

POLAR BEAR PROVINCIAL PARK, ONTARIO
Information Sheet on Ramsar Wetlands

Effective Date of Information: The information provided is taken from text supplied at the time of designation to the List of Wetlands of International Importance, May 1987 and updated by the Canadian Wildlife Service in March 1993.

Reference: 4CA018

Name and Address of Compiler: Canadian Wildlife Service, Environment Canada, Ottawa, Ontario, Canada K1A 0H3.

Date of Ramsar Designation: 27 May 1987.

Geographical Coordinates: 50°55' to 54°00'N., 82°15' to 87°00'W.

General Location: The site lies on the northwest coast of James Bay and the southern coast of Hudson Bay, in the Ontario Ministry of Natural Resources Northern Region, Moosonee District. The community of Peewanuk (the new townsite for the former village of Winisk) is outside the Park but near its geographical centre. Moosonee, the nearest town, is 547 km south of the Park.

Area: 2 408 700 ha.

Wetland Type (Ramsar Classification System): Marine and coastal wetlands: Type 1 - marine waters; Type 5 - sandy, shingle, or pebble beaches; Type 8 - intertidal marshes. Inland wetlands: Type 1 - permanent rivers and streams; Type 3 - inland deltas; Type 7 - permanent and seasonal brackish, or saline flats and marshes; Type 8 - permanent freshwater ponds, marshes, and swamps; Type 12 - peatlands; Type 13 - forested peatlands; Type 14 - tundra wetlands.

Altitude: Range is from sea level to over 250 m.

Overview (Principal Characteristics): A wide plain with a range of ecotypes from coastal beach and swale systems to forested peatlands along a gradient inland.

Physical Features (Geology, Geomorphology, Hydrology, Soils, Water, Climate): The site is dominated by extensive areas of peatlands. Inland areas of the park are made up of swamps and small lakes, and show the typical flat, wet physiography of the Hudson-James Bay lowlands. The surface area of the park is almost 75% wet to saturated organic terrain or open water. Poor surface drainage, climate, rainfall, periods of frost and permafrost, and flooding of rivers and streams in spring all combine to create the waterlogged conditions. There are various forms of lake in the park: between beach ridges lie slot lakes, typically at right angles to the direction of drainage. Kettle lakes and lakes formed by glacial erosion are found in upland areas. These sometimes coalesce to form larger lakes due to wave and ice erosion. The largest lake in the park is 13 km by 5 km and the deepest is probably only 3 m in depth. Many of the lakes are filling with vegetation. Numerous rivers and streams are augmented in spring by snow melt and precipitation, and silt-laden waters of larger rivers form fertile delta areas. The coastal areas are very flat, generally treeless, and extend from the tidal flats to over 8 km inland. Water is added to marshes and lagoons along coastal areas at high tides. Tidal range is small. However, the low gradient of land allows much tidal inundation. Tidal flooding is especially intensive when augmented by onshore winds. The tidal flats vary from 1-5 km in width. Low energy coasts, with wide coastal marshes, occur in southern James Bay at the south-eastern coastline of the park, whereas high energy coast segments with intertidal expanses and sandflats and sand beaches are found along the rest of the park's coastline.

Much of the park is underlain by Palaeozoic bedrock of limestone, dolomite, shale and sandstone, with a few small areas of Precambrian rock outcrops. The Palaeozoic sedimentary rocks are nearly horizontal with only a slight surface gradient. The area is a compact geological province that is close to probable centres of the Laurentide Ice Sheet and areas of the latent stand of the continental glacier. The isostatic rebound following glacial retreat has resulted in emergence of land from the ocean. Land near Cape Henrietta Maria in the north-eastern section of the park has been emerging at a rate of 1.2 m per century for 1 000 years. This is the greatest rate of rebound in North America. As glaciers melted, the Tyrell Sea invaded the lowlands and deposited marine silt and clay sediments, often in a layer nearly impervious to water. As the sea receded, extensive beach ridges were formed. These flat-topped ridges are the park's most noteworthy landform. Being parallel to the coast they impede surface drainage.

Ecological Features (Habitats, Vegetation): Polar Bear Provincial Park includes portions of two wetland regions, High Subarctic and Low Subarctic. Within these regions the wetland habitats that are distributed across the landscape include thicket swamp, treed bog, treed peat plateau, open peat plateau, open bog, treed fen, open fen and marsh.

