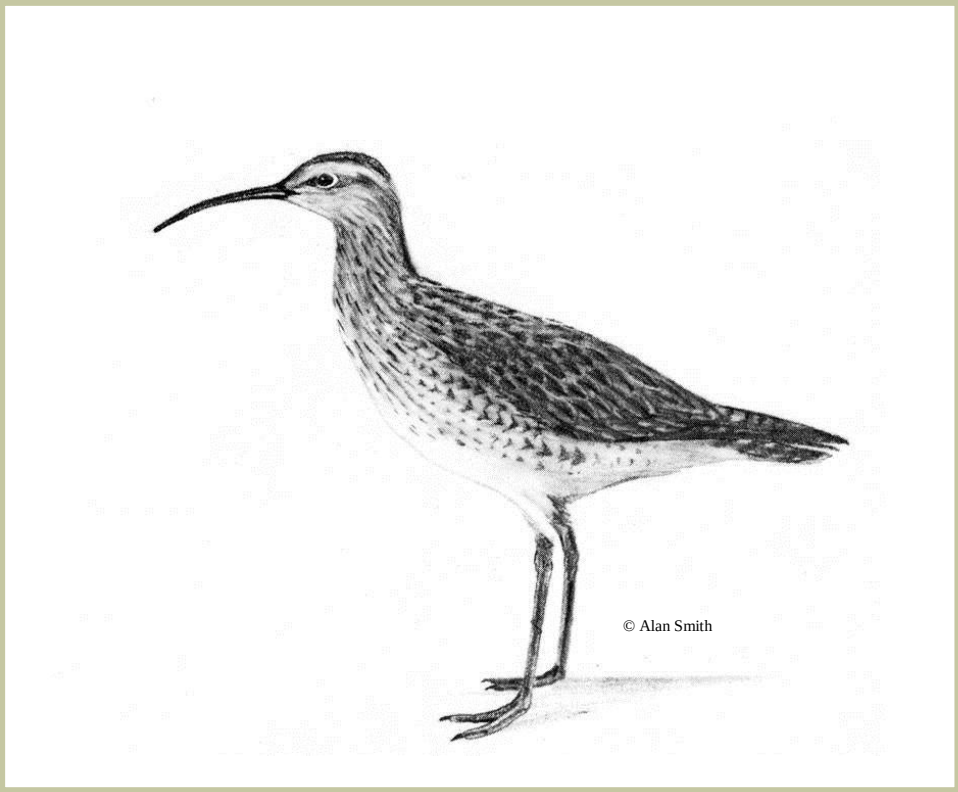
Species at Risk Act
Recovery Strategy Series

Recovery Strategy for the Eskimo Curlew (*Numenius borealis*) in Canada

Eskimo Curlew



March 2007

Environnement Canada Environment Canada

Canada

About the *Species at Risk Act* Recovery Strategy Series

What is the *Species at Risk Act* (SARA)?

SARA is the Act developed by the federal government as a key contribution to the common national effort to protect and conserve species at risk in Canada. SARA came into force in 2003, and one of its purposes is *"to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity."*

What is recovery?

In the context of species at risk conservation, **recovery** is the process by which the decline of an endangered, threatened, or extirpated species is arrested or reversed and threats are removed or reduced to improve the likelihood of the species' persistence in the wild. A species will be considered **recovered** when its long-term persistence in the wild has been secured.

What is a recovery strategy?

A recovery strategy is a planning document that identifies what needs to be done to arrest or reverse the decline of a species. It sets goals and objectives and identifies the main areas of activities to be undertaken. Detailed planning is done at the action plan stage.

Recovery strategy development is a commitment of all provinces and territories and of three federal agencies — Environment Canada, Parks Canada Agency, and Fisheries and Oceans Canada — under the Accord for the Protection of Species at Risk. Sections 37–46 of SARA (www.sararegistry.gc.ca/the_act/default_e.cfm) outline both the required content and the process for developing recovery strategies published in this series.

Depending on the status of the species and when it was assessed, a recovery strategy has to be developed within one to two years after the species is added to the List of Wildlife Species at Risk. Three to four years is allowed for those species that were automatically listed when SARA came into force.

What's next?

