

**Habitat Stewardship for  
Forest Birds at Risk in the Carolinian Zone**

**Twelve Mile Creek Headwaters  
Important Bird Area**

**A  
Conservation Planning Report**

**Prepared for the Federation of Ontario Naturalists, Bird Studies Canada and the Hooded  
Warbler and Acadian Flycatcher Recovery Team**

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## Executive Summary

The Twelve Mile Creek Headwaters Important Bird Area (IBA) is the second most important location for breeding populations of Hooded Warblers in Canada (33 pairs in 2003). This IBA also has recorded Acadian Flycatcher (one territory in 2003), and in recent years, Louisiana Waterthrush. The IBA includes eight key natural areas, some directly connected to each other and some isolated. They are:

- DeCew Falls and Gorge
- Short Hills Provincial Park
- Twelve Mile Creek Valley
- Effingham Forest
- North Pelham Valley (including the Short Hills Sanctuary)
- St. John's Woodlot
- St. John's Valley (including St. John's Conservation Area)
- Fonthill-Sandhill Valley

This plan describes the overall planning environment affecting the IBA as well as each of these sites and the significant bird species known to breed at each site. The specific habitat conditions for each species are described in Section 5. Threats to the species and sites are described in Section 7. Key stakeholders are described in Section 8. The Niagara Peninsula Conservation Authority (see Section 9) is in the best position to lead many of the conservation efforts relevant to this plan through the implementation of its own Twelve Mile Creek Watershed Strategy. Section 10 lays out goals, objectives, and actions to strengthen bird conservation in general and the species at risk in particular.

The IBA Steering Committee was fortunate to receive funding to undertake detailed and intensive breeding bird surveys throughout much of the IBA. Findings from these surveys are presented and described in this report. Following are the four overall goals of this Conservation Plan:

- *Maintain and enhance breeding populations of species at risk and other forest species of concern, specifically Hooded Warbler, Acadian Flycatcher, and Louisiana Waterthrush.*
- *Reduce human-related factors associated with reproductive failure and mortality among forest birds generally and species at risk specifically.*
- *Provide stakeholders and the public in the IBA with information and learning opportunities to support the habitat needs of IBA species.*
- *Encourage and support monitoring and research on forest birds within the IBA, particularly species identified within this plan.*

## Acknowledgments

The Habitat Stewardship Program is part of the Species at Risk program of the Canadian Wildlife Service, Environment Canada. The Important Bird Area (IBA) program is a nation-wide initiative to conserve wildlife and habitats on private and public lands.<sup>1</sup> We gratefully acknowledge the financial support of the federal government's Species at Risk Habitat Stewardship Program, Ontario Region. Bird Studies Canada is the lead partner in administering this program in Ontario.

The Canadian Nature Federation and Bird Studies Canada are the national partners of BirdLife International in Canada. The Federation of Ontario Naturalists is responsible for site conservation planning in Ontario IBAs.

The Community Action Fund of the Canadian Nature Federation as well as funding from Human Resources Development Canada permitted employment of birding consultants Robert Stamp and John Olmstead and students Ross Wood and Briane MacLaurin. Their collective fieldwork confirmed the significance and extent of the importance of this IBA for Hooded Warbler as well as other species.

Warren Beacham, Robert Curry, George Dewar, Lyle Friesen, Kim Frohlich, David Gonzalez, Marcie Jacklin, Deanna Lindblad, Brian McHattie, Suzanne McInnis, Frank Morley, and John Potter, provided initial input for this report. The Niagara Peninsula Conservation Authority (NPCA) has been most helpful in providing logistical support. Deanna Lindblad of NPCA and Jon McCracken of Bird Studies Canada both contributed much in materials and resources, making this project possible.

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<sup>1</sup> See Appendix 1 for description of IBA partners

## 1. Introduction

The Twelve Mile Creek Headwaters Important Bird Area (IBA) is of national significance due to breeding populations of Hooded Warbler (HOWA) (32 pairs), and Acadian Flycatcher (ACFL) (one territory). The area contains significant numbers of additional forest-breeding species of regional significance and may have additional species of significance yet unknown.

The distribution and abundance of birds in this IBA has been clarified by fieldwork conducted over the bird-breeding season of 2003. In 2003, 33 territories of HOWA were located, making the IBA the second most important site for this species in Canada! Prior to this work, the population for HOWA within the IBA was believed to be about eight pairs, based largely on surveys by local naturalists and fieldwork for the Niagara Escarpment Biosphere Reserve (Riley et al. 1996).

The suggested boundaries of this IBA are intended to include forested and natural areas in the Twelve Mile Creek Headwaters as indicated in Figure 1. Specifically, the IBA will include or consider the following sites and the intervening lands, identified as either “Escarpment Core” or “Escarpment Protection Area” in the Niagara Escarpment Plan:

- DeCew Falls and Gorge
- Short Hills Provincial Park
- Twelve Mile Creek Valley
- Effingham Forest
- North Pelham Valley (including the Short Hills Sanctuary)
- St. John’s Woodlot
- St. John’s Valley (including St. John’s Conservation Area)
- Fonthill-Sandhill Valley

The main goal of this project is to develop a meaningful conservation action plan for the Twelve Mile Creek Headwaters IBA that primarily addresses the needs of Hooded Warblers, Acadian Flycatchers, and other species of national concern, as well as forest birds in general. The action plan is intended for the stakeholders within the valley, including landowners and managers, agencies and interest groups, and the Species at Risk Recovery Teams. The plan has been developed in response to a need to enhance conservation efforts for target species at this site, with the ultimate objective of significantly increasing local populations of ACFL and HOWA. As well, there are many real or potential threats to birds and their habitats within the area.

On February 25, 2003, representatives of some stakeholders assembled at the offices of the Niagara Peninsula Conservation Authority to discuss the development of a bird conservation action plan for the IBA. Groups represented were the Conservation Authority, the Friends of Short Hills Park, the Hamilton Naturalists’ Club, the Peninsula Field Naturalists, the Bert Miller Nature Club, and the Niagara Falls Nature Club. The meeting included a discussion of each site as well as an expression of interest by each person on the project. From this meeting, a steering committee of representatives was formed to provide direction for the development of this plan. Additional information on the IBA was gathered from published sources as well as through

discussions with Deanna Lindblad, who is responsible for implementing the Conservation Authority's Twelve Mile Creek Watershed Strategy (Niagara Peninsula Conservation Authority, 2000). Finally, fieldwork conducted over the spring and early summer of 2003 provided critical information on the distribution and abundance of species at risk within the IBA. This report summarizes progress to date and lays out the targets of this project.

