

PEACE-ATHABASCA DELTA, ALBERTA
Information Sheet on Ramsar Wetlands

Effective Date of Information: The information provided is taken from the List of Canadian Wetlands Designated as of International Importance, May 1982 and is supplemented by information from the World Heritage Nomination. This information was updated by the Canadian Wildlife Service in March 1993.

Reference: 4CA007

Name and Address of Compiler: Environmental Conservation Branch, Environment Canada, Twin Atria, 2nd Floor, 4999 - 98th Avenue, Edmonton, Alberta, T6B 2X3.

Date of Ramsar Designation: 24 May 1982.

Geographical Coordinates: 58°42'N., 111°08'W.

General Location: Situated in the southeast corner of Wood Buffalo National Park in northeast Alberta. The town of Fort Chipewyan is about 20 km to the east.

Area: 321 200 ha.

Wetland Type (Ramsar Classification System): *Inland wetlands:* Type 1 - permanent rivers and streams; Type 3 - inland deltas; Type 4 - riverine floodplains; Type 5 - permanent freshwater lakes; Type 8 - permanent freshwater ponds, marshes and swamps; Type 13 - forested peatlands.

Altitude: 204-210 m.

Overview (Principal Characteristics): This site comprises about 80% of the total area of the Peace-Athabasca Delta. The Peace-Athabasca Delta is one of the largest freshwater deltas in the world comprising three deltas: Athabasca 1 970 sq. km., Peace 1 684 sq. km. and Birch 168 sq. km.

Physical Features (Geology, Geomorphology, Hydrology, Soils, Water, Climate): The major lakes Claire, Baril, Mamawi and Richardson are very shallow (0.6-3.0 m); and are characterised by a thick growth of submerged and emergent vegetation. The area has a dry continental climate with long cold winters and short warm summers. Mean temperatures are about 16°C in July and -25°C in January. The brief frost-free period extends from early June to early September but much of the area is permanently underlain with discontinuous permafrost. Daylight period is short in winter but in midsummer is over 20 hours. The area has much sunshine because of its northern latitude. The topography of the Delta consists of very large flat areas of sediment with outcropping islands of Canadian Shield scattered in the north-

east region. Active and inactive river channels meander across the Delta joining major lakes to Lake Athabasca and draining upland areas around the Delta. Large open grasslands are interspersed with hundreds of shallow perched basins which are filled with water only during spring floods.

Ecological Features (Habitats, Vegetation): The site contains 11 major habitat types: Aspen Water (130 630 ha); emergents - inundated area with erect living vegetation rooted to the substrata (779 ha); mud flats - above water level with little or no vegetation (13 593 ha); immature fen (meadow) - the community occurring on a mud flat after one year exposure, and represented by seedling stages of *Carex* spp., *Calamagrostis* spp. or shrubs (18 478 ha); sedge meadow-area dominated by sedge (18 813 ha); grass meadow dominated by *Calamagrostis canadensis* (12 186 ha); tall shrub - woody shrub vegetation over 2 m tall (26 809 ha); deciduous - mainly Balsam poplar *Populus balsamifera* and birch *Betula* spp. (7 372 ha); coniferous - mainly white and black spruce *Picea glauca* and *Picea mariana* (13 157 ha); and rock outcrop (23 473 ha). These habitats contain over 250 species of vascular plants.

Due to the shallow water, high fertility and relatively long growing season, the area is an abundant food source of particular importance during drought years on the Prairies when a large proportion of the continental duck population is forced to spend the summer in northern habitats. This function will become increasingly important as continual attrition gradually decreases the potholes and marshes of the Prairie habitat. All four major North American flyways cross the delta, though it is probably of most significance to the Mississippi and Central flyways.

Land Tenure:

(a) **Site:** Most of the Ramsar site is within Wood Buffalo National Park and is owned by the Government of Canada. Fringe areas of the delta lie on provincial Crown land.

(b) **Surrounding Area:** Provincial Crown land.

Conservation Measures Taken: The site is managed and protected under the regulations of the *National Parks Act* and *National Parks Policy* by Parks Canada. Wood Buffalo National Park is a World Heritage Site.

Conservation Measures Proposed: None currently.

Current Land Use/Activities in:

(a) **Site:** Studies in the early 1970s identified that water levels on the delta required regulating to mitigate the effects of the Bennett Dam, and weirs were subsequently constructed at Rivière des Rochers and Revillon Coupé. There is careful monitoring and management of the hunting

and trapping activities of the native Indian population. Bison are specifically protected from native domestic hunting under park game regulations. A portion of the park area until recently had logging rights but these were rescinded by Environment Canada in 1992.