In most cases, one or more action plans will be developed to define and guide implementation of the recovery strategy. Nevertheless, directions set in the recovery strategy are sufficient to begin involving communities, land users, and conservationists in recovery implementation. Cost-effective measures to prevent the reduction or loss of the species should not be postponed for lack of full scientific certainty.

The series

This series presents the recovery strategies prepared or adopted by the federal government under SARA. New documents will be added regularly as species get listed and as strategies are updated.

To learn more

To learn more about the *Species at Risk Act* and recovery initiatives, please consult the SARA Public Registry (www.sararegistry.gc.ca) of the Recovery Secretariat (www.speciesatrisk.gc.ca/recovery/default_e.cfm).

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May 2007

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Additional copies:

Additional copies can be downloaded from the SARA Public Registry (www.sararegistry.gc.ca/).

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DECLARATION

This recovery strategy has been prepared in cooperation with the jurisdictions responsible for the Eskimo Curlew. Environment Canada has reviewed and accepts this document as its recovery strategy for the Eskimo Curlew, as required under the *Species at Risk Act*. This recovery strategy also constitutes advice to other jurisdictions and organizations that may be involved in recovering the species.

It was determined that the recovery of the Eskimo Curlew in Canada is not technically or biologically feasible at this time. The species still may benefit from general conservation programs in the same geographic area, and will receive protection through SARA and other federal, and provincial or territorial, legislation, policies, and programs.

The feasibility determination will be re-evaluated at a minimum, every five years as part of the report on implementation of the recovery strategy, or as warranted in response to changing conditions and/or knowledge.

In the spirit of the Accord for the Protection of Species at Risk, the Minister of the Environment invites all responsible jurisdictions and Canadians to join Environment Canada in supporting and implementing this strategy for the benefit of the Eskimo Curlew and Canadian society as a whole.

RESPONSIBLE JURISDICTIONS

Environment Canada
Parks Canada Agency
Government of Alberta
Government of Manitoba
Government of New Brunswick
Government of Newfoundland and Labrador
Government of Nova Scotia
Government of Northwest Territories
Government of Nunavut
Government of Ontario
Government of Prince Edward Island
Government of Québec
Government of Saskatchewan
Gwich'in Renewable Resources Board
Nunavut Wildlife Management Board
Sahtu Renewable Resources Board
Wildlife Management Advisory Council - Northwest Territories

AUTHORS

This recovery strategy was prepared by Cheri Gratto-Trevor (Eskimo Curlew Recovery Team chair), Renee Franken, and Ray Poulin on behalf of the Eskimo Curlew Recovery Team.

ACKNOWLEDGEMENTS

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STRATEGIC ENVIRONMENTAL ASSESSMENT

A strategic environmental assessment (SEA) is conducted on all SARA recovery planning documents, in accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*. The purpose of a SEA is to incorporate environmental considerations into the development of public policies, plans, and program proposals to support environmentally-sound decision making.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that strategies may also inadvertently lead to environmental effects beyond the intended benefits. The planning process based on national guidelines directly incorporates consideration of all environmental effects, with a particular focus on possible impacts on non-target species or habitats. The results of the SEA are incorporated directly into the strategy itself, but are also summarized below.

This recovery strategy concludes that recovery for the Eskimo Curlew is not feasible at this time and suggests that no recovery actions be undertaken. As such, there is no risk for the implementation of this strategy to inadvertently lead to adverse effects on other species.

RESIDENCE

SARA defines residence as: *a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating* **[Subsection 2(1)]**.

Residence descriptions, or the rationale for why the residence concept does not apply to a given species, are posted on the SARA public registry:
www.sararegistry.gc.ca/plans/showDocument_e.cfm?id=594

PREFACE

The Eskimo Curlew is a migratory bird covered under the Migratory Birds Convention Act, 1994 and is under the management jurisdiction of the federal government. The Species at Risk Act (SARA, Section 37) requires the competent minister to prepare recovery strategies for listed extirpated, endangered or threatened species. The Eskimo Curlew was listed as endangered under SARA in June 2003. The Canadian Wildlife Service – Prairie and Northern Region, Environment Canada, led the development of this recovery strategy. All responsible jurisdictions reviewed and acknowledged receipt of the strategy. The strategy meets SARA requirements in terms of content and process (Sections 39–41).

