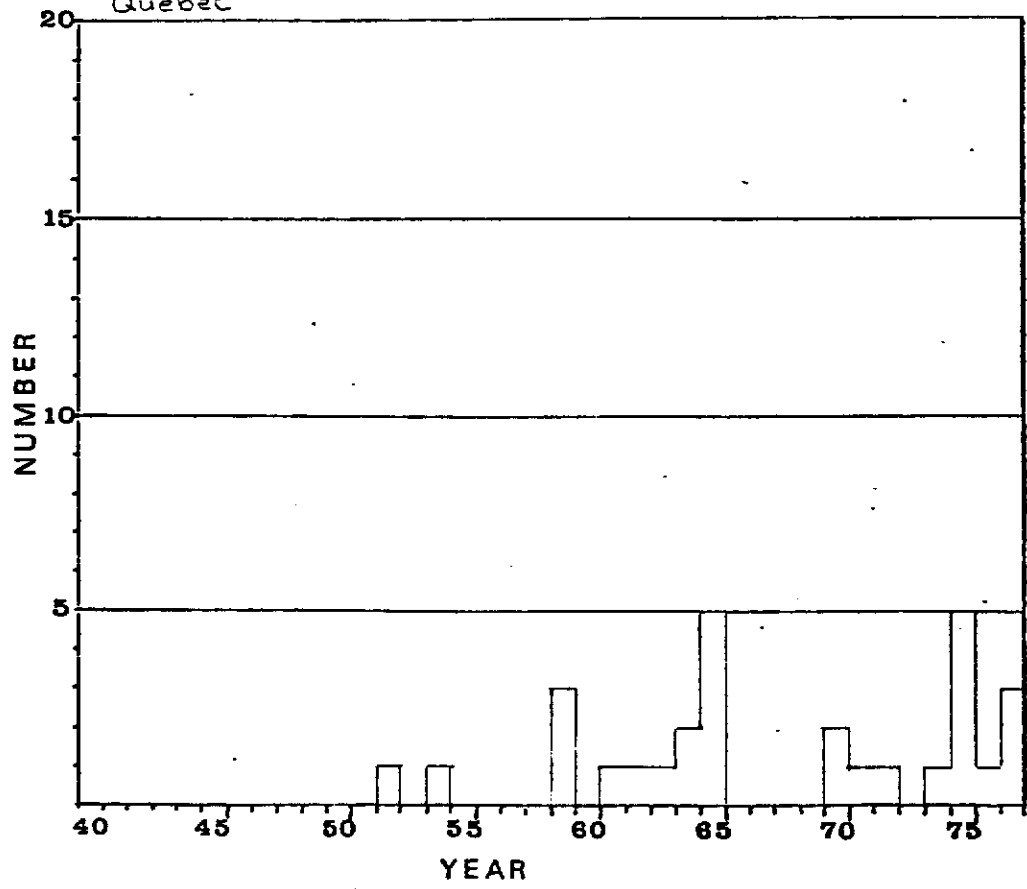


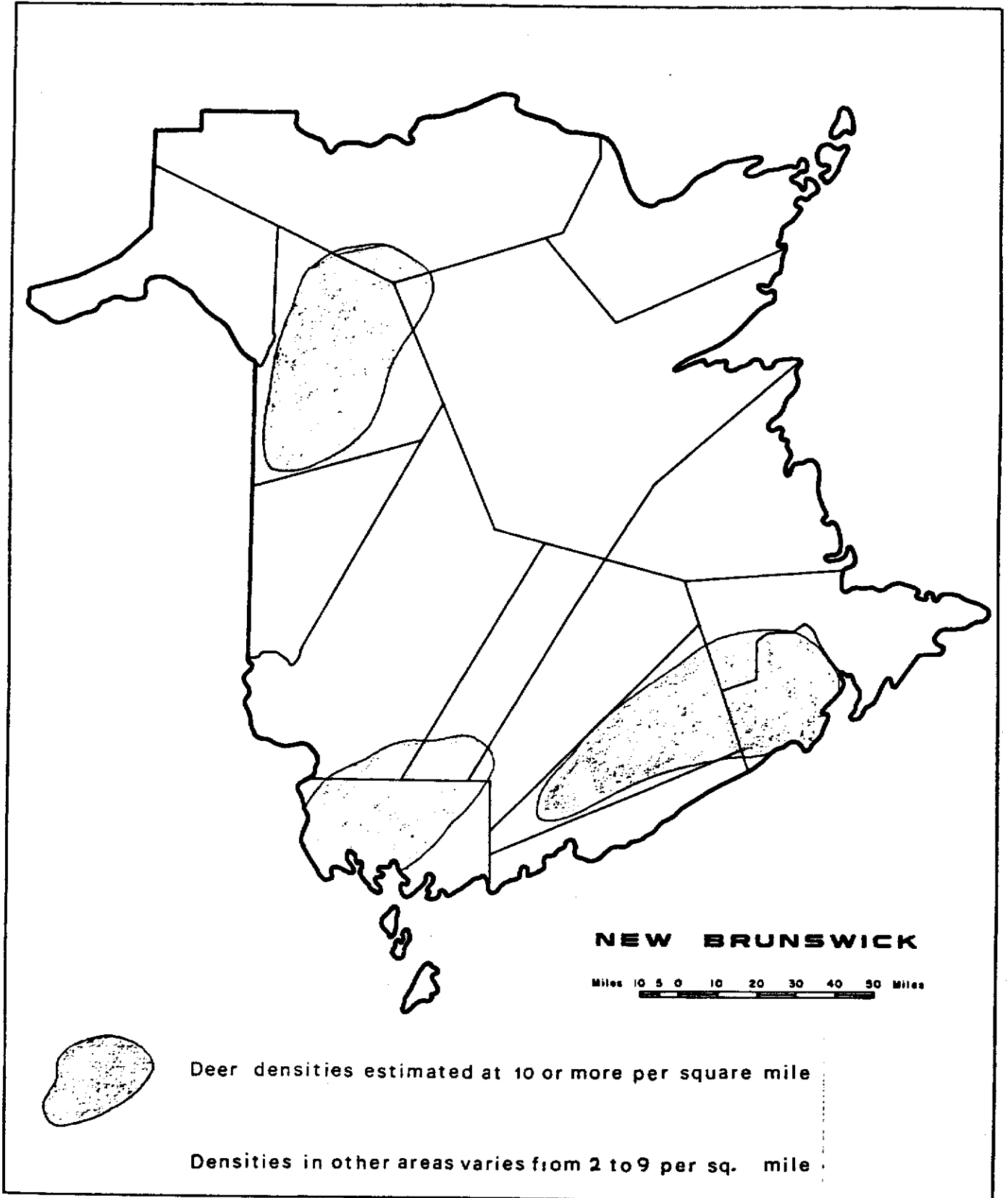
FIG. 9D
Quebec



assume on the basis of what is known of the species elsewhere, that the two most important factors affecting the distribution and abundance of cougars in eastern Canada are the density of prey and human populations.