## **2. Definition and Overview Description of the Core Complex**

The Twelve Mile Creek Headwaters form a complex incised series of valleys also called the Short Hills Valley in the Fonthill Kame. The Fonthill Kame, a thick glacial deposit, covers a major re-entrant valley in the Niagara Escarpment south and west of the city of St. Catharines. The IBA is really a complex of natural areas, roughly bordered by St. Catharines to the north, Thorold to the east, the town of Lincoln to the north, Regional Road 28 to the west, and Tice Road and the town of Fonthill to the south. The steep incised valleys in this complex landscape have largely forested slopes and ridges. Numerous tributaries of the Twelve Mile Creek start or flow out of the Kame, forming steep valleys (Riley et al., 1996, p. 71). The core natural areas that are identified within this plan include:

- DeCew Falls and Gorge
- Short Hills Provincial Park
- Twelve Mile Creek Valley
- Effingham Forest
- North Pelham Valley (including the Short Hills Sanctuary)
- St. John's Woodlot
- St. John's Valley (including St. John's Conservation Area)
- Fonthill Sandhill Valley

### **2.1 Core Natural Areas**

#### **2.1.1 DeCew Falls and Gorge**

This area occurs on the northwest side of the IBA. It includes one kilometre of spectacular gorge that cuts north through the escarpment. At times the gorge walls are over 40 metres in depth. To the south, above the 20 metre waterfall, are the Fonthill Kame uplands and valleys. The slopes are heavily forested with Hemlock, Maple, and Oak. The wide bottomlands support Sugar Maple, White Elm, and Black Maple along with more disturbed forest of Manitoba Maple, Crack Willow, European Alder, and Black Walnut (Riley et. al., 1996). The gorge supports 38 vegetation community types sustaining 292 vascular plant species, many of them significant (ibid.).

The only recorded sighting of the endangered Acadian Flycatcher on this site was during fieldwork in 2003. The bird was recorded over three consecutive days, then not heard or seen again. No other significant species were reported for this core area, though it has potential habitat for both breeding and migrating birds.

The Decew Gorge is currently Crown land, owned by the Province of Ontario, and will soon be incorporated into Short Hills Provincial Park. It is identified by Riley et al. as a Regionally Significant Area of Natural and Scientific Interest (ANSI).

There are no significant threats to the site. However, low-grade disturbance from recreational use and the presence of exotic species both affect the site's ecology.

### 2.1.2 Short Hills Provincial Park

This 770 hectare park is the only provincial park on the Niagara Peninsula. It is situated in the north half of the IBA, at the mouth of the Short Hills Valley at Decew Falls. The park includes several woodlots, agricultural lands that support cultivated fields, early successional forests, and old field habitats. The Twelve Mile Creek and its tributaries, including Terrace Creek and Swayze Creek (both provincial Areas of Natural and Scientific Interest), dissect the Fonthill Kame, forming a highly complex topography of ridges, valleys, and uplands. The many forests in this core site range from Maple-Oak dominated uplands to cooler stands of Hemlock, early successional woodlands of Aspen and White Birch, and bottomland forests dominated by Black Maple and Black Walnut (Riley et al., p. 75). This park supports 37 vegetation communities, 428 vascular plants, and many significant species of both flora and fauna.

Breeding birds include Hooded Warbler (one confirmed breeder), Louisiana Waterthrush (no records in 2003), Tufted Titmouse, Orchard Oriole, and Black-throated Green Warbler. The park's forests link with other woodlands within the IBA for a total of over 900 hectares of forest, making it one of the largest woodlands on the Niagara Peninsula (ibid., p. 76).

This park is owned by the Province of Ontario and managed through Ontario Parks, the agency responsible for administering provincial parks. The Superintendent of Short Hills Provincial Park is also responsible for Rock Point Provincial Park. No full-time staff work in the park. The park has no camping facilities and is only open for day use. In the late 1990s, the park, largely through the non-profit group Friends of Short Hills, began a program to reforest some of its fallow and cultivated fields (G. Dewar, pers. comm.). Since that time 120,000 trees have been planted, with the hope that eventually forest interior conditions will be expanded. At present the park contains only about 22 hectares of forest interior (Riley et al., p. 76).

### 2.1.3 Effingham Forest

This privately owned 75 hectare forest occurs on the Fonthill Kame, an area located in the central-western part of the IBA. Effingham Forest is mostly upland mesic and valley slopes of Sugar Maple, American Beech, Red Oak, and Shagbark Hickory, with some cooler slopes of Hemlock and Sugar Maple (ibid., p. 89). The site supports 12 vegetation communities and 192 vascular plant species. Fieldwork in 2003 turned up nine territories of Hooded Warbler, confirming breeding for six! Prior to 2003, Hooded Warblers were not known in this site, likely

because the area was inadequately surveyed. There is also a historic record of Yellow-breasted Chat (1961).

Riley et al. recommended the site as a Regionally Significant Area of Natural and Scientific Interest (1996). As Effingham Forest is entirely privately owned, it is not protected from development pressures or logging. Estate residential development is occurring on the perimeter of the forest. Though the area is within the escarpment protection area and the escarpment core area, development pressures persist. There also is selective logging within parts of this forest, which may be enhancing conditions for Hooded Warbler. A large maple syrup operation occurs in the forest. Participants at the stakeholder meeting felt that the potential threats to this site were high (February, 2003).

Effingham Forest is one of three critical core areas for Hooded Warbler in the IBA. Current forest management practices appear to be supporting this species. A stewardship agreement with current owners to secure the property from future subdivision, development, or a change in forest management practices would be of great conservation value.

#### 2.1.4 North Pelham Valley (including the Short Hills Sanctuary)

The Hamilton Naturalists' Club Short Hills Sanctuary is one of two large parcels that make up the balance of this 44 hectare site on the southeast side of the IBA. The site is characterized by forested ridges and slopes along one of the tributaries of Twelve Mile Creek. Numerous seeps and streams flow from the area, creating a diversity of habitat types from mesic slope forests to open Skunk Cabbage meadow marshes and even a graminoid fen (Riley et al. 1996. p. 91). The site supports 18 vegetation communities and 442 species of vascular plants (ibid.).

Breeding birds include Hooded Warbler (historical, none in 2003), Red-breasted Nuthatch, and Yellow-throated Vireo – one of only two sites in the IBA for this species. Other significant species of fauna include Southern Flying Squirrel, Southern Red-backed Vole, and Five-lined Skink.

Lands adjacent to the sanctuary are not protected. A hydro corridor bisects the property. It is unclear what plans Ontario Power Generation might have for this corridor. Some selective logging has occurred in the privately owned lands adjacent to the sanctuary. The North Pelham Valley is recommended as a Provincially Significant Area of Natural and Scientific Interest (ANSI) by Riley et al. (1996).

#### 2.1.5 St. John's Woodlot

This nine-hectare woodland, located near the south end of the IBA, is like many of the other sites on a smaller scale with a diversity of uplands, incised valleys, and bottomlands. The site supports five vegetation communities with 93 vascular plant species (ibid., p. 86). St. John's Woodlot supports four forest-interior species including Hooded Warbler (one territory in 2003)



and one raptor. Most importantly, it is connected, with minor breaks, to other forested areas within the IBA.

Nature Conservancy of Canada owns much of this site. Two residences have been built on the western side of the tract. Despite the presence of these homes, this site has no significant threats.