EXECUTIVE SUMMARY

- The Eskimo Curlew once numbered in the hundreds of thousands, but declined rapidly in the 1870s to 1890s. There has been no evidence of breeding since 1866, and the last specimen was obtained in the 1960s. Population estimates are extremely low, and it is possible that this species has gone extinct in recent years.

- The Eskimo Curlew had only two known breeding locations, both located in the Northwest Territories. However, breeding likely also occurred in Nunavut, Yukon Territory, Alaska, and Russia. Breeding habitat included upland tundra.

- In the fall, Eskimo Curlews migrated east to Newfoundland and Labrador and then south non-stop to South America. They wintered predominantly in the eastern pampas of Argentina. In spring, they moved up the Pacific coast and across Central America and the Gulf of Mexico and staged in tall- and mixed-grass areas of Canada and the United States.

- Overhunting is thought to be the main cause of the Eskimo Curlew's decline, as the bird was considered a delicacy and was easy to hunt. Although hunting was banned in 1916, the recovery of the Eskimo Curlew may have been hindered and its decline exacerbated by its conservative life history strategy and by habitat changes at its spring migration stopover sites and in its wintering areas.

- Critical habitat for the Eskimo Curlew cannot be identified, because there is very little information on locations of habitat necessary for survival or recovery. There are only two confirmed breeding locations for the Eskimo Curlew, and both of these locations date back to before the 1870s.

- Recovery of the Eskimo Curlew is not considered feasible at this time, because no nests have been located in 140 years and there are very few, if any, individuals left in existence. We recommend that no recovery action for the Eskimo Curlew be undertaken at this time other than continued monitoring of reported sightings.

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SPECIES ASSESSMENT INFORMATION FROM COSEWIC

Date of Assessment: May 2000

Common Name: Eskimo Curlew

Scientific Name: *Numenius borealis*

COSEWIC Status: Endangered

Reason for Designation: This formerly abundant species suffered enormous declines from the 1870s to 1890s, largely because of hunting. Possible sightings are occasionally reported. The current population size is unknown but is certainly extremely small.

Canadian Occurrence: Northwest Territories, Nunavut, Alberta, Saskatchewan, Manitoba, Ontario, Québec, New Brunswick, Prince Edward Island, Nova Scotia, Newfoundland and Labrador.

COSEWIC Status History – Designated Endangered in April 1978. Status re-examined and confirmed Endangered in May 2000. Last assessment based on an update status report.

1. BACKGROUND

1.1 Description

Figure 1. Eskimo Curlew (adapted from photo by Don Bleitz).

The Eskimo Curlew (*Numenius borealis*) is a small curlew with a slender, slightly decurved bill and little to no eye-stripe (Gill *et al.* 1998). The plumage of the bird is warm brown, with a solid brown crown, rusty-yellow belly, and streaking on the sides of the face and neck. The undersides of the primaries are unbarred, the wing linings are pale to rich cinnamon, and the wing-tips cover the tail (Figure 1). Eskimo Curlews weigh 270–454 g. They are 32–37 cm in length and have a wing length of 19–23 cm (Gill *et al.* 1998). The Eskimo Curlew can be easily confused with other shorebird species, including Whimbrel (*N. phaeopus*), Little Curlew (*N. minutus*), Long-billed Curlew (*N. americanus*), Upland Sandpiper (*Bartramia longicauda*), Pectoral Sandpiper (*Calidris melanotos*), and Stilt Sandpiper (*C. himantopus*). In North America, Eskimo Curlews would most often be confused with Whimbrels. However, Eskimo Curlews are only about half to two-thirds of the size of Whimbrels. Whimbrels also differ noticeably from Eskimo Curlews by having barred primary flight feathers, a well-defined eye-stripe, streaked (as opposed to V- and Y-shaped) markings on their breast and flanks, and an overall greyish appearance, as opposed to the overall cinnamon tones of Eskimo Curlews (Gill *et al.* 1998).