(b) Surrounding Area: Provincial Crown land.

Threats to Integrity of:

(a) Site: Some form of intensive manipulation of the bison herd may be required in the future due to the presence of anthrax, brucellosis and bovine tuberculosis on the bison range. Outbreak control measures for anthrax have been carried out and will be continued. An Environmental Assessment Panel in 1991 recommended the full herd be destroyed but this has not been implemented.

(b) Surrounding Area: At present, the only major threat to the delta is the Bennett Dam. It is located upstream on the Peace River in British Columbia and was constructed in 1967. The dam caused a significant drop in water flow to the delta resulting in insufficient water levels to fill the numerous perched basins in the area. Any further dam construction or river diversion on the Peace River could result in more damage to the delta. The effects of the reduced water flows as a result of this dam construction have been almost fully mitigated by the development of weirs on the Peace River tributaries. These have nearly restored the natural summer peak water levels in the delta but the amplitude of seasonal and annual fluctuations is still less than under the natural water flow regime.

Hydrological/Physical Values:

Social/Cultural Values:

Noteworthy Fauna: At least 215 species of birds, 44 species of mammals, 18 species of fish and thousands of species of insects and invertebrates are found in the Delta. Reptiles and amphibians include Canadian toad, leopard frog *Rana pipiens*, boreal chorus frog, wood frog and red-sided garter snake. Species recorded in the Delta area include Lesser Snow Goose *Anser c. caerulescens*, White-fronted Goose *Anser albifrons*, Canada Goose *Branta canadensis*, Tundra Swan *Cygnus c. columbianus*, all four species of loon *Gavia*, all seven species of North American grebe (Podicipedidae) and 25 species of duck (Anatidae). Numbers of breeding ducks reached 160 000 pairs in the 1980s, 120 000 pairs of *Anas* spp. and 40 000 pairs of *Aythya* spp. The world's entire population of the endangered Whooping Crane *Grus americana* (132 in 1992) which nests in the northern part of the park, is known to migrate through the site. The only known breeding population in central Canada of the vulnerable

Peregrin Falcon *Falco peregrinus* nests in the delta area.

The site also contains the largest undisturbed grass and sedge meadows in North America which are the prime range in the park for an estimated 10 000 wood and plains buffalo *Bison bison athabascae* and *Bison bison bison* constituting 71% of the park's population. The Delta is an important fish spawning area for regional populations of goldeneye and walleye.

Noteworthy Flora:

Current Scientific Research and Facilities: The Governments of Canada, Alberta and Saskatchewan established the Peace-Athabasca Delta Project Group in January 1971 to conduct a detailed investigation into the problem of low water levels in Lake Athabasca and their cause and effect on the delta flora, fauna and local people. The investigation followed three consecutive years of low water levels in the delta after the construction of Bennett Dam.

Current Conservation Education: Parks Canada provides an interpretive program to park visitors.

Current Recreation and Tourism:

Management Authority:

Superintendent
Wood Buffalo National Park
P.O. Box 750
Fort Smith, Northwest Territories
X0E 0P0

Jurisdiction: Federal - Department of Canadian Heritage;
Provincial - Alberta Department of Environmental Protection.

Selected Bibliography:

- The findings of the Peace-Athabasca Delta Project were published as a summary report and technical report.
- The summary report, based on the technical report, is aimed for general public readership and was issued in January 1973 as "The Peace-Athabasca: A Canadian Resource".
- The technical report was published in 1973 as "Peace-Athabasca Delta Project - Technical Report".

Reasons for Ramsar Designation: The Peace-Athabasca Delta is the largest boreal delta in the world and is relatively undisturbed by civilization. It is one of the most important waterfowl nesting and staging areas in North America and is the staging area for breeding ducks and geese on their way to the MacKenzie River lowlands, Arctic river deltas and Arctic islands. Up to 400 000 birds may use the Delta in the spring, with more than one

million birds in the autumn.

The only known breeding population in central Canada of the vulnerable Peregrin Falcon *Falco peregrinus* nests here. The site also contains the largest undisturbed grass and sedge meadows in North America which are the prime range for an estimated 10 000 wood and plains buffalo *Bison bison athabasca* and *Bison bison bison*.

Status of Management Plan: A draft *Wood Buffalo National Park Ecosystem Conservation Plan* was produced by Parks Canada in August 1993. It is currently undergoing review and consultation.

The *Peace-Athabasca Delta Ecosystem Management Plan* implemented in January 1993 is in the second year of a cooperative three-year study between Parks Canada, the province of Alberta and local native organizations. The *Wood Buffalo National Park Draft Management Plan* also was released for review by Parks Canada in November 1993.