PROVINCIALLY SIGNIFICANT
PARADISE BEACH - ISLAND GROVE WETLAND COMPLEX
SUMMARY

April 2004
Ontario Ministry of Natural Resources
Aurora District

Ontario Base Maps: 10 17 6200 49000, 49050; 6250 49000, 49050
National Topographic Series Maps: 31D/6
UTM Reference: 10 17 623000 4805500
Latitude: 44° 17' **Longitude:** 79° 27'
Aerial Photographs: 1:5000, 2002 ortho-rectified; 1:10,000, 1997 MNR infrared stereo, Roll & Frame No.: 51: 4493-4495, 52: 4658-4662, 4716-4721
Municipality, Lots & Concessions: Regional Municipality of York, Town of Georgina, North Gwillimbury Geographic Twp: Lots 19-29, Conc. 3; Lots 19-23, Conc. 4; Lots 1-8, Conc. 9
Ownership: 100% private.
Conservation Authority: Lake Simcoe Region (LSRCA)
Wetland Status: Provincially significant
Number of Wetlands & Area: 38 wetlands, 390.2 ha
Wetland Type: Swamp 93%, Marsh 7%.
Wetland Substrate: sand: 33% , organic: 8%, clay/loam: 47%, silt: 12%
Wetland Site Type: Palustrine 99.8%, Isolated 0.2%. .
Wetland Score: Biological Component 189, Social Component 131, Hydrological Component 211, Special Features 216, Total 747
Dates Investigated: 1987: July 22; 2003: July 3, 14, 15, 17, 18, 23-25, 28-31, Aug. 7, 8, 11-14, 21, 22, Dec. 12; 2004: April 20, 29
Estimated Field Time: 485 person hours
Investigators: MNR 1987: David Green & Carolyn Cantle; MNR 2003: Pat Mohr, Michelle Cook, Jen Jung, Prachi Patel, Steve Varga, Emma Followes & Albert Garofalo
Compilers: Michelle Cook, Pat Mohr, Albert Garofalo & Steve Varga

Introduction

The provincially significant Paradise Beach - Island Grove Wetland Complex is located in the Town of Georgina stretching back from the Lake Simcoe communities of Island Grove east to Paradise Beach. It is bounded by Metro Road to the north and west, Old Homestead Road to the south, and Kennedy Road to the east.

The Paradise Beach - Island Grove Wetland Complex incorporates wetlands from an earlier evaluation (OMNR 1987) and includes a large number of additional wetlands to the west. The previous wetland complex was locally significant.

All the inventoried wetlands are situated on the headwaters of three small watersheds flowing into Lake Simcoe. Each individual wetland is located within 750 metres of its nearest neighbouring wetland. The wetlands are linked by riparian corridors, adjacent forested uplands or by agricultural lands, regenerating meadows and hedgerows.

Ten wetlands under 0.5 ha in size were included in the complex. Each wetland was included for one or more of the following reasons:

- Support wetland types not well represented elsewhere in the wetland complex.
- Sustain significant species/communities (i.e. conservation priority bird species, rare or uncommon species/communities in the Regional Municipality of York or site region).
- Are part of larger wetlands fragmented by roads, trails or ditches.
- Are amphibian breeding areas.
- Are headwater sources or contribute base flows.
- Are hydrologically connected to larger wetlands.
- Provide intervening wetland habitat between larger wetlands.
- Occur along corridors.

This inventory is part of an ongoing effort to document all wetlands in the Greater Toronto Area (GTA). It is estimated that 70% of the wetlands in the GTA have been evaluated (MNR 2001).

Biological Component

The Paradise Beach – Island Grove Wetland Complex receives a score of 189 for its biological component. It consists of 38 wetlands covering a total of 390.2 hectares, with the largest wetland at 91.7 ha and the smallest 0.1 ha.

The wetlands are situated on a variety of poorly drained mineral substrates. Thirty-three percent of the wetlands have sandy soils varying from silty very fine sands, to fine sands and medium sands. Another 47% of wetlands have clay/loam soils varying from silty clay loams to clay loams, silty clays and clays. Twelve percent of

wetlands have silty soils. The remaining 8% of wetlands have organic soils that are 40cm or more thick over mineral sands or clays. The soils at Paradise Beach contain indicators of poor drainage such as gleys and mottling, generally within the top 50 cm of the soil surface.

99.8% of the wetlands are palustrine, being situated on the upper reaches of three small watersheds. Only 0.2% of the wetlands are isolated with no outflows. The wetlands are typically flooded to a varying extent in the fall and spring or have the water table periodically close to the surface. The wetlands generally dry out during the summer months. There are areas of permanent open water in a few scattered ponds.