1.2 Distribution

1.2.1 Historical Distribution

Breeding Range

Nesting was verified from only two sites, both located in the Northwest Territories: the base of Bathurst Peninsula in the Anderson River area, and the region of Amundsen Gulf / Coronation Gulf / Coppermine River (Figure 2). The birds are also likely to have bred in the Barren Grounds throughout much of the Northwest Territories and Nunavut, possibly in the Yukon Territory and Alaska, and perhaps into the Chukchi Peninsula, Russia (Gollop and Shier 1978; Gollop *et al.* 1986; Gill *et al.* 1998).

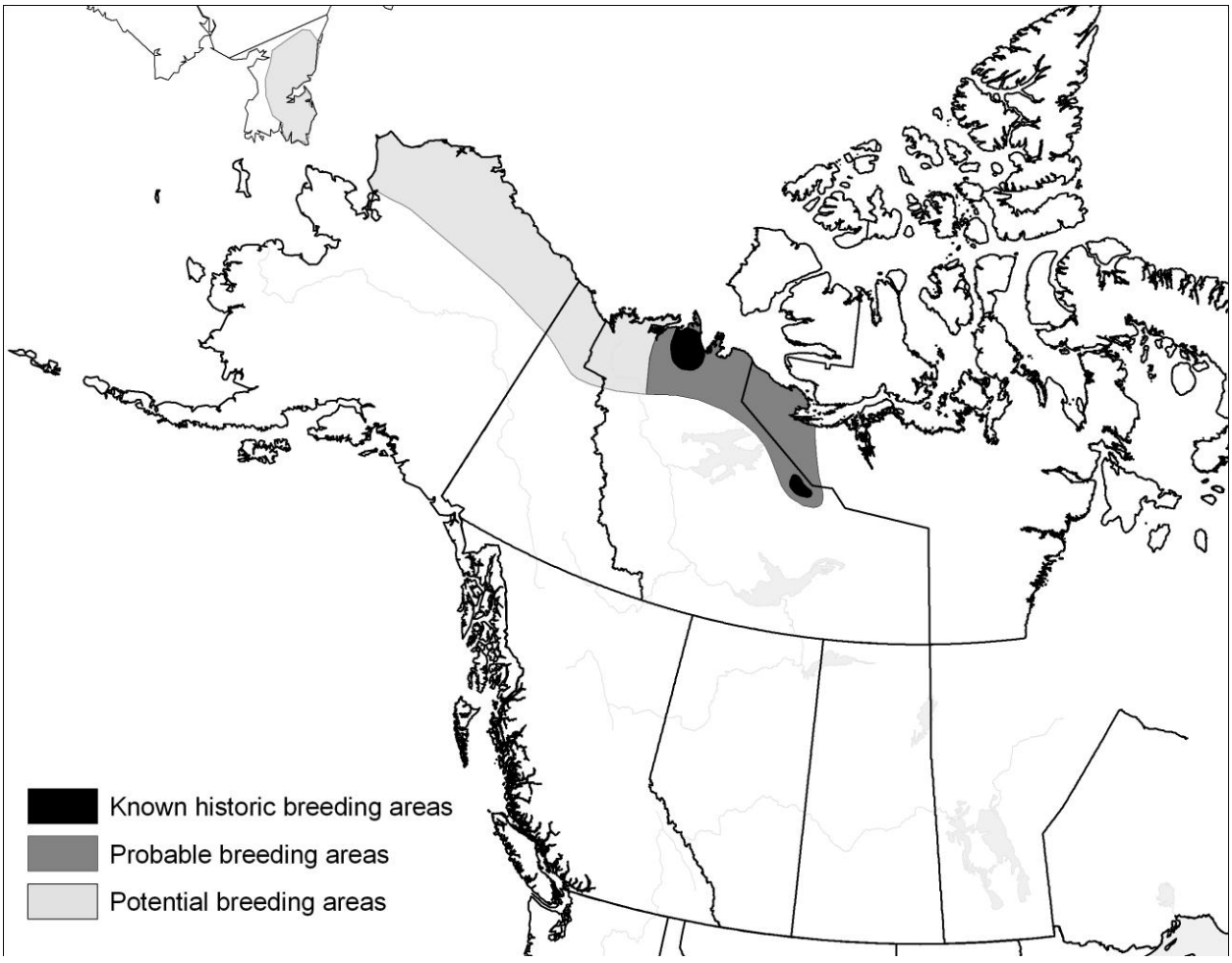

Figure 2. Known historical (black), probable (dark grey), and potential breeding areas (light grey) of Eskimo Curlews. Adapted from Gollop *et al.* (1986) and Gill *et al.* (1998).