#### 2.1.6 St. John's Valley (including St. John's Conservation Area)

The St. John's Valley is one of three critical core areas for Hooded Warbler in the IBA. The 48-hectare St. John's Valley includes St. John's Conservation Area and some adjacent private lands. The valley is located adjacent to the northwest corner of the Fonthill-Sandhill Valley, just north of Fonthill near the south end of the IBA. This area occurs near the top of the Short Hills Valley and includes a series of deeply incised ridges, some up to 30 metres deep. The Conservation Area contains mature stands of Sugar Maple, Oak, Ash, and the largest population of Tulip Tree on the Niagara Peninsula (Riley et al. 1996, p. 83). Much of this forest is managed to promote old growth conditions (Frohlich, pers. comm.). The site supports 12 vegetation communities and 501 vascular plant species.

Breeding birds recorded at this site include Hooded Warbler, Tufted Titmouse, and Blackburnian Warbler. Eleven territories (seven confirmed breeding) of Hooded Warbler were located in 2003! Cold-water streams also flow through this forest, as well as some of the other forest patches within the IBA. Tributaries of Twelve Mile Creek are the only cold-water streams on the Niagara Peninsula (Lindblad, pers. comm.).

Most of this site is within the boundaries of the St. John's Conservation Area. It is classified as a Provincial Area of Natural and Scientific Interest (ANSI) combined with the adjacent Fonthill Sandhill Valleys. This area has numerous hiking trails with interpretive panels and is a popular destination for walking. The area also has a stocked trout pond that is an extremely popular fishing destination. Some of the adjacent private lands could potentially be developed.

#### 2.1.7 Fonthill Sandhill Valleys

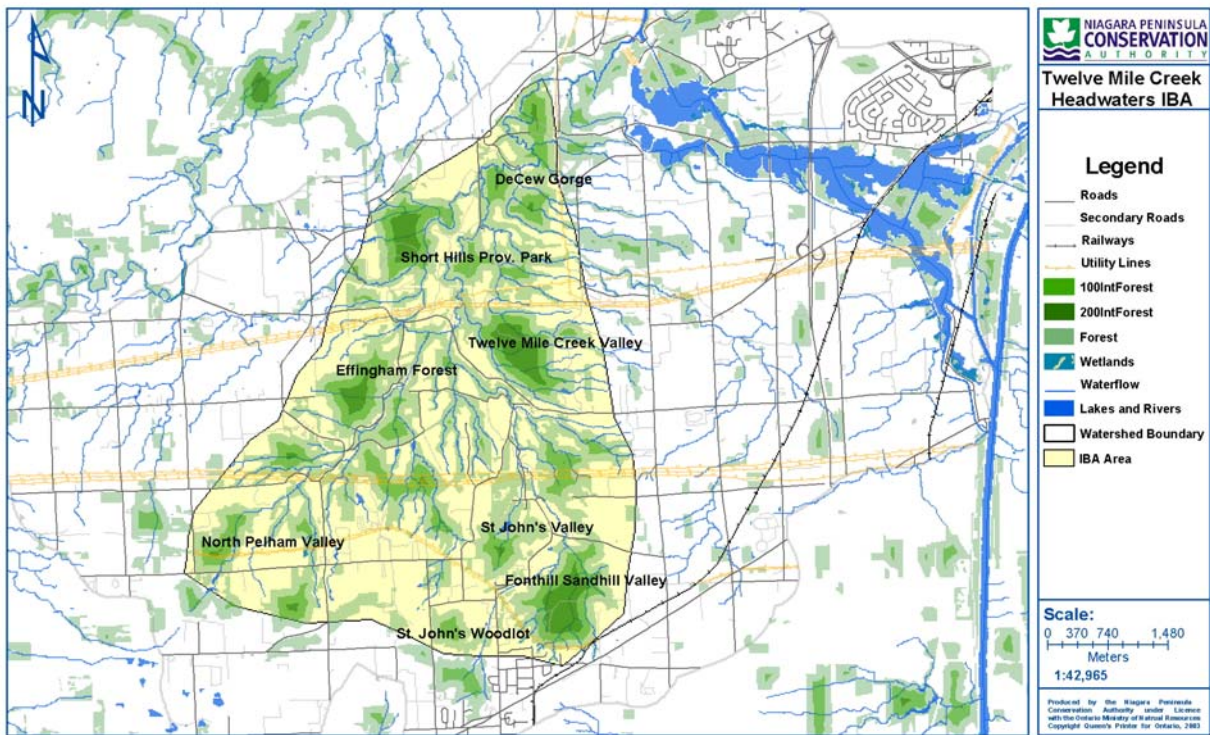
Located at the top of the Short Hills Valley on the edge of Fonthill, this spectacular series of ridges and valleys contains some of the best examples of kame valley forests and seepage meadow marshes in the valley. Several springs and streams flow from the kame at this site. The site is 102 hectares in size, of which approximately 70 percent is owned privately and 30 percent by the town of Thorold (Riley et al. 1996., p. 79). This site supports 22 vegetation communities with 354 vascular plant species (ibid.).

This area is also one of the three critical core areas for Hooded Warbler in the IBA. Eleven territories for this species were located during fieldwork in 2003. Other significant records for

this site include Yellow-bellied Sapsucker, Red-breasted Nuthatch, and a spring observation of Kentucky Warbler (a species never confirmed as breeding in Canada) several years ago.

Combined with the St. John's Valley, the Fonthill Sandhill Valley is identified as a Provincial Area of Natural and Scientific Interest. Despite this designation, this site has potentially the greatest threats from development and development associated pressures of all sites under discussion here. Unauthorized use of the area by trail bikes has caused erosion and introduced disturbances and exotic species. Perhaps more significant is the possibility of new development and its potential influence on the significant area. Such development typically increases peak flows during storm events since it creates impermeable surfaces that reduce infiltration of surface water into the ground, directing more to surface systems. Increased peak flows can cause serious erosion downstream such as undercut stream banks and slumping, resulting in loss of nutrients. The corollary is reduced infiltration, which ultimately could impact groundwater balances and alter the ecology of the groundwater-dependent communities of the natural areas. All of these issues have the potential of posing serious threats to this significant site.

Figure 1. The Twelve Mile Creek Headwaters Important Bird Area



### **3. The Planning Environment**

All of the lands within this IBA fall under the jurisdiction of the Niagara Escarpment Plan and with provincial policy statements as they apply to Provincially Significant Lands. Four Provincially Significant Areas of Natural and Scientific Interest (ANSIs) lie within the site: Fonthill Sandhill Valleys and St. John's Valley, Short Hills Provincial Park, Effingham Forest, and the North Pelham Valley (Riley et al. 1996, Niagara Peninsula Conservation Authority (2000). The Regional Municipality of Niagara's Official Policy Plan's (September 2001) strategy for development and conservation (Chapter 3) and Natural Resources and Environmental Areas policies (Chapter 7) apply to this site. As well, Short Hills Provincial Park and St. John's Conservation Area each have their own respective master plans.