The minimum prey density needed to sustain a viable population of cougars is not known. There is an inverse relationship between the size of cougar winter areas and ungulate densities in the western part of its range. (Hornocker 1970). At a prey density of 7 to 8 cervids per square mile winter areas may be as large as 80 or 90 square miles. At densities between 10-12 cervids per square mile, the winter area of a cougar may be as small as 12 square miles. It is conceivable that at prey densities below 5 deer per square mile the conditions for reproduction and survival of the cougar deteriorate. The province of New Brunswick, with the largest presumed population of eastern cougars, has much lower ungulate densities than central Idaho where Hornocker conducted his investigations. Only about 23% of the province has deer densities comparable to the ungulate densities found in Idaho which support maximal and stable cougar populations (Hornocker 1970). A total area of approximately 5000 square miles in New Brunswick (Fig. 10) is estimated to have deer densities of 10 or more deer per square miles (Boer. pers. comm.). Other areas have densities below this going as low 2 deer per square mile. The most favorable areas of New Brunswick may support a combined population of 50,000 deer. Based on known predator-prey ratios (Hornocker 1970) a potential population of 140-250 cougars could exist in this core area. On the surface prey-density does not appear to be a limiting factor to greater cougar densities in New Brunswick. The effects of dense human populations and intensive agriculture are not well documented, but can be assumed to be largely negative. Areas of high deer densities and frequency of cougar sightings over the period 1970-1977 coincide reasonably well (c.f. Fig. 7 and 10). A map showing human population density has also been included for comparison (Fig. 11).

FIGURE 10 Deer Densities (from Boer in litt. 30 Jan. 1978)



F. General Biology

Nothing is known of the general biology of the eastern cougar. However, a number of field studies have been done in recent years on the biology of the western cougar (see bibliography).

G. Limiting Factors

Nowak (1974) attributed the decline of the cougar in eastern North America to persecution by man. It is difficult not to agree with that view.

The apparent failure of the relic population in New Brunswick to expand significantly in the last thirty years or so, although initially possibly due to the extremely low density of the surviving population, indicates that other unknown limiting factors may be operating (See also remarks under habitat). In the absence of reliable and detailed information not much else can be said about the subject.