The Paradise Beach – Island Grove Wetlands sustain a diversity of 65 vegetation communities, with 93% of the communities grouped into swamp types and 7% into marsh types. These wetlands have a high level of complexity or interspersion.

Deciduous swamps cover 45% of the wetland complex. Common trees are Black Ash, Trembling Aspen Green Ash and, occasionally, Balsam Poplar, Red Maple, Silver Maple, White Elm, Yellow Birch and Basswood. Common in the understorey are grasses and sedges such as Fowl Manna Grass (*Glyceria striata*), Reed Canary Grass (*Phalaris arundinacea*), Red-top (*Agrostis gigantea*), Fowl Meadow Grass (*Poa palustris*), Graceful Sedge (*Carex gracillima*), Straight-styled Wood Sedge (*Carex radiata*), Fox Sedge (*Carex vulpinoidea*) and such herbs and vines as Spotted Jewelweed (*Impatiens capensis*), Sensitive Fern (*Onoclea sensibilis*), Tall White Aster (*Aster lanceolatus*), Ostrich Fern (*Matteuccia struthiopteris*), Marsh Fern (*Thelypteris palustris*), Virginia Creeper (*Parthenocissus inserta*) and Riverbank Grape (*Vitis riparia*). Saplings of White Cedar and occasionally Balsam Fir are common, suggesting that many of the younger deciduous swamps are succeeding into mixed swamps.

Another 30% of wetlands are thicket swamps. The most common shrubs are Pussy Willow (*Salix discolor*), Heartleaf Willow (*Salix eriocephala*), Bebb's Willow (*Salix bebbiana*), Slender Willow (*Salix petiolaris*), Red-osier Dogwood (*Cornus stolonifera*) and, occasionally, Gray Dogwood (*Cornus foemina*). One thicket swamp is dominated by Eastern Buttonbush (*Cephalanthus occidentalis*). Common in the understorey are a variety of grasses, sedges and herbs. Most frequent are Reed Canary Grass, Fowl Manna Grass, Red-top, Fowl Meadow Grass, Creeping Bent Grass (*Agrostis stolonifera*), Common Cattail (*Typha latifolia*), Narrow-leaved Cattail (*Typha angustifolia*), Hop Sedge (*Carex lupulina*), Fox Sedge, Wool-grass (*Scirpus cyperinus*), Water-parsnip (*Sium suave*), Tall Goldenrod (*Solidago altissima*), Tall White Aster, Marsh Fern, Purple-stemmed Aster (*Aster puniceus*), Purple Loosestrife (*Lythrum salicaria*) and Spotted Joe-pye-weed (*Eupatorium maculatum*).

Mixed and coniferous swamps occur in 18% of the wetlands. They have a mixture of coniferous trees dominated by White Cedar and, occasionally, Balsam Fir in association with deciduous trees of Trembling Aspen, Black Ash, Green Ash, and, occasionally, Red Maple, White Birch, White Elm and Basswood. Common in the understorey are Sensitive Fern and, occasionally, Spotted Jewelweed, Bulblet Fern (*Cystopteris bulbifera*), Reed Canary Grass, Fowl Manna Grass and Virginia Creeper.

Graminoid marshes are found in 3% of the wetlands. They are dominated by Reed Canary Grass and, in a few areas, by Lined Bulrush (*Scirpus pendulus*) and an mixture of Tall Scouring Rush (*Equisetum hyemale*) and Variegated Horsetail (*Equisetum variegatum*).

Marshes of Common Cattail (*Typha latifolia*), Narrow-leaved Cattail (*Typha angustifolia*) and Hybrid Cattail (*Typha* X *glauca*) cover 2% of the wetlands.

A herbaceous marsh (1% of the wetlands) is dominated by Grass-leaved Goldenrod (*Euthamia graminifolia*).

In several dug-out open ponds there are open water aquatic communities (1% of the wetlands) consisting of floating aquatics of Common Duckweed (*Lemna minor*) or submergent beds of Starwort (*Chara* sp.).

The Paradise Beach – Island Grove Wetlands sustain a diversity of surrounding upland habitats including coniferous, mixed and deciduous forests, regenerating meadows, agricultural lands and hedgerows. The forest types include Sugar Maple deciduous forests, mixed forests of Eastern Hemlock and Sugar Maple, and younger

successional coniferous. mixed and deciduous forests of White Cedar, Trembling Aspen and White Birch.