Fall Migration

Eskimo Curlews migrated east from known breeding grounds to Newfoundland and Labrador and then south non-stop to South America (Figure 3). In Canada, birds were also occasionally seen in northern Ontario, southern Québec (especially in the Magdalen Islands), New Brunswick, Prince Edward Island, and Nova Scotia during the fall.

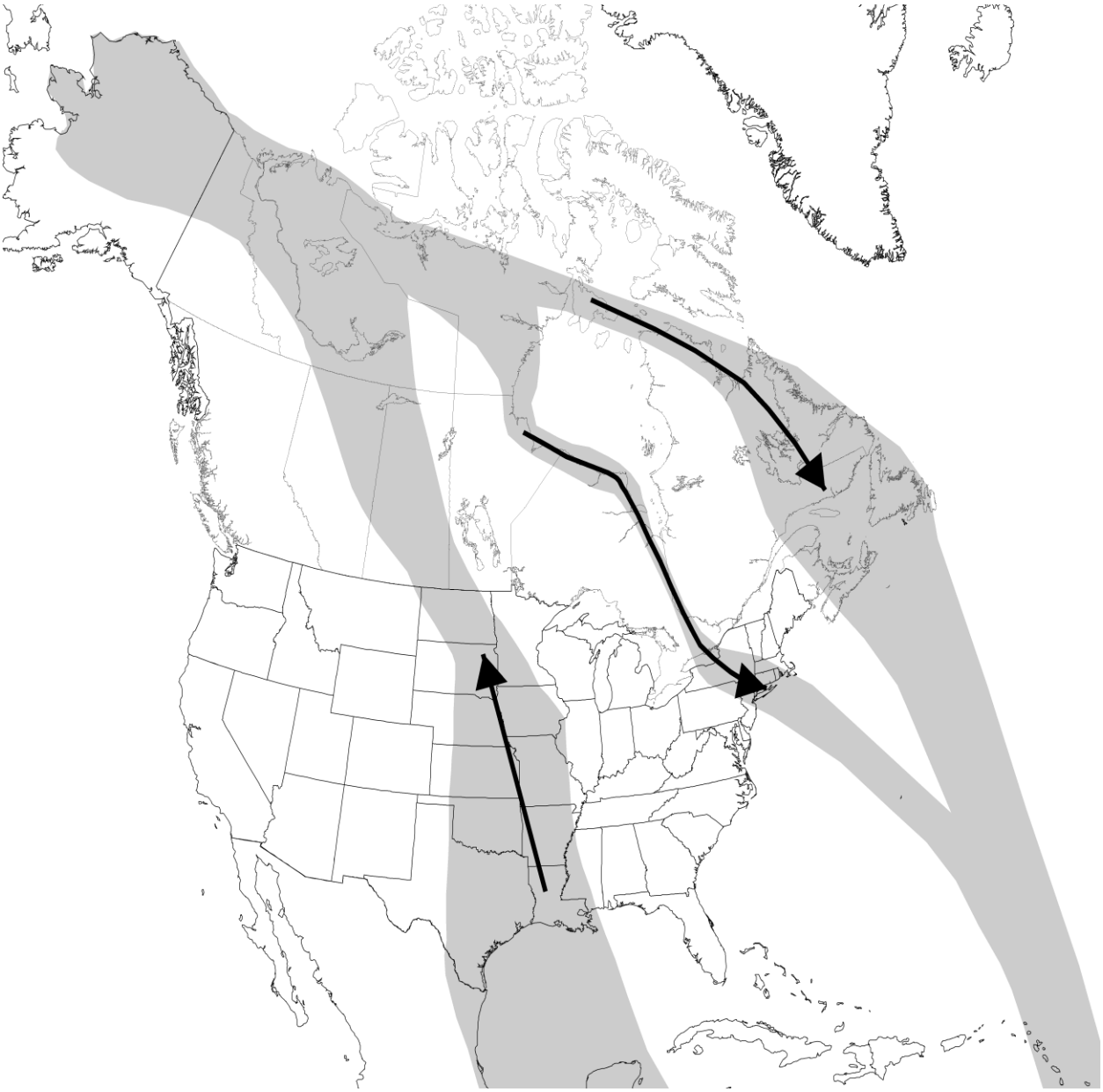

Figure 3. Historical migration routes of Eskimo Curlews in North America. Adapted from Gollop *et al.* (1986) and Gill *et al.* (1998).