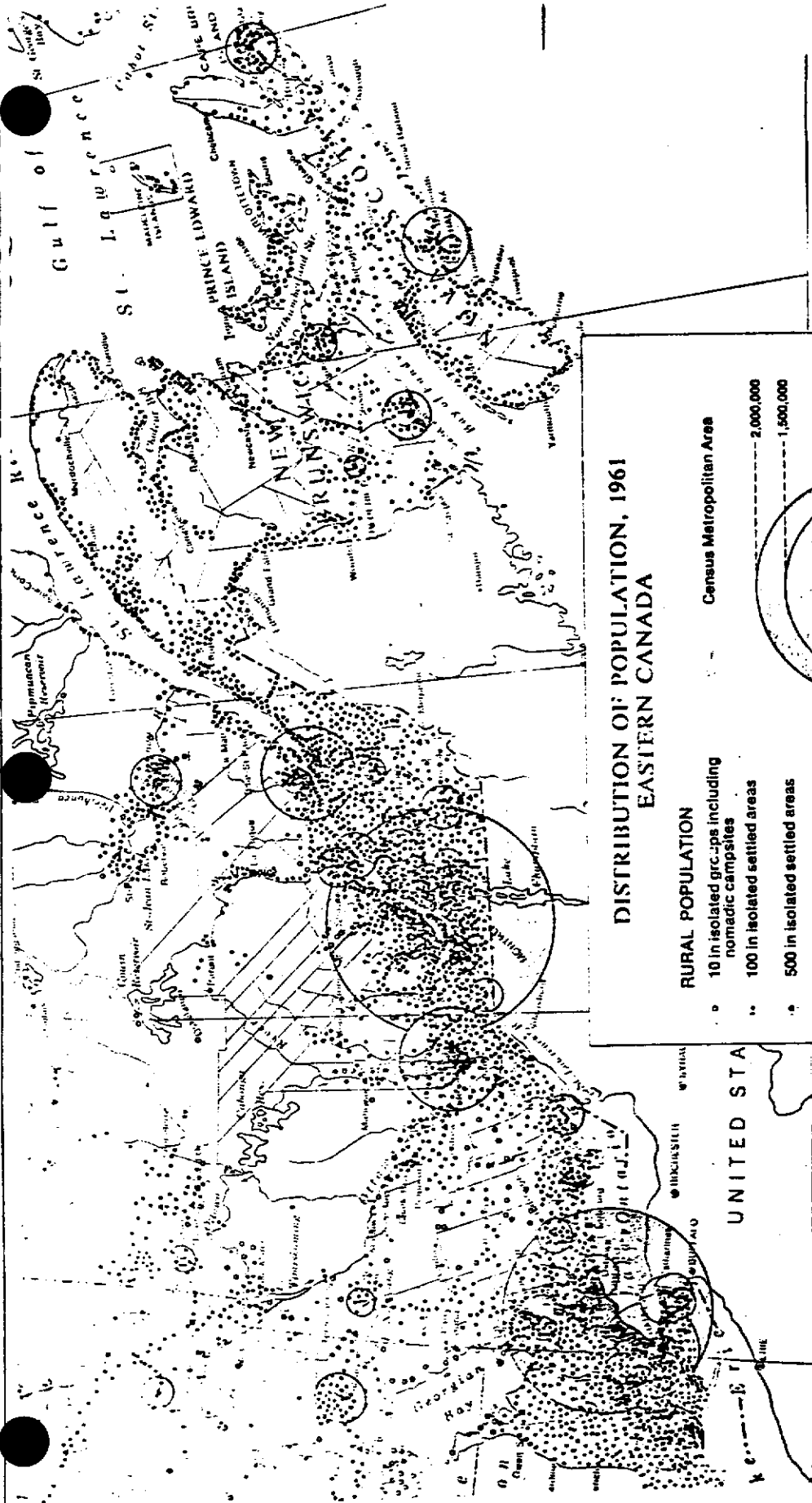
H. Special significance of the species

The taxonomic status of the eastern cougar is uncertain. The most recent taxonomic revision of F. concolor (Young and Goldman 1946), included only limited material of F.c. cougar and the data were not statistically analyzed. The distinctness of this subspecies, therefore, remains to be demonstrated. The taxonomic status of cougars currently occurring in eastern Canada is unknown. The possibility exists however, that they are distinct from other surviving populations of the species.

The species as a whole is not threatened, but one other subspecies F.c. coryi is also listed as endangered (Goodwin and Holloway 1972)

I. Recommendations / Management Options

FIGURE 11
(from The National Atlas of Canada)



DISTRIBUTION OF POPULATION, 1961
EASTERN CANADA

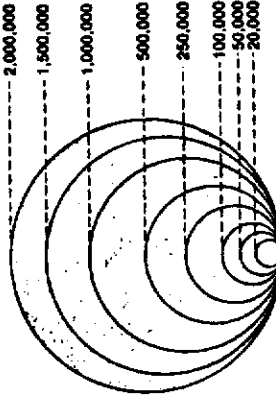
RURAL POPULATION

- 10 in isolated groups including nomadic campsites
- 100 in isolated settled areas
- 500 in isolated settled areas
- 1,000 distributed in rural areas

URBAN POPULATION

- 1,000 - 5,000
- ▲ 5,000 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- ⊙ over 30,000

Census Metropolitan Area



Areas of circles are proportional to the populations of the urban places — see scale.

The Dominion Bureau of Statistics' definition of "rural" and "urban" for the 1961 Census specified that all cities, towns and villages of 1,000 and over, whether incorporated or not, were classed as urban, as well as the urbanized fringes of (a) cities classed as metropolitan areas (b) those classed as other major urban areas, and (c) certain smaller cities, if the city together with its urbanized fringe was 10,000 population or over. The remainder of the population was classed as rural.

The population depicted for urban places is composed of the population of the urban municipality plus the population of any urban areas directly adjoining the municipality. For Census Metropolitan Areas the proportional circle represents the aggregate urban population of the Area, but excludes the rural population depicted by black dots.

1. that the existence of an eastern population of the cougar be confirmed and documented by the live-capture of one or more animals.
2. that a field investigation be initiated to gather information on the ecology of the eastern cougar to be used in formulating a management plan that will ensure its survival.
3. that the taxonomic status of the eastern cougar be investigated.

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