The High Subarctic Wetland Region corresponds closely to the Maritime Tundra floristic zone. Species typical of more northern High Arctic regions include sedge *Carex subspathacea*, goose grass *Puccinellia phryganodes*, and pale yellow flowering saxifrage *Saxifraga hirculus*. The maritime tundra zone is dominated by sedges *Carex* spp. and cotton grasses *Eriophorum* spp. and clumps of birches *Betula* spp. Vegetation on drier sites is usually a tundra heath, with Low Arctic elements such as Lapland rosebay *Rhododendron lapponicum*, crowberry *Empetrum nigrum*, blueberry *Vaccinium uliginosum* and mountain cranberry *Vaccinium vitis-idaea*. Cloudberry *Rubus chamaemorus* grows in most areas along beach ridges. Tundra herbs along drier sites include Arctic areas *Dryas integrifolia*, several pea family species including *Hedysarum mackenzii*, saxifrages *Saxifraga aizoides*, *Saxifraga oppositifolia*, *Saxifraga tricuspidata*, louseworts *Pedicularis labradorica* and *Pedicularis sudetica*. In emergent coasts, lagoons, salt marshes and brackish lake edges, aquatic grasses such as *Arctophila fulva* grow with sedges, cotton grasses and marsh herbs, including *Ranunculus pallarii* occur. The youngest beaches have little vegetation, with a few species such as sea-lungwort *Mertensia maritima*, lyme grass *Elymus arenarius* and sea-beach sandwort *Arenarium peploides*. On the second or third beach ridge, at least 70 years after formation, lichens appear. Further inland, the more varied flora described above develops. The tundra area of the High Subarctic wetland region is the most southerly example of that type on a mainland site anywhere in the world.

The Low Subarctic wetland region of the park lies within a tundra/open wetland vegetation zone. Many low, open bogs, sedge-shrub fens, moist sedge-covered depressions, and open pools and small lakes are separated by ridges of peat, lichen-peat capped hummocks, raised bogs and beach ridges. Common aquatic plants include tundra buttercup *Ranunculus hyperboreus* and aquatic mare's tail *Hippuris vulgaris*. Sedges *Carex* spp., pondweeds *Potamogeton* spp. and milfoils *Myriophyllum* spp. are common. In many bogs, stunted black spruce *Picea mariana* grows with heath plants, sedges, cottongrasses and sphagnum moss species *Sphagnum* spp., fens generally have a richer flora.

On well-drained stream banks, lake edges, and raised ridges, a transition forest develops. Components are typically boreal, but tree species tend to be stunted. Black spruce, white spruce *Picea glauca*, tamarack *Larix laricina*, balsam poplar *Populus balsamifera*, dwarf birch *Betula glandulosa*, and willows *Salix* spp. are the common tree species. On better-drained sites, typically older beach ridges, a mature spruce forest exists with a heath understory containing crowberry, mountain cranberry, occasionally blueberry. Openings covered with caribou lichen and reindeer moss *Cladonia* spp. become more frequent in northern portions of this transition forest area.

Land Tenure:

(a) **Site:** The area is a provincial park which is provincial Crown land.

(b) **Surrounding Area:** Provincial Crown land and Indian Reserve; Hudson Bay to the north and James Bay to the east.

Conservation Measures Taken: Polar Bear Provincial Park was established as a wilderness park under the Ontario Provincial Parks classification by Order-in-Council on 30 April 1970. The area is protected from development and from exploitation of natural resources. A majority of the area has been designated as wilderness zones, nature reserves, or historical zones, providing protection against disturbance of wildlife or deterioration of the environment.

Conservation Measures Proposed: The province of Ontario is currently considering extensions of the park's boundaries in consultation with local native residents.

Current Land Use/Activities in:

(a) **Site:** There are five access zones where aircraft may land and where camping is encouraged. Non-native use of access zones, trails and campsites is monitored for deterioration. The indigenous Cree Indians, as residents of the coastal communities, will continue to be permitted to hunt, fish and trap for subsistence and gather wild commodities for non-commercial purposes. There are two native-owned and operated hunting and fishing camps, one at Shagamu River and the other at the Sutton River access zone. Registered guests of these camps are the only non-native hunters of waterfowl, grouse and snipe permitted in the park.

(b) **Surrounding Area:** Traditional native fishing, hunting and trapping as well as commercial outfitting camps for hunting and fishing.

Threats to Integrity of:

(a) **Site:** None at present.

(b) **Surrounding Area:** Hydro development in the future could become an issue affecting this region.

Hydrological/Physical Values:

Social/Cultural Values: The park area includes traditional hunting and trapping areas for the residents of Peewanuk.