#### **3.1 Niagara Escarpment Plan**

The Niagara Escarpment Plan (NEP) was established in 1985 by the province to give the 725 kilometre-long escarpment added planning protection from development pressures, recreational activities, agricultural uses, and quarrying and aggregate extraction. The Twelve Mile Creek Headwaters IBA is located within the Niagara Escarpment planning area. Development within this area must have regard for the requirements of the NEP. Within the NEP, all of the core areas identified in the IBA are zoned as "Escarpment Core" and basically can not be developed. Much of the intervening landscape is zoned "Escarpment protection," where the regulatory environment does permit certain types of development. These zonings take precedence over municipal plans.

In 1990 the United Nations Educational Scientific and Cultural Organization (UNESCO) named the Niagara Escarpment a World Biosphere Reserve. While this designation does not carry specific regulations, it does bring added awareness to the overall significance and value of the Niagara Escarpment.

#### **3.2 Areas of Provincial Significance**

Four Provincial Areas of Natural and Scientific Interest (ANSIs) lie within or adjacent to the conservation area: Fonthill Sandhill Valleys and St. John's Valley, Short Hills Provincial Park, Effingham Forest, and the North Pelham Valley (Riley et al. 1996, Niagara Peninsula Conservation Authority, 2000). While these areas are recognized in the Region's Official Policy Plan, ANSIs are not specifically mentioned as part of the protected area policy. The Region is currently in the process of revising its Official Plan. Development proposals (legal changes in land use or zoning) within or adjacent to an ANSI are subject to review by the Ontario Ministry of Natural Resources. Many municipalities accord ANSIs special environmental protection status within their official plans.

### 3.3 The Regional Municipality of Niagara Official Policy Plan

In September 2001 the Region completed an “Office Consolidation” of the Regional Niagara Policy Plan. This plan lays out the Regional government’s policy with regard to many areas under Regional jurisdiction. Many strategies are elaborated in the plan, from policies related to urban development to agriculture to natural resource management and environmental protection. The Official Policy Plan lays out seven strategic objectives, along with underlying principles to achieve the overall goal to “preserve and enhance what is special about Niagara while also accommodating growth and new development” (Regional Municipality of Niagara, 2001, p.10). Three of the objectives are of particular relevance to this project:

1. To encourage two discontinuous development corridors, one between Thorold and Port Colborne and the other between Niagara Falls and Fort Erie, through enabling public policies.

One underlying principles of this objective of particular interest to this conservation plan is: “access to be improved by completion of Highway 406 and the mid-peninsula transportation corridor” (ibid., p.11).

2. To preserve and enhance the ecological processes and life-support systems essential for sustaining human well-being and the health of the natural environment.

The fourth principle under this objective is “contributions of natural areas” (e.g., wetlands).

3. To provide for the conservation and wise use of Niagara’s agricultural and other natural resources, through environmentally sound resource use without compromising the needs of future generations.

The fifth principle listed under this objective is “Conservation of forest resources, fisheries, and significant landscape features.”

“Natural Resources and Environmental Areas,” Chapter 7 of the Official Plan, deals with the environment. This section refers to several types of policy areas in the Official Plan including “Environmentally Sensitive Areas.” The fourth and fifth paragraphs of Section 7 refer to the subject area of this project in context of the Region:

The Niagara Escarpment, the Short Hills, the Lake Erie and Lake Ontario shorelines, the major river and stream valleys, the Niagara river and the Welland Canal lands are the primary areas for the provision of recreational, open space and park areas in the Region. These areas form an interlinking network of corridors which must be protected to meet the needs of the Region’s valuable tourist industry, the increasing desire of residents for recreational and scenic areas and also as a continuing and irreplaceable natural heritage.

The various marshes, forested areas, lakes, rivers and other dispersed locations of valuable or endangered plant and animal life provide a necessary link in the maintenance of natural systems, a living laboratory for study and research and an important source of sport and recreational activities. There is a special urgency to protect these areas since they represent a particularly fragile and, in many cases, a rapidly disappearing natural resource (ibid., p.55).

Policy 7B is Environmentally Sensitive Areas (ESAs). The areas are identified on a map within the Official Policy Plan in a conceptual way (ibid., p.62). It is stated, “More precise boundaries for environmentally sensitive areas will be established over time based on further study and individual environmentally impact statements” (ibid., p. 58).

Two very generally worded objectives and seven specific policies relate to ESAs. Policies 7B1 and 7B2 include consideration of the establishment of an Environmental Advisory committee. This committee will establish criteria to identify ESAs, undertake inventories and improve knowledge base of the sites, revise policies regarding ESA use, and describe what is needed for an impact study. Policy 7.B.3 relates to uses, limiting them to agricultural, forestry, and rural non-farm residential uses (rural development). For this particular use, the policy states that the Region may require an impact study, which is defined in a very general way. Policy 7.B.4 prevents incompatible uses, which are not described. Policy 7.B.5 supports protecting and “improving the quality of” ESAs. 7.B.6 supports acquisition of ESAs when possible. 7.B.7 permits public utilities, communications and transportation facilities in or through ESAs when “it can be demonstrated that the advantages of any project outweigh the disadvantages.” This policy might raise eyebrows, as it would be through it that, for example, a mid-peninsula highway through the IBA could receive Regional approval. Policy 7.B.8 recognizes the general nature of its own ESA map in that local mapping could supersede the general ESA map. Policy 7.B.9 explains that, along escarpment lands, the ESA map will coincide with the Escarpment Natural Area.

### 3.4 Site Specific Plans

Both Short Hills Provincial Park and the St. Johns Conservation Area have master plans in place. The Short Hills plan has not been reviewed for this preliminary report. The master plan for St. John’s Conservation Area was completed in 1980. Within this plan, much of the area is zoned as “natural area.” A series of trails are laid out throughout the site, and a recreation zone surrounds the trout-fishing pond, the only area designed or intended for heavy use.

## 4. Species at Risk

Figure 2. Ranks of Avian Species at Risk in the Twelve Mile Creek Headwaters IBA

Common Name	Scientific Name	COSEWIC SAR <sup>2</sup>	MNR SAR <sup>3</sup>	Global Rank	National Rank	Provincial Rank
Acadian Flycatcher	<i>Empidonax virescens</i>	END		G5	N2B	S2B,SZN
Hooded Warbler	<i>Wilsonia citron</i>	THR		G5	N3B	S3B,SZN
Louisiana Waterthrush	<i>Seiurus motacilla</i>	SC	VUL	G5	N3B	S3B,SZN

<sup>2</sup> Council on the Status of Endangered Wildlife in Canada – Species at Risk

<sup>3</sup> Ministry of Natural Resources Species at Risk

Figure 3. Distribution of Hooded Warblers in the Twelve Mile Creek Headwaters IBA

<b>Area</b>	<b>Number of HOWA territories</b>
DeCew Falls and Gorge Short Hills Provincial Park Twelve Mile Creek Valley	1*
Effingham Forest	9
North Pelham Valley (including the Short Hills Sanctuary)	0
St. John's Woodlot	1
St. John's Valley (including St. John's Conservation Area)	11
Fonthill-Sandhill Valley	11
<b>TOTAL</b>	<b>33</b>

\* ACFL also present

#### 4.1 Acadian Flycatcher

To describe the Acadian Flycatcher as a small, grey bird tinged with olive-green, two white wing bars, and eye rings is to describe a dozen Empidonax flycatcher species that inhabit North America, five of which are regularly observed in Ontario. On the other hand, to hear such a bird give its unique and explosive two-note song “peet-sah” during breeding season in appropriate habitat (see below) identifies it as Acadian Flycatcher. Kaufman (1990) thoroughly discusses and describes the identification of Empidonax flycatchers. Salabanks (1999) summarizes the natural history of the Acadian Flycatcher.

