BIG EAST RIVER CORRIDOR UTM Ref. 17TPA370227 to 613424

Chaffey Township, Huntsville
Sinclair and Finlayson Townships, Lake of Bays Area: 2590 ha
Status: Recommend Heritage Area

Site Characteristics

The Big East River is the largest of two rivers which form the North Muskoka watershed system. It flows approximately 50 km across northern Muskoka from Algonquin Park to Lake Vernon. The river is characterized by a shallow channel, broad floodplain containing a complex of meander channels and oxbow lakes, and steep, rocky headwater regions. The total descent of the Big East River is 88 metres with most of the drop in the upper section. The width of the river valley varies from 1 to 2 km over most of its length. Flooding is a regular seasonal occurrence.

The headwaters are fed into a number of coldwater tributary streams (McCraney, Mink, Beanpod, Cripple and Tasso) that run through narrow valleys into the deep waters of Finlayson Pond. The surrounding hills are largely bedrock controlled upland with areas of extensive drift cover on steep valley slopes and rocky terrain. The high elevation and cooler climate support forests with a northern or boreal ecology. Dominant species along the upper valley slopes include White Spruce, Eastern White Cedar, White and Yellow Birch and Balsam Fir.

From Finlayson Pond to McBrien Pond, the river descends through a thickly forested valley with numerous waterfalls, rapids, and tributary streams entering regularly in a trellis pattern. McBrien Pond is generally shallow and underlain by swamp and organic deposits, with an abundance of floating, submerged and emergent aquatic macrophytes. A treed talus slope forms an impressive backdrop along the northern shore of McBrien Pond.

Distress Pond is the next deep basin located between the exposed rock sills (waterfalls and rapids) and outcrops in the bedrock. Below Distress Pond are a series of rocky waterfalls, long stony rapids and quiet pools which twist through 600 metres of hardwood and coniferous forest.

The last 26 km of river are characterized by a gentler descent, a slowing in the rate of flow resulting in a more sinuous, meandering system. This section of the river is underlain by glaciolacustrine coarse-grained deposits on the river edges, glaciolacustrine outwash deposits, and elements of bedrock drift complex. Extensive stands of White Spruce and other conifers are common along the valley slopes. Below Williamsport Road, the river cuts through a sand plain, consisting entirely of thick deposits (up to 23 metres) of older alluvium of sand and silt with minor gravel (Bajc & Henry, 1991). The river is still rapidly evolving and changing its course creating numerous oxbow lakes and incised channels in the process. In this predominately alluvial landscape, the vegetation consists of thicket and forest swamps, marshes and shoreline forests dominated by Red and Sugar Maples, Eastern Hemlock, Yellow Birch and White Spruce.

Flora and Fauna

Total numbers of species recorded were:

Vascular Plants	416 native ; 39 introduced
	2 A.C.P.F. with a score of 8 (Insignificant)
Birds	94 observed during breeding season
Mammals	18 (4 from small mammal trapping)
Herpetofauna	16
Butterflies	5
Dragonflies	9
Mushrooms	36
Fish	2

Significant Natural Values and Selection Criteria Met

1. **Distinctive Landform** - (A1) The Big East River glacial spillway valley is a distinctive feature at the regional level. Meltwaters from the retreating glaciers of the Algonquin Highland poured through this spillway into Lake Algonquin 10,000 years ago. Large quantities of glacial outwash were carried down and deposited in the bedrock valleys and the delta of the old shoreline, which was at that time in the vicinity of Arrowhead Provincial Park. When the Lake Algonquin shoreline receded these deposits were exposed and, over time, the new river channel has incised itself 25 to 30 m below the upper surface of the deltaic plain, exposing a thick sequence of sandy glaciolacustrine sediments. These large sand bluffs not only represent the geological history of the area, but they are also thought to be the only naturally occurring, well-exposed delta of this type in the province (Warner, 1978; Spek,1979 b; Bajc, 1992).