Winter Range

Most winter records of the Eskimo Curlew are from the eastern pampas of Argentina, although it was also recorded in Uruguay, south-central Chile, and possibly southern Brazil and Patagonia. Eskimo Curlews were also noted on the Falkland Islands (Gollop *et al.* 1986; Gill *et al.* 1998).

Spring Migration

Birds likely moved from the pampas of Argentina up the Pacific coast to Peru or Ecuador, then across Central America and the Gulf of Mexico (observed in Costa Rica, Guatemala, and Mexico) to Texas (Figure 3). In Canada during the spring, a few birds were seen in southern Manitoba and Alberta, and it was thought that the species was common in Saskatchewan in some years (Gollop *et al.* 1986; Gill *et al.* 1998).

1.2.2 Current Distribution

There have been no confirmed sightings of Eskimo Curlews in the world since the 1960s, and no evidence of nesting has been recorded since 1866. Although "possible sightings" continue to be reported, some of these reports may be misidentification of other shorebirds. From 1945 to 1985, 80 possible sightings of Eskimo Curlews were reported from North America (Gill *et al.* 1998). The last possible sightings in Canada were a group of three birds in southwestern Manitoba (Waldon 1996) and one bird in southern Saskatchewan (Pollock 1996) in the spring of 1996 (but see Gollop 1997 for comments).

1.3 Abundance

The Eskimo Curlew once numbered in the hundreds of thousands, but declined dramatically in the 1870s to 1890s, after which time it was considered very rare (Banks 1977; Gollop 1988; Gill *et al.* 1998). No evidence of nesting has been verified for 140 years, and the last specimen obtained was shot in the Barbados in 1963 (Bond 1965). There have been scattered sightings since 1900, primarily during migration (Gollop and Shier 1978; Gollop *et al.* 1986; Gratto-Trevor 1999). No positively identified Eskimo Curlew nests or birds behaving as if they had nests or young have been found since 1866, even though searches have been carried out in historical breeding ranges in the 1970s, 1980s, and 1990s (Gollop *et al.* 1986; Obst and Spaulding 1994 as cited in Uriarte 1995; Obst and Spaulding 1994 in Gill *et al.* 1998). In addition, no Eskimo Curlews were found during extensive searches in historical wintering areas of Argentina and Uruguay in 1992–1993 (Blanco *et al.* 1993).

Population estimates from the 1970s, 1980s, and 1990s varied from 23 to 100 birds; however, these were based on guesswork (Gollop and Shier 1978; Gollop 1988; Morrison *et al.* 1994). It is possible that this species has since gone extinct.

1.4 Needs

1.4.1 Biological

Primary foods of the Eskimo Curlew included berries (especially crowberry (*Empetrium nigrum*) and blueberry (*Vaccinium* sp.) before the long non-stop flight to South America in the fall) and arthropods (including Dipteran larvae and adults, grasshoppers, beetles, and some intertidal gastropods, isopods, and amphipods). In the prairies in spring, grasshopper eggs and young were a common food (e.g., Rocky Mountain grasshopper (*Melanoplus spretus)*), as well as other insects, earthworms, and berries (Gollop and Shier 1978; Gollop *et al.* 1986; Gill *et al.* 1998).

1.4.2 Habitat

Nesting

Nests were apparently initiated from mid to late June, and eggs hatched from early to mid July. As with most other shorebirds, nests were merely a scrape in the ground. Clutch size was normally four eggs, and young were presumably precocial, as is the case for other North American shorebirds. Eskimo Curlews were presumably monogamous, with incubation shared by both sexes, as for other Numeniini (Gollop and Shier 1978; Gill *et al.* 1998). Renesting was probably uncommon, and likely only one brood was raised per season. Age of first breeding is unknown but was likely delayed, possibly to three years, as for the Whimbrel (Skeel and Mallory 1996).