There have been no confirmed breeding records of Acadian Flycatcher in the IBA. During 2003 fieldwork, one ACFL was discovered over a three-day period in the DeCew Gorge. Subsequent visits to the site did not turn up this bird. Acadian Flycatcher has also been observed in the Fonthill Sandhill Valleys (D. Gonzalez, pers. comm.). Several of the areas appear to have appropriate habitat for this species.

#### 4.2 Hooded Warbler

On breeding territory, a male Hooded Warbler will sing loud, penetrating songs from dawn to dusk. Although these songs are easily heard, they are not readily recognized. But while this warbler's songs are variable and occasionally confused with other species, there is no mistaking its appearance. The black hood and throat surrounding a bright yellow face and relatively large black eye is striking. Its underparts are also bright yellow while its back is olive-green.

Three of the core natural areas have significant populations of Hooded Warblers. Fieldwork in 2003 revealed 11 territories with seven confirmed breedings in the St. John's Valley, 11 territories in the Fonthill Sandhill Valley, and nine pairs with six confirmed in the Effingham Forest. Individual territories were located in Shorthills Provincial Park (confirmed breeding) and St. John's Woodlot. This population of 33 potential pairs makes the Twelve Mile Creek Headwaters IBA the second most important site for Hooded Warbler in Canada, next to the St. Williams forest complex (McCracken, pers. comm.).

This warbler was first reported in Ontario in the late 1800s, but the first nest wasn't reported until 1949. Throughout much of the 1900s, birds observed in spring were dismissed as migration overshoots (Sutherland and Gartshore 1987). Not until the Atlas period in the 1980s and extensive studies by Gartshore (1988) was the Hooded Warbler recognized as a regular, though rare, breeder in parts of southwestern Ontario. Perhaps it was more widespread and common prior to European settlement when the landscape was dominated by deciduous forest. Evans Ogden and Stutchbury (1994) summarize the natural history of the species.

### **4.3 Louisiana Waterthrush**

In the family of North American birds known as warblers, two are known as waterthrushes, the Northern and Louisiana. Both waterthrushes have drab brown upper parts and white underparts marked with black-brown streaks. Both exhibit tail-bobbing behaviour. In Canada the Northern Waterthrush breeds in every province and territory, whereas the Louisiana is restricted to Ontario south of the Canadian Shield and sporadically into southwestern Quebec (Species at Risk 2000). Where breeding ranges overlap, the Louisiana can be distinguished by its distinctive song, white eyebrow stripe, lack of yellow on underparts, unspotted throat, and bright pink, stout legs. The Louisiana Waterthrush is the rarer of the two.

The Louisiana Waterthrush is mainly a bird of eastern United States where it is widely distributed but nowhere abundant. In Ontario its current population is between 150 and 300 pairs with its primary breeding location (100 pairs) within the Norfolk sand plain on Lake Erie (*ibid.*). Smaller numbers breed along the southern sections of the Niagara Escarpment including the Niagara Peninsula and the Kingston area along Lake Huron, north to Bayfield, and southern Georgian Bay (Eagles 1987).

There are possible breeding records for this species at Short Hills Provincial Park. An abundance of fast-flowing forested creeks would appear to provide appropriate habitat, though the 2003 survey team did not locate any birds. Team members noted that their surveys at the Short Hills site were later in June, perhaps past the detectable breeding period of Louisiana Waterthrush, which breeds earlier in the spring.

### **4.4 Kentucky Warbler**

There was one possible breeding record for Kentucky Warbler in the Fonthill Sandhill Valleys in 1993 (Riley et al. 1993, p. 81). Apparently this bird was recorded on one day only, never to be observed again. Kentucky Warbler has never been confirmed as breeding in Canada. Occasional records of singing males have occurred in various locations of Southern Ontario, however. Kentucky Warbler breeds in New York State and Ohio and is relatively common further south. The majority of Ontario records represent either unmated wandering males or overshooting migrants. Though this record is of interest, it is unlikely that it represents a probable breeding record.

#### 4.5 Other Avian Species of Interest

A variety of other species of birds that are provincially or regionally significant have been found in the IBA, and are cited in Riley et al. (1996):

- Cooper’s Hawk
- Yellow-bellied Sapsucker
- Yellow-throated Vireo
- Red-breasted Nuthatch
- Tufted Titmouse
- Carolina Wren
- Blue-winged Warbler
- Black-throated Green Warbler
- Blackburnian Warbler
- Orchard Oriole

#### 4.6 Non-Avian Species at Risk

The Twelve Mile Creek Headwaters IBA is of great significance to forms of wildlife other than birds.

Figure 4. Non-Avian Species at Risk in the Twelve Mile Creek Headwaters IBA<sup>4</sup>

Common Name	Scientific Name	Code	COSEWIC SAR	MNR SAR	Global Rank	National Rank	Provincial Rank
Common Five-lined Skink	<i>Eumeces fasciatus</i>	FLSK	SC	VUL	G5	N3	S3
Black Ratsnake	<i>Elaphe obsoleta obsoleta</i>	RASN	THR	THR	G5T5	N3	S3
Southern Flying Squirrel	<i>Glaucomys volans</i>	SFSQ	SC	VUL	G5	N4	S3
American Columbo	<i>Frasera caroliniensis</i>	FRACARO	SC		G5	N2	S2
Hawthorn	<i>Crataegus conspecta</i>	CRACONS			G3G4Q	N2	S1
Hawthorn	<i>Crataegus formosa</i>	CRAFORM			G2G3Q	N2	S2
Pawpaw	<i>Asimina triloba</i>	ASITRIL			G5	N3	S3
Cucumber Tree	<i>Magnolia acuminata</i>	MAGACUM	END	END	G5	N2	S2
Burning Bush	<i>Euonymus atropurpurea</i>	EUOATRO			G5	N3	S3
Black Gum	<i>Nyssa sylvatica</i>	NYSSYLV			G5	N?	S3
Flowering Dogwood	<i>Cornus florida</i>	CORFLOR			G5	N?	S3?
Honey Locust	<i>Gleditsia triacanthos</i>	GLETRIA			G5	N2	S2
Sweet Pignut Hickory	<i>Carya glabra</i>	CARGLAB			G5	N3	S3
White Wood Aster	<i>Eurybia divaricata</i>	ASTDIVA	END		G5	N2	S2
Green Violet	<i>Hybanthus concolor</i>	HYBCONC			G5	N2	S2
Bristly Buttercup	<i>Ranunculus hispidus var. hispidus</i>	RANHIHI			G5T5	N?	S3
Perfoliate Bellwort	<i>Uvularia perfoliata</i>	UVUPERF			G5	N2	S1
Biennial Gaura	<i>Gaura biennis</i>	GAUBIEN			G5	N2	S2
Nodding Onion	<i>Allium cernuum</i>	ALLCERN			G5	N?	S2
Tick-trefoil	<i>Desmodium</i>	DESCANE			G5	N2	S2

<sup>4</sup> List provided by Natural Heritage Resource Centre, Peterborough.