2. **Representative Landform** - (A2) The Big East River, in the vicinity of Big Bend Lookout in Arrowhead Provincial Park, was identified by Bajc (1992) to contain representative examples of both Coarse-Grained Glaciolacustrine Deposits and Older Alluvial Deposits. The cut bank exposure of the steep deltaic sand bluffs contains well-bedded, pebbly fine to very fine sand to silty very fine sand. The floodplain area adjacent to Big Bend Lookout contains several abandoned meanders (oxbow lakes) which are separated by sandy, older alluvial deposits. In addition, an oval-shaped rocky upland immediately adjacent to the River, west of Huntsville, was selected by Bajc to represent Algonquin Highland Precambrian Bedrock.

3. **Hydrological Significance** - (A3) The Big East River contributes high quantity and quality water to the Muskoka River System. The sandy valley floor, with its many pockets of wetland, acts to sustain the quality of the river water, and likely provides some degree of seasonal storage of floodwaters.

4. **Representation** - (B1) The area contributes to the full range of biotic representation in Muskoka by including two community types of limited occurrence in the District. A Boreal Birch-Aspen Successional forest (cooler/sand/dry-mesic) was found frequently along the valleys of the river corridor. A treed acidic talus slope (cooler/rock/dry) is present in the

McBrien Pond area, providing habitat for the Fragrant Cliff Fern, an arctic-alpine disjunct species.

5. **Diversity** - (B2) The Big East River Corridor supports over 400 species of vascular plants. It also contains a high diversity of birds, mammals and herpetofauna compared with other areas.
6. **Quality and Disturbance** - (B3) The Big East River Corridor provides examples of a number of biotic communities of unusual quality.

The valley walls support mature stands of White Spruce dominant and mixed hardwood forests. Their quality is reflected in the abundance of Northern Parula and some fourteen other warbler species.

A 140-170 year old mature Yellow Birch-Eastern Hemlock-Sugar Maple forest and mature Eastern White Cedar-Eastern Hemlock-White Birch boreal forest in the Finlayson Pond - Tasso Creek area are significant since mature upland forests are not well-represented in the District. Of all trees measured from forested sites in the 1992 season, the largest specimens of Yellow Birch (maximum dbh = 54.1 cm), Eastern Hemlock (Max. dbh = 39.2 cm) and Eastern White Cedar (max. dbh = 30.1 cm) were recorded from these stands.

The abundance of dragonflies and damselflies along the river, plus the presence of Brook Trout, are indicative of excellent water quality and habitat conditions.

The McBrien Pond area, with aquatic wetland community, forested slopes and talus cliff is a high quality ecosystem supporting a diversity of flora and fauna, many with rare or uncommon status within the District of Muskoka.

The active meander morphology of the river channel and ongoing formation of oxbow lakes on the lower floodplain provide excellent examples of succession as the quiet waters gradually are invaded by aquatic and then terrestrial vegetation.

7. **Rare Species** - The Big East River Corridor provides habitat for the following rare species:

Wildlife
- *Agrion aequabile* Black-banded Band Wing Dragonfly [RR]
- *Polygonia faunus* Green Comma Butterfly [RR]
- *Rana palustris* Pickerel Frog [RR]
- *Empidonax flaviventris* Yellow-bellied Flycatcher [RR]
- *Bucephala clangula* Common Goldeneye [RR]
- *Mergus serrator* Red-breasted Merganser [RR]
- *Picoides arcticus* Black-backed Woodpecker [RR]

Vascular Plants
- *Calystegia spithamaea* Upright Bindweed [RR]
- *Carex flava* Yellow Sedge [RR]
- *Carex lanuginosa* Wooly Sedge [RR]

Carex michauxiana Sedge [RR]*
Chenopodium simplex Maple-leaved Goosefoot [RR]
Cicuta maculata Water Hemlock [RR]
Dryopteris fragrans Fragrant Cliff Fern [RR]*
Gentiana linearis Narrow-leaved Gentian [RR]
Isoetes lacustris Lake Quillwort [RR]*
Panicum ovale American Panic Grass [RR]
Potamogeton filiformis Filiform Pond Weed [RR]
Ribes lacustre Swamp Black Currant [RR]
Ribes triste Swamp Red Currant [RR]
Scirpus clintonii Clinton's Bulrush [PR RR]
Solidago gigantea Late Goldenrod [RR]
Viola xsublanceolata Primrose-leaved Violet [RR]
* Located by Jim Goltz, 1991

In addition, two snake species, one salamander, eight bird species and twenty-one species of vascular plants were recorded as regionally uncommon.