The diversity of wetlands and adjacent uplands at Paradise Beach – Island Grove explains its diversity of plants and animals. There are 290 vascular plant species and incidental wildlife observations on mammals such as Grey Squirrel, White-tailed Deer, Coyote, Red Fox., Porcupine, Raccoon, Mink, Muskrat and Beaver and reptiles and amphibians such as Snapping Turtle, Midland Painted Turtle, Eastern Gartersnake, Wood Frog, Chorus Frog, American Toad, Leopard Frog, Green Frog and Bullfrog. Wild Turkeys were noted in the wetland swamp. Four fish species were observed in the wetlands near Lake Simcoe including Northern Pike, Smallmouth Bass, Smelt and Emerald Shiner (OMNR 1987). Fish fry were also found upstream in three wetland ponds (Wetlands No. 27, 31 & 33) and in pools along a stream through a Green Ash swamp (Wetland No 22).

Adjacent uplands are important for many wetland species at Paradise Beach – Island Grove and are critical for the maintenance of its wetland functions. The population of woodland amphibians such as Wood Frog rely on spring-flooded wetlands for breeding but forage and hibernate in surrounding upland forests. Chorus Frogs and American Toads also rely on spring-flooded wetlands for breeding but forage and hibernate in surrounding upland meadows and farm fields, with the toad also in forests. The resident Painted Turtle and Snapping Turtle reside in wetlands but have to nest in uplands. The population of Green Frogs and Leopard Frogs found in open water wetlands also forage in the surrounding regenerating uplands.

Social Component

The Paradise Beach – Island Grove Wetland Complex receives a score of 131 for its social component.

The wetlands receive moderate scores for economically valuable products and recreational activities. Deer hunting and trapping occurs in the wetlands. Landowners have developed trails through and around the wetlands for nature appreciation and hiking.

All the wetlands are in private ownership. They are next to cottage communities such as Paradise Beach and Island Grove along Lake Simcoe, and are within 10 kms of the larger communities of Keswick and Sutton.

The wetlands are in relatively good condition. Drains have contributed to some drying out of wetlands. There has been some filling and marina development in wetlands adjacent to Lake Simcoe. In several wetlands, invasive introduced species such as Purple Loosestrife (*Lythrum salicaria*) and Swallow-wort (*Cynanchum rossicum*) have become common. The introduced shrub Common Buckthorn (*Rhamnus cathartica*) has become common in the swamps.

Hydrological Component

The Paradise Beach – Island Grove Wetland Complex receives a high score of 211 for its hydrological component. Its 390 ha of wetlands represent over 98% of all the water detention or storage areas in the three watersheds covered by wetland complex. The wetlands also cover a relatively high 23% of the surface area for these three watersheds. The Paradise Beach – Island Grove Wetlands thus serve a critical role in water storage and in short term water quality improvement for three small watersheds that drain into Lake Simcoe.

The Paradise Beach – Island Grove Wetlands with their sandy soils contribute to groundwater recharge. Several wetlands have seepage zones and iron precipitates that indicate groundwater discharge.

Special Features

The Paradise Beach – Island Grove Wetland Complex receives a high score of 216 points for its special features.

It is situated on the Simcoe Lowlands in site district 6E6. The Simcoe Lowlands encircle Lake Simcoe and encompass the former bed of glacial Lake Algonquin, which includes today's Lake Huron, Lake Simcoe and intervening lowlands. Site district 6E6 also includes the Simcoe Uplands, the former islands in glacial Lake Algonquin.

Wetlands are given a moderate score of 40 points for rarity on the landscape in site district 6E6. This score reflects the historic loss of wetlands in the site district and the remaining amount of wetlands. In site district 6E6, wetlands cover about 10% of its surface area (OMNR 1993-2002). Wetlands on the Simcoe Lowlands tend to be large wetlands in broad shallow valleys such as

the Holland and Black Rivers and along the shores of Lake Simcoe.

The Paradise Beach – Island Grove Wetlands have 18 significant species (see Table 1). There are 4 regionally rare plants species and 14 locally rare plant species that occur scattered in a variety of wetlands.

Table 1. Significant Species

Regionally Significant Plant Species (rare in MNR's former Central Region)
Source: Steve Varga, Pat Mohr & Michelle Cook field observations and collections 2003
Status: Rare in OMNR's former Central Region, an area covering central site region 6 and the eastern part of site region 7, based on Riley 1989

1. *Carex atherodes* (Awned Sedge)
2. *Epilobium strictum* (Downy Willow-herb)
3. *Gentianopsis crinita* (Fringed Gentian)
4. *Ranunculus flabellaris* (Yellow Water Buttercup)

Locally Significant Plant Species (Rare in the Regional Municipality of York)
Source: Steve Varga, Pat Mohr and Michelle Cook field observations and collections 2003.
Status: Rare in the Regional Municipality of York being known from 10 or less locations, with a location defined as a 2X2 km square, based on Varga S. et al. 2001.