	<i>canescens</i>						
Toothed Tick-treefoil	<i>Desmodium</i>	DESCUSP			G5	N?	S3
	<i>cuspidatum</i>						
Deerberry	<i>Vaccinium</i>	VACSTAM	THR	THR	G5	N1	S1
	<i>stamineum</i>						
Hirsute Sedge	<i>Carex hirsutella</i>	CARHIRS			G5	N3	S3
Narrowleaf Sedge	<i>Carex amphibola</i>	CARAMPH			G5	N?	S2
Lowland Brittle Fern	<i>Cystopteris protrusa</i>	CYSPROT			G5	N2	S2

## 5. Habitat Requirements of Forest Bird Species at Risk

### 5.1 Acadian Flycatcher

This species requires extensive tracts of mature deciduous forest or wooded ravines with an understorey of saplings for nesting habitat, also associated with closed canopy and a relatively open understorey (Woodliffe 1987). While several areas within this IBA appear to provide excellent habitat for Acadian Flycatcher, no breeding evidence for this species has been found. More intensive searches will clarify this species status.

The breeding range of Acadian Flycatcher extends throughout the eastern United States north to the Great Lakes and southern New England. In Canada, its distribution is confined to the Carolinian and southern edge of the Great Lakes forest regions of Ontario. Widespread and common in the United States, the Acadian Flycatcher is designated an endangered species in Canada. Martin et al. (1999) estimate the Canadian population between 50 and 75 pairs. This estimate has since been reduced by the ACFL recovery team; the 2002-2003 Annual Report of RENEW gives the number as 20-30 pairs. (Friesen, pers. comm.) Today its breeding habitat in southwestern Ontario is interspersed within an intensively farmed and urbanized landscape. Whether its rarity is a result of deforestation or whether it has always been rare is unknown (Friesen et al. 2000).

The Acadian Flycatcher arrives in Ontario during mid-May from its winter range in central and northern South America. Its preferred habitat is under large deciduous trees forming tall, closed canopies and a relatively open understorey, often near a stream. Considered a forest-interior species requiring woodlots of 100 hectares or more, this flycatcher also occurs in narrow ravines having little or no forest-interior habitat. Such ravines are suitable habitat if they have closed canopies above a stream, slough, or even standing water (Friesen et al. 2000, Martin et al. 1999). The open understorey provides Acadian Flycatcher with its foraging habitat, where it hawks insects out of mid-air, preying upon wasps, ants, bees, small beetles, moths, flies, and mosquitoes.

The female builds a unique nest unlikely to be mistaken for that of any other species. Using a variety of plant parts and spider webbing, she forms a shallow basket attached hammock-fashion in a twig fork towards the end of a lower branch of a large tree. The nest is often located over a stream or a trail about four metres off the ground. Long streamers of fibrous material hanging from below the nest give it an unkempt appearance. The female incubates a clutch of three eggs for about two weeks while the male actively defends the nest site, his call notes or song often betraying its presence. Nest predators include Blue Jay, Common Grackle, raccoons, and

squirrels. The incidence of cowbird parasitism varies: lowest in forest-interior sites and highest in forests adjacent to agricultural fields (Salabanks 1999). The effects of predation and parasitism on this species in Ontario are under study (Friesen et al. 2000). Of 37 Acadian Flycatcher nests found by Martin and Snider in Elgin, Middlesex, and Lambton Counties from 1998 through 2000, only 18.9 percent were parasitized, and none are known to have been predated.

## 5.2 Hooded Warbler

In Ontario the Hooded Warbler is found in shrubby clearings within mature upland deciduous and mixed forest (Austen, Cadman and James 1994). In the Fonthill Sandhill Valleys sites, the species territories covered steep-sided wooded valleys, ridge tops, and bottomlands, with stands of mature trees interspersed with dense thickets of *Ribes* and *Rubus*. (Site Information Summary, HOWA-ACFL Recovery Team, 1998).

Hooded Warbler breeds throughout eastern United States, north to the Great Lakes, New York State and Connecticut. In Ontario its range appears to be restricted largely to the Carolinian zone. Singing males have been reported along the southern fringe of the Great Lakes forest region in south-central Ontario, and breeding has occurred near Midland and is occurring in northern Waterloo Region (Cheskey, pers. comm.). As a forest-interior species preferring large woodlots, the Hooded Warbler is threatened by forest fragmentation due to land use practices. Within the 12 Mile Creek Headwaters IBA, Hooded Warblers breed mainly in the forests with the largest amount of forest interior habitat, described generally as forest habitat greater than 100 metres from the edge of the forest.

The Hooded Warbler winters in the neotropics, primarily in Belize and the Yucatan peninsula of Mexico. Arriving in Ontario during mid-May, males sing loudly and persistently to establish territory. Females arrive shortly afterwards and within days settle into a territory. The nesting season extends from late May to mid-July. Territories, which are within a forest interior, include small clearings in which a windfall or selective tree cutting has created a dense understorey of shrubs or saplings such as raspberry, elderberry, or Red Maple. Along the edge of this clearing the female will build her nest, 30 to 180 cm above ground in a twig fork of a shrub or sapling. The neat, compact nest contains three to four eggs that the female will incubate for twelve days. The young fledge eight or nine days after hatching.

The productivity of many forest-interior species is affected by the frequency of cowbird parasitism and predation on nests (Terborgh 1989). Forest fragmentation likely increases the frequency of both these factors for Hooded Warbler (Evans, Ogden and Stutchbury 1994). Predators include Blue Jay, American Crow, Eastern Chipmunk, Striped Skunk, weasels and Opossum. In southern Ontario the frequency of cowbird parasitism is 45 percent (ibid.).

Forest fragmentation may have another consequence as well. DNA fingerprinting has revealed females often mate with neighbouring males as well as their own mate. In one study, 47 percent of the females produced young fathered by males other than their own mates and about 30 percent of the nestlings were the result of extra-pair mating. This productivity may be less in small forests where there are not as many neighbouring pairs (ibid.). Research studies and

monitoring of this nationally threatened species underscore the importance of understanding the natural history of an organism in order for it to be conserved.

### **5.3 Louisiana Waterthrush**

This species has been reported from Short Hills Provincial Park, though not in 2003. It prefers cool and fast moving streams within the forest interior or, alternatively, large heavily forested swamps, where it can overlap with Northern Waterthrush.

Robinson (1995) summarizes the natural history of the Louisiana Waterthrush. This warbler inhabits mature deciduous forest that forms a canopy over clear, cold streams, which flow through steeply sloping ravines or densely wooded swamps. Louisiana Waterthrush establishes a linear territory along a streambed where often one pair will occupy a territory one kilometre in length (ibid.).