Noteworthy Fauna: A variety of waterfowl species, whose main breeding grounds are much further north, rests in Cape Henrietta Maria and surrounding tundra areas of the Park. During summer these birds are joined by substantial numbers of moulting waterfowl from both more northerly and more southerly breeding ranges. More importantly, in both spring and autumn, the coastal marshes, intertidal sandflats, and river mouths, support vast numbers of waterfowl during migration to and from High Arctic breeding ranges. The Lesser Snow Goose colony had only 100 nests when discovered in 1944, but grew rapidly to more than 55 000 breeding pairs in 1979. More important than its role as a breeding habitat is that the site serves as a staging area for two to four million Lesser Snow Geese during both spring and autumn migrations.

Canada Geese from six major populations and several other stocks utilise the lowland areas. Large-bodied Canada Geese *Branta canadensis interior* of the Mississippi Valley population nest throughout the fens and ponds of the Park.

Ten per cent of this population nests in the Park itself. Small-bodied Canada Geese *Branta canadensis hutchinsoni* pass through the lowland en route to more northern breeding areas. An area of large concentration is to the west of the Winisk River, including park coastline along the Hudson Bay.

Ross' Geese *Anser rossii* and Greater White-fronted Geese *Anser albifrons frontalis* have been among geese shot by hunters in the area. Black Duck *Anas rubripes* is one of the first species to arrive in spring, staging at the mouths of major rivers in the Park. Most move on to more northern breeding grounds, although some move to inland locations in the Park to nest. In 1978 autumn surveys, counts of 65 000 Black Duck were recorded for the lowlands. Of these, 12% were in the park and exceed 1% of the continental population. Pintail *Anas acuta* generally occupies salt water habitats. Moulters concentrated in flocks are notable along the shore west of the abandoned Winisk village site and at the mouth of River Shagarmu. Green-winged Teal *Anas crecca carolensis* and Mallard *Anas platyrhynchos* have similar distributions, being found on mud flats beside stream and river mouths or brackish inland ponds. Numbers are greatest during autumn and several thousand mallard have been counted at one time in the Park. American Wigeon *Anas americana* is present in large numbers only in autumn, and are found in brackish habitats associated with stream mouths. Shoveler *Anas clypeata* is widespread in low numbers in ponds between beach ridges or at the back of the coastal marsh. Small flocks are seen in spring with only occasional individuals in summer and autumn. Blue-winged Teal *Anas discors* is more abundant, also in coastal marsh ponds, and is seen most often during migration.

The western and southwestern coasts of Hudson and James bays form a major migration pathway for many shorebird species. During aerial surveys in 1974, 76 624 shorebirds were counted, principally including Red Knot *Calidris canutus rufa*, Short-billed Dowitcher *Limnodromus griseus*, Dunlin *Calidris alpina*, Greater Yellowlegs *Tringa melanoleuca* and Lesser Yellowlegs *Tringa flavipes*, as well as Ruddy Turnstone *Arenaria interpres*, and Black-bellied Plover *Pluvialis dominica*. Large species consisted principally of Hudsonian Godwit *Limosa haemastica*, with smaller numbers of Marbled Godwit *Limosa fedoa* and Whimbrel *Numenius phaeopus*. Small species consisted predominantly of Semipalmated Sandpiper *Calidris pusilla*, with smaller numbers of White-rumped Sandpiper *Calidris fuscicollis*, Sanderling *Calidris alba* and Spotted Sandpiper *Actitis macularis*. Of these, 27.5% or 21 063 shorebirds were counted within Park borders. A number of species also breed within the Park, as the lowlands provide some of the more southerly breeding habitat for Semipalmated Plover, Pectoral Sandpiper *Calidris melanotos*, White-rumped Sandpiper, Dunlin, and Semipalmated sandpiper.

The wetlands of Polar Bear Provincial Park provide nesting habitat for Red-throated, Arctic and Common Loon (*Gavia stellata*, *Gavia arctica* and *Gavia immer*, respectively), American Bittern *Botaurus lentiginosus*, Common and Red-breasted Merganser *Mergus merganser* and *Mergus serrator*, Yellow Rail *Coturnicops noveboracensis*, Sora *Porzana carolina*, Sandhill Crane *Grus canadensis*, Red-necked Phalarope *Phalaropus lobatus*, Parasitic Jaeger *Stercorarius parasiticus*, Bonaparte's and Herring Gull *Larus philadelphia* and *Larus argentatus*, and Arctic Tern *Sterna paradisaea*. A small breeding population of 20 Tundra Swan *Cygnus c. columbianus* is found in the Park. This species had disappeared as a breeding bird along the Hudson Bay in the mid to late 1800s. Moreover, the Park supports migrants from more northern areas, such as Snowy Owl *Nyctea scandiaca* and Snow Bunting *Plectrophenax nivalis*.