8. **Fish and Wildlife Concentrations** - (B5) The large, deep cold water reservoir of Finlayson Pond contains numerous fish spawning areas. The gravelly shorelines of this pond and the rocky rapids along the upper reaches of the Big East River are excellent habitat for the regionally rare Pickerel Frog. Several Moose cows and calves were seen in the upper reaches of the Big East River during the February 1992 aerial survey. At least two active Osprey nests are located in Distress Pond. Deer are frequent throughout the area with small deer yards in the vicinity of Arrowhead Provincial Park. Rainbow Trout spawn in the river from the delta to just east of Williamsport Road. The many coldwater streams are potential Brook Trout spawning habitats.

9. **Size and Linkage** - (B6) The Big East River acts as a biogeographic corridor allowing species movement from the Algonquin Highlands down the river valley as evidenced by the occurrence of northern species such as Black-backed Woodpecker, Goldeneye, Swamp Black Currant and Narrow-leaved Gentian. The river corridor stretches across the north of Muskoka for 50 km, occupying a large area of over 2,500 hectares.

10. **Biogeographic Significance** - (B7) The flora is composed of species with representation of both southern and northern elements. Southern affinity species such as Dutchman's Breeches, Wild Leek and Silver Maple are concentrated on the floodplain and oxbows. Northern or boreal species such as Wintergreen, American Mountain Ash, Velvetleaf Blueberry and Swamp Black Currant are common in the upper sections of the river. The Fragrant Cliff Fern is an arctic-alpine disjunct species. A single historical record existed for this particular species but it had not been recorded in Muskoka for over 40 years.

The fauna includes species approaching a southern limit of their breeding distribution including Southern Redback Vole, Northern Parula Warbler, Black-backed Woodpecker and Goldeneye.

11. **Scenic Landscapes** - (C7) The view from the Finlayson Dam has been identified as having high scenic value. As well, the Distress Chutes are noted as one of the most scenic waterfalls in Muskoka (Long, 1989).

Ownership and Disturbance

The area is approximately 60% Crown land and 40% private, with the proportion of Crown land increasing toward the upper reaches of the river. Vegetation has been influenced in part by extensive logging along the entire length of the river from 1920-1930. More recently, selection harvesting has been carried out from 1972-74 and in the early 1980's. However, the shoreline setbacks, plus the presence of steep valley walls making timber extraction virtually impossible, have maintained a largely mature conifer vegetated corridor along the river with scattered stands of mature hardwoods.

In some parts of the lower valley, housing, agriculture, industry, gravel extraction, recreational campgrounds and cottages present ongoing disturbances. Most of the forests are early to mid-successional. The lack of extensive development along the river is due to the dynamic of spring flooding, low summer water levels and the presence of numerous rapids and waterfalls.

In 1953, government control dams replaced old timber dams on Distress and Finlayson Ponds. These dams were originally constructed by lumbermen in the 1880's to facilitate the annual log drives down the river. A dam at McBrien Pond was not replaced, and the pond has since returned to its natural level.

Sensitivity

The sensitivity of this site is related to the geological and hydrological values of the river valley and deltaic sandplain, the biogeographic significance of the corridor, the representational values and significant species, and the importance of the area to wildlife due to the size, length and unfragmented nature of the corridor.

Policies should ensure the protection of the corridor in an unfragmented manner. As well, there should be no alteration of the natural flow of water (by damming) and normal erosive processes should be allowed to continue along the meander cut banks. The valley slopes should remain forested following Area of Concern guidelines related to slope and aspect, with a high conifer content encouraged. Any development or resource extraction proposed should address the impact of the proposal on erosion, sedimentation and presence of significant species or vegetation community types.

Major Sources of Information

Bajc, 1992; Bajc & Henry, 1991; Bergsma, et al., 1993; Brownell, 1978; District Municipality of Muskoka, Sensitive Areas Maps, 1985; Long, 1989; Noble, 1983 a; OMNR, moose aerial surveys, 1992; Reid, et al., 1992; Spek, 1979 b; Warner, 1978.