When foraging, this warbler mostly walks along banks of streams and in shallow water where it hunts for insects, spiders, seeds, small molluscs, fish, crustaceans, and even small amphibians. This diet is somewhat unique for a North American songbird.

Nests, containing four to six eggs, are placed in small cavities under the overhang of a stream bank, within the roots of an upturned tree or moss-covered log along the bank, frequently on the south sides of ravines. Nests completely within cavities may be less likely to be parasitized or predated (Robinson 1995). Brown-headed Cowbird often parasitizes the nests of this species, while Blue Jay, snakes, and mammals including shrews, Red Squirrel, Eastern Chipmunk, raccoons and opossums feed on eggs and fledglings. Sharp-shinned Hawk will hunt adult birds.

The Louisiana Waterthrush is one of the earliest songbirds to depart after breeding, leaving southern Ontario as early as July, certainly by August. Likewise its arrival in spring is early, often singing on territory before the end of April. Perhaps for this reason this species was not encountered by the 2003 field crew, who were unable to visit potential habitat before late June (Stamp, pers. comm.).

### **5.4 Kentucky Warbler**

The mesic ravines with ample understorey tangle found in many sites provide suitable habitat for this species at the extreme northern periphery of its range.

## **6. On-Site Research and Monitoring**

The Breeding Bird Atlas Project and Forest Bird Monitoring Program are the only bird monitoring programs that are known to be active presently or in the recent past within the IBA. The Breeding Bird Atlas project is a major volunteer-based project to map the distribution and abundance of breeding birds across Ontario. The Federation of Ontario Naturalists, Bird Studies

Canada, the Ontario Field Ornithologists, the Canadian Wildlife Service, and the Ontario Ministry of Natural Resources are the major sponsors of the project.

Southern Ontario is divided into 10 by 10 kilometre squares (depicted on topographical maps). Over the course of five consecutive years (the first Atlas was 1981 to 1985, and the second is 2001 to 2005) volunteers attempt to locate all the breeding birds within their square, gathering the highest level of evidence for each species. “Confirming” a species by finding an active nest, recently fledged young, and so on is one of the goals of the volunteers.

A few squares overlap within the IBA. During fieldwork by the IBA survey crew in 2003, over 15 pairs of Hooded Warblers were “confirmed” as breeding in the IBA.

Another goal of the Atlas is to map the abundance of species. This is done by gathering data from randomly distributed five-minute point counts<sup>5</sup> in each square, and using the aggregated information to produce contour maps. During 2003 fieldwork, Atlas-style point counts were undertaken every time one of the field workers encountered a Hooded Warbler. Data will be analyzed to better understand the “community” of birds with which the Hooded Warbler shares its habitat.

The Forest Bird Monitoring Program (FBMP) is an offshoot volunteer-based program from the first Atlas designed to monitor forest-breeding birds in Ontario. It is based on sampling forests by a series of five stations at which 10-minute point counts are undertaken. Each station is to be at least 300 metres apart. The Canadian Wildlife Service runs the FBPM. Data are analyzed and results published in the *Ontario Forest Bird Monitoring Program Newsletter* and on its web site at [www.on.ec.gc.ca/wildlife](http://www.on.ec.gc.ca/wildlife).

## **7. Threats/Competing Land Use Issues**

### **7.1 Residential Development**

Residential development occurs throughout the IBA, particularly in the form of estate residential lots. Considerable development has taken place in recent years on the rim of the Short Hills Valley in Fonthill. These developments will impact the hydrology of the Twelve Mile Creek headwaters and may affect the vegetation communities downstream. Increased erosion caused by increased peak flows through the ravines during storm events, and decreased infiltration from the hardening of the built environment above Fonthill Sandhill Valleys, may result in altered water tables and less base flow in streams.

Residential development and recreational use threaten sensitive bird species. Residential development in or adjacent to natural areas has been associated with increased rates of nest failure, absence of neotropical species within the breeding bird community, increased nest predation, and increased nest parasitism.<sup>6</sup> Residential development within the forest also directly

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<sup>5</sup> Point counts conducted for this project were five minutes stationary counts on which the observer mapped all of the bird activity around them. Each individual bird is counted, providing a measure of relative abundance.

<sup>6</sup> See Friesen et al. 1995 and 1999, Haskell et al. 2001, and Wilcove 1985.

results in habitat loss. Securement through outright purchase is the most effective method to protect natural areas and eliminate threats.

## **7.2 Disturbance and Predation Related to Human Activity**

As increasing numbers of people live around these natural areas and use them for recreation, two associated problems occur. These are disturbance to birds from humans or their pets at critical moments of their breeding cycles, and the accidental introduction of alien species to otherwise pristine habitats. Trail-bike paths through the Fonthill Sandhill Valleys and other areas, as well as considerable pedestrian traffic through the St. John's Conservation Area, could render these sites unsuitable for certain species. ATVs are also a problem in Fonthill Sandhill Valley, with considerable unauthorized use.

## **8. General Forest Management Considerations and Principles for Conservation of Acadian Flycatcher and Hooded Warbler**

No logging is planned within the mature natural forests of St. John's Conservation Area, the sanctuary owned by the Hamilton Naturalists' Club in the North Pelham Valley, or Short Hills Provincial Park (and the Decew Gorge). Logging can and does occur on many of the private lands within this complex. Old-growth conditions favour the Acadian Flycatcher, while selective logging seems to benefit the Hooded Warbler. Otherwise, efforts to expand forest interior by planting some of the adjacent fields have been undertaken in Short Hills Provincial Park for the last few years. One of the goals of this particular plan is to expand these efforts to areas outside of the provincial park.

Efforts to encourage private landowners to protect or enhance forest habitat should be pursued by the NPCA.

## **9. Identification of Potential Conservation Partners and Roles**

The following agencies and groups should be involved in activities and decisions related to bird conservation, particularly those activities concerning species at risk.

- Niagara Peninsula Conservation Authority (leader for stewardship activities)
- Friends of Short Hills Park (lead for Short Hills Provincial Park)
- Ontario Parks
- Ontario Ministry of Natural Resources
- Species at Risk Recovery Team
- Regional Municipality of Niagara
- Hamilton Naturalists' Club
- Peninsula Field Naturalists
- Bert Miller Nature Club
- Niagara Falls Nature Club

- Private Landowners

## 10. Conservation Action Plan

Information from fieldwork in 2003 has shed light on the significance of the Twelve Mile Creek Headwaters IBA for Hooded Warbler. Three critical core areas for this species have been identified: Effingham Forest, the Fonthill-Sandhill Valleys, and the St. John's Valley (including St. John's Conservation Area). The two former sites are entirely in private ownership, while the latter is mainly publicly owned.

In the Twelve Mile Creek Watershed, the Niagara Peninsula Conservation Authority (NPCA) is in the process of implementing its Watershed Strategy. This strategy is the vehicle through which bird conservation efforts are best implemented through much of the IBA. The Friends of Short Hills (FOSH) continue to provide leadership for management, restoration, and education activity associated with Short Hills Provincial Park. The Species At Risk Recovery Team (SARRT) is responsible to developing and implementing recovery plans for Species at Risk in Canada, including Hooded Warbler and Acadian Flycatcher.

The Niagara Peninsula Conservation Authority (NPCA) has been conducting stewardship within the Twelve Mile Creek valley for several years and is best positioned to build upon landowner relations and the stewardship process already established. Stewardship agreements and securement of lands for conservation are two strategies for implementing bird conservation on private lands, and key instruments for long-term bird conservation.

The conservation strategy below presents a hierarchy of goals, objectives, and specific actions for bird conservation in the IBA. The suggested group or agency responsible for leading implementation is identified in brackets at the end of the action.

1. ***Maintain and enhance breeding populations of species at risk and other forest species of concern, specifically, Hooded Warbler, Acadian Flycatcher, and Louisiana Waterthrush***
  - a. *Establish population and habitat targets for these species within the IBA.*
    - Determine distribution of species at risk within the IBA (done)
    - Assess the amount of available habitat and current populations of these species (done)
  - b. *Encourage major landowners to maintain mosaics of habitats and management regimes that reflect the needs of all species at risk while respecting the biodiversity of the site*
    - Continue stewardship work with private landowners within the IBA, particularly in the Fonthill Sandhill Valleys and the Effingham Forest (NPCA)

- Assess the impact of logging practices on habitat requirements of HOWA and ACFL (NPCA)
- c. Encourage consolidation and connectivity of forest patches within the IBA.*
- Continue expanding forest interior conditions in and around Short Hills Provincial Park and St. John's Conservation Area. This work is on-going in Short Hills Provincial Park, as some fields adjacent to forest within the Park have been planted with native tree species appropriate to the area by the Friends of Short Hills Park. Expanding this type of work beyond the provincial park into other sites would require a variety of approaches from stewardship, incentives to conservation easements and land securement. (Ongoing) (FOSH, NPCA)
  - Conduct gap analysis to identify conservation priorities related to management, securement, and restoration of forest conditions in the IBA (IBA steering committee)
  - Continue to pursue opportunities to secure high priority sites in the Fonthill Sandhill Valleys, the Effingham Forest, and elsewhere in the IBA (NPCA)
  - Explore starting or encouraging a Land Trust within the IBA to facilitate land securement (IBA steering committee)
- d. Communicate this plan to relevant political and policy bodies and agencies*
- Present this conservation plan to the Regional Municipality of Niagara Planning Department and the Regional EEAC, and encourage the Region to strengthen relevant environmental policies within its Official Plan. Specifically, encourage the Region of Niagara to beef up environmental protection (especially wording that clearly states that uses or proposals must not impact the features or functions of a site) and mapping and have the IBA recognized as a special policy area within the Official Plan (IBA steering committee)
  - Present this conservation plan to the Twelve Mile Creek Watershed Strategy and have a member of the ACFL/HOWA recovery team participate on the Watershed Strategy Team (IBA steering committee)
- 2. Reduce human-related factors associated with reproductive failure and mortality among forest birds generally and specifically species at risk**
- a. Reduce the impact and disturbance of unauthorized vehicle use in the IBA*
- Develop with stakeholders a strategy to reduce the impact of unauthorized vehicle use (e.g., ATVs, trail bikes, mountain bikes) within many of the natural areas. This problem is particularly acute in the Fonthill-Sandhill Valleys but is present throughout the IBA. A broad-based taskforce or working group should be organized to address this issue. User groups should be invited to participate on this taskforce. (NPCA, Region)
- b. Reduce the impact of residential-associated nest predators*

- Promote “Cats Indoors” program where possible in the IBA (IBA steering committee, NPCA)
- 3. *Provide stakeholders and public in the IBA with information and learning opportunities to support the habitat needs of IBA species through education and outreach***
- a. Provide public with information on species at risk and the significance of the IBA for HOWA*
- Encourage local media to write articles supporting the IBA and describing its significance (NPCA, FOSH) (done)
  - Produce an information flyer tailored to local landowners and land managers about management options that benefit forest birds (IBA Steering Committee)
  - Hold public dedication ceremony for the IBA (IBA Steering Committee)
  - Conduct periodic hikes for the public (especially residents in the IBA) at different locations within the IBA to build awareness and appreciation of nature generally and forest birds specifically (IBA steering committee)
  - Put IBA information on stakeholders’ web pages (NPCA, FOSH, FON, CNF)
- 4. *Encourage and support monitoring of and research on forest birds, particularly species identified within this Plan, within the IBA***
- a. Conduct thorough inventories of the IBA periodically to monitor populations of all species at risk*
- Establish plan and arrange funding to repeat surveys done in 2003 (SARRT, NPCA, FOSH)
  - Ensure that repeat visits are made to each co-ordinate where a species at risk occurred in 2003 (SARRT, NPCA, FOSH)
- b. Assess the impact of parasitism and predation on nesting success within the IBA*
- Undertake population viability research on common forest interior species to determine reproductive success and impact of predators and nest parasitism. (CWS, BSC, IBA Steering Committee)
  - Establish a HOWA banding program in the IBA (similar to at St. Williams) to enhance monitoring effort and knowledge of the species. (SARRT)



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## **Appendix 1. IBA Program Partners**

### **BirdLife International (BL)**

A pioneer in its field, BirdLife International is the first non-government organization dedicated to promoting world-wide interest in and concern for the conservation of all birds and the special contribution they make to global biodiversity. BL operates as a partnership of non-governmental conservation organizations, grouped together within geographic regions (e.g., Europe, Africa, the Americas) for the purpose of planning and implementing regional programs. These organizations provide a link to on-the-ground conservation projects that involve local people with local expertise and knowledge. There are currently 20 countries involved in the Americas program throughout North, Central, and South America. For further information about BirdLife International, check the following web site: <<http://www.birdlife.net/>>. The Canadian Important Bird Areas Program has been undertaken by a partnership of two lead agencies. The Canadian Nature Federation and Bird Studies Canada are the Canadian BirdLife International partners.

### **The Canadian Nature Federation (CNF)**

The Canadian Nature Federation is a national conservation organization with a mission to be Canada's voice for the protection of nature, its diversity, and the processes that sustain it. The CNF represents the naturalist community and works closely with our provincial, territorial, and local affiliated naturalist organizations to directly reach 100,000 Canadians. The strength of our grassroots naturalists' network allows us to work effectively and knowledgeably on national conservation issues that affect a diversity of ecosystems and human populations in Canada. The CNF also works in partnership with other environmental organizations, government, and industry wherever possible. Our approach is open and cooperative while remaining firm in our goal of developing ecologically sound solutions to conservation problems. CNF's web site is <http://www.cnf.ca>.

### **Bird Studies Canada (BSC)**

The mission of Bird Studies Canada is to advance the understanding, appreciation, and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm, and support of its members, volunteers, staff, and the interested public. BSC believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada. BSC is recognized nation-wide as a leading and respected not-for-profit conservation organization dedicated to the study and understanding of wild birds and their habitats. BSC's web site is <http://www.bsc-eoc.org/>.

### **Federation of Ontario Naturalists (FON)**

The Federation of Ontario Naturalists protects Ontario's nature through