Breeding

Known breeding habitat consisted of upland tundra, the treeless dwarf shrub–graminoid tundra complex ("barrens"), and grassy meadow habitat (including polargrass (*Arctagrostis latifolia*), Arctic bluegrass (*Poa arctica*), glaucous bluegrass (*P. glauca*), glandular birch (*Betula glandulosa*), and species of sedge (*Carex*), cottongrass (*Eriophorum*), and *Dryas*) of the Northwest Territories (Gollop *et al.* 1986; Gill *et al.* 1998).

Migration

The birds used a variety of habitats, both coastal and inland, during autumn migration. They often fed in areas of crowberry, as well as coastal habitats in Labrador, and used ericaceous heath habitat in Alaska, the Northwest Territories, northern Ontario, southern Québec, Newfoundland and Labrador, and the Maritime provinces. In Massachusetts, curlews were found in salt grass, meadows, pastures, old fields, intertidal flats, and sand dunes (Gollop and Shier 1978; Gollop *et al.* 1986; Gill *et al.* 1998). During spring migration, curlews were found in tallgrass and eastern mixed-grass prairies, often in areas disturbed by recent burns, as well as areas near water disturbed by grazing bison (*Bison bison*) and cultivated fields (Gollop *et al.* 1986; Gill *et al.* 1998).

Wintering

In the pampas of Argentina, treeless grasslands with ephemeral and permanent wetlands were used. Wetter grasslands and intertidal areas of southern Patagonia were also possible wintering habitats (Blanco *et al.* 1993).

1.4.3 Limiting Factors and Threats

Hunting

Uncontrolled market hunting was likely the main cause of the decline of this species (Swenk 1915; Bent 1929; Young 1953; Gollop and Shier 1978; Gollop 1988). Eskimo Curlews were considered a delicacy and were selected by hunters. They were easy to hunt in large numbers in the United States and Canada due to their aggregation in large flocks, their lack of fear of humans, and their habit of circling back within gun range when some members of the flock were shot (Gratto-Trevor 1999). Market hunters in the Great Plains of the United States shot huge numbers each spring, particularly in the late 1870s and 1880s, as numbers of Passenger Pigeons (*Ectopistes migratorius*) decreased (Gill *et al.* 1998). In some areas, an estimated 2000–5000 birds were shot in less than a few days (see review in Gill *et al.* 1998). In fall, thousands of Eskimo Curlews were killed in Labrador, and in some years many thousands were killed in New England, especially Massachusetts, when birds were forced to land as a result of storms. Because only a few young are produced per pair per year and they likely did not breed as yearlings, hunting of this magnitude could have had profound effects on overall numbers (Gratto-Trevor 1999). Research has shown that even slight changes in annual survival can have large effects on population stability, much greater than the effects of large decreases in productivity (Hitchcock and Gratto-Trevor 1997).

Habitat Loss and Degradation

Although market hunting may have been a main initial cause of the decline of the Eskimo Curlew, changes in its habitat at spring migration staging sites and in wintering areas may have contributed to its decline and prevented its recovery (Gollop *et al.* 1986; Bucher and Nores 1988; Gill *et al.* 1998). During the second part of the 19th century, North American prairies were converted to cropland, and prairie fires that had been crucial to the maintenance of grasslands were suppressed (Samson and Knopf 1994; Gill *et al.* 1998). In addition, changes in farming practices, including planting of winter wheat crops, resulted in even less habitat being available (Davis 1976). Reduction of appropriate feeding habitat may have further concentrated the birds in restricted areas and facilitated hunting (Gill *et al.* 1998). Conversion of grasslands to croplands also resulted in a decrease of an important food source — grasshopper egg pods and young (Woodard 1980; Gill *et al.* 1998).

In the late 1800s to early 1900s, rapid agricultural development occurred in Eskimo Curlew wintering habitat in the pampas of South America. However, this was likely too late to have played a role in the curlew's population decline (Canevari and Blanco 1994), although it may have prevented any population recovery.

Other Threats and Limiting Factors

Although the Rocky Mountain grasshopper was not the exclusive food of migrating Eskimo Curlews, localized irruptions of this grasshopper species were thought to be important in providing an important spring food source (Gill *et al.* 1998). The Rocky Mountain grasshopper went extinct in the 1900s, which may have partially contributed to the decline and/or failure of recovery of the Eskimo Curlew.