Polar bears *Thalarctos maritimus* rely on the area as a breeding habitat. Data through 1980 indicate that approximately 200, or 48% of Ontario's total population of polar bears, spend the summer months in the Park. Two members of the deer family inhabit the Park: woodland caribou *Rangifer tarandus*, which spends summer in the tundra region and moves south of the treeline to winter, and moose *Alces alces*, which occupies wooded habitats and willow-fringed creeks. Coastal and estuarine areas are visited by walrus *Odobenus rosmarus*, bearded seal *Erignathus barbatus*, white whale or beluga *Delphinapterus leucas* and, probably, harbour seal *Phoca vitulina*, ringed seal *Phoca hispida*, and on occasion, narwhal *Monodon monoceros*. Other mammalian residents of the Park include beaver *Castor canadensis*, muskrat *Ondatra zibethicus*, otter *Lutra canadensis*, ermine *Mustela vison*, least weasel *Mustela nivalis*, mink *Mustela vison*, martin *Martes americana*, fisher *Martes pennanti*, wolverine *Gulo gulo*,

striped skunk *Mephitis mephitis*, lynx *Lynx lynx*, Arctic fox *Alopex lagopus*, red fox *Vulpes vulpes*, black bear *Ursus americanus* and wolf *Canis lupus*. Small mammals include four shrews *Sorex cinereus*, *Sorex arcticus*, *Sorex palustris* and *Murosorex hogi*, varying hare *Lepus americanus*, red squirrel *Tamiasciurus hudsonicus*, northern flying squirrel *Glaucomys sabrinus*, porcupine *Erethizon dorsatum* and several small rodents *Synaptomys borealis*, *Clethrionomys gapperi*, *Phenacomys intermedius*, *Microtus pennsylvanicus* and *Zapus hudsonius*.

Amphibians of the park include *Bufo americanus copei*, *Pseudacris triseriata maculata*, *Rana sylvatica*, *Rana pipiens* and possibly *Hyla crucifer crucifer* and *Rana septentrionalis*. One reptile, *Thamnophis sirtalis sirtalis*, may also be present. Stream and estuarine habitats of the park are important spawning habitat for sport fish such as brook trout *Salvelinus fontinalis*, Arctic char *Salvelinus alpinus*, northern pike *Esox lucius* and walleye or yellow pickerel *Stizostedion vitreum*.

Noteworthy Flora:

Current Scientific Research and Facilities: Starting in the early 1900s, scientific surveys pertaining to geology, mapping, flora and fauna have been undertaken sporadically. Recently, increasing human activity in tundra regions, hydroelectric development, and offshore exploration for hydrocarbons have stimulated sustained research in the area. Over the past decade, a number of scientific publications have been produced. Wildlife and fisheries surveys and research continue to be undertaken by the Ontario Ministry of Natural Resources and the Canadian Wildlife Service of Environment Canada, so that wildlife population changes can be monitored and acted upon, if necessary. Research by non-governmental organisations on natural resources of the park also occurs and is encouraged.

Current Conservation Education:

Current Recreation and Tourism:

Management Authority:

District Manager
Cochrane District
Ontario Ministry of Natural Resources
2 Third Street
Cochrane, Ontario
P0L 1C0

Jurisdiction: Provincial - Ontario Ministry of Natural Resources.

Selected Bibliography:

Reasons for Ramsar Designation: Hudson and James bay lowlands support, overall, more than 4.5 million geese, and are of major importance to the Lesser Snow Goose *Anser c. caerulescens*, several races and populations of Canada Goose *Branta canadensis* and Brent Goose *Branta bernicula hrota*. Lesser Snow Geese nesting in the lowlands comprise approximately 10% of the Hudson Bay population and the majority of these are in the Cape Henrietta Maria colony. Polar Bear Provincial Park is of special value for maintaining genetic and ecological diversity because of its highly varied combination of plant and animal species at the extremes of their ranges and its unique expanse of temperately-located tundra.

Status of Management Plan: The park is covered comprehensively by provincial park management provisions and land use zonation under the *Ontario Provincial Parks Act*. The *Polar Bear Provincial Park Planning Proposal* was released in 1977. A management plan is in preparation.