1. *Cephalanthus occidentalis* (Eastern Buttonbush)
2. *Eleocharis acicularis* (Needle Spike-rush)
3. *Hypericum majus* (Larger Canadian St. John's-wort)
4. *Juncus alpinoarticulatus* (Richardson's Rush)
5. *Lobelia cardinalis* (Cardinal-flower)
6. *Ludwigia palustris* (Marsh Purslane)
7. *Menispermum canadense* (Moonseed)
8. *Penstemon digitalis* (Foxglove Beard-tongue)
9. *Phegopteris connectilis* (Northern Beech Fern)
10. *Physocarpus opulifolius* (Ninebark)
11. *Physostegia virginiana* (Virginia False Dragonhead)
12. *Platanthera hyperborea* (Northern Green Orchid)
13. *Potamogeton gramineus* (Variable-leaved Pondweed)
14. *Proserpinaca palustris* (Field Mermaid-weed)

Paradise Beach – Island Grove supports a provincially rare wetland type, the Eastern Buttonbush thicket swamp (Bakowsky 1996) in Wetland No. 29. It is a southern wetland type, known from only this one location in the Greater Toronto Area portion of site district 6E6. Elsewhere in the Greater Toronto Area it is known from only 10 other locations that are all confined to site district 7E4 near Lake Ontario.

The Paradise Beach – Island Grove Wetlands are important for wildlife. Its 70 hectares of mixed and coniferous swamps and deciduous swamps with White Cedar in the understorey are locally significant for wintering White-tailed Deer. The swamps and associated upland forests support sensitive breeding forest bird species such as Pileated Woodpecker, White-throated Sparrow, Ovenbird and Ruffed Grouse. Waterfowl such as Mallard breed and stopover in the more open wetlands. The wetlands also support locally significant fish habitat.

Conclusion
The Paradise Beach – Island Grove Wetland Complex is provincially significant with a total score of 747 points. A wetland that scores 600 or more points or has 200 or more points in either the biological or special features component is provincially significant.

Its 38 wetlands comprise a large and diverse wetland complex, noteworthy for its swamps, and marshes and its significant species.

Recommendations
Major wetland functions to be maintained at the Paradise Beach – Island Grove Wetland Complex include; its diversity of wetlands; its diversity of species and community types; its streams; its significant species, its amphibian breeding areas, its good quality association of wetlands and uplands and its wildlife corridors.

To ensure that Paradise Beach – Island Grove wetland functions are maintained, it is important to maintain water quality, quantity and duration to the wetlands. Alterations to water regimes, even minor ones, could have dramatic impacts on wetland communities and their resident species.

A long-term water budget should be considered for the Paradise Beach – Island Grove Wetlands. If possible, the phasing out of at least some ditches in the vicinity of the wetlands would be an important step in improving its water regime.

The diversity of wetland species at Paradise Beach – Island Grove Wetlands is the result of its large and diverse wetlands that are connected to each other and to adjacent upland habitats. To maintain species, the network of wetlands and uplands needs to be maintained and strengthened.

Critical adjacent uplands for the wetland species include the surrounding forests as well as regenerating meadows, agricultural lands and pastures.

The population of woodland frogs are dependent on forests for hibernating and foraging, and they can travel a considerable distance to get to them. It is critical for woodland frog survival that broad travel corridors be maintained between their forests and breeding areas. Populations of Green Frog and Leopard Frog, around their wetlands, require adjacent regenerating meadows and farmland for foraging. Chorus Frogs and American Toads also need open habitats for foraging.

The presence of forest bird species necessitates maintaining its swamps and associated forests. A number of forest birds require larger blocks of woodlands for their survival and experience declines following urban development (Friesen et al. 1995).

Wildlife corridors in and around the Paradise Beach – Island Grove Wetland Complex need to be strengthened. Studies have shown the importance of wildlife corridors in maintaining diversity and resiliency in an ecosystem (Riley and Mohr 1994, OMNR 2000). In addition to the smaller-scale travel corridors between the wetlands and their adjacent upland forests and meadows there are also larger-scale wildlife corridors. There are riparian corridors along the tributary streams from the wetland complex north to Lake Simcoe. As well there is a major overland connection to the east to large forests and wetlands that are part of the Willow Beach Wetland Complex (OMNR 1994).

Encouragement should be given to increasing forest cover in and around the wetland complex, along stream corridors and in the major overland connection to the east.

References

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