Another possible contributing factor to the curlew's demise is the aggressive Whimbrel, which benefited from the overall decline of Eskimo Curlews and completely displaced curlews on Bathurst Peninsula, Northwest Territories (Gollop *et al.* 1986).

Other factors that may have contributed to the decline of this species include poisoning (e.g., pesticides), storms during transoceanic migration, climate change, drought, and volcanic eruptions that reduced solar radiation (Banks 1977; Gill *et al.* 1998). These are speculative, however, and there is little information on whether such factors affected Eskimo Curlew populations.

Although the primary causes of the rapid decline in this species are believed to be overhunting and habitat change, the bird's failure to recover was likely a combination of low population numbers, continued loss of habitat, and conservative life history traits. The Eskimo Curlew likely had a low reproductive rate, producing four-egg clutches that would have been subjected to the vagaries of Arctic weather and predators (Gill *et al.* 1998). In addition, Eskimo Curlews were likely a long-lived species, as are other Numeniini, and therefore the population would have been sensitive to factors affecting adult survivorship and productivity (Gill *et al.* 1998). Furthermore, the curlew's highly social behaviour and its reliance on specific habitats during restricted periods likely made it more susceptible to overhunting. Finally, the Eskimo Curlew's migration was long and demanding (>14 000 km one way), and the birds relied on relatively few traditional stopover sites, which have since been degraded.

1.5 Critical Habitat

Critical habitat is defined in the *Species at Risk Act* of Canada as "the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species" [Subsection 2(1)].

There is very little information on the breeding, staging, or migratory habitat necessary for the recovery or survival of the Eskimo Curlew; therefore, identifying critical habitat for the Eskimo Curlew is not possible at the current time.

1.6 Protection

Eskimo Curlews have been protected since the early part of the last century under the Canadian *Migratory Birds Convention Act, 1994* (originally enacted in 1917) and the United States

Migratory Bird Treaty Act of 1918. All shorebirds have been protected by law since 1927 in Buenos Aires Province, Argentina. Eskimo Curlews are covered under the 1936 Migratory Birds Convention between the United States and Mexico and are included in the United States *Endangered Species Act* of 1973. They are also covered under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention for the Conservation of Migratory Species of Wild Animals (Bonn Convention), with further protection in non-breeding areas through the 1940 Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. This species was placed on the U.S. List of Threatened and Endangered Species in 1967 and designated as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 1978. As of June 2003, Eskimo Curlews were protected under Canada's *Species at Risk Act*.

Portions of the historical breeding range in Canada occur within the Anderson River Migratory Bird Sanctuary. "Probable breeding areas" are found withinTuktut Nogait National Park, and "potential breeding areas" are found within Ivvavik and Vuntut National Parks and the Kendall Island and Cape Parry Migratory Bird Sanctuaries. There is also a record of a migratory Eskimo Curlew in Prince Edward Island National Park. Eskimo Curlews found within the boundaries of Canadian national parks or other lands administered by the Parks Canada Agency would be protected under the *Species at Risk Act* and the *Canada National Parks Act* and/or measures and management tools available to the Parks Canada Agency under other legislation.

2. RECOVERY

2.1 Recovery Feasibility

The *Species at Risk Act* states that "In preparing the recovery strategy, the competent minister must determine whether the recovery of the listed wildlife species is technically and biologically feasible. The determination must be based on the best available information, including information provided by COSEWIC" (Section 40).

One of the criteria within the Government of Canada's Recovery Feasibility Policy for "feasible recovery" of a species is that "individuals capable of reproduction are currently available to improve the population growth rate or population abundance." (Environment Canada 2005). Because we are not aware of the existence or location of any Eskimo Curlews, recovery is not feasible for this species at this time.

Recent efforts to locate remaining individuals have been unsuccessful, and it is possible that this species is extinct. Species-specific research and surveys for Eskimo Curlews are not warranted at this time, although surveys for shorebirds or waterbirds in potential habitat should include this species. In addition, reported observations of Eskimo Curlews should be investigated and confirmed if feasible.

Determination of recovery feasibility will be reevaluated in response to changing conditions and/or knowledge (i.e., if Eskimo Curlews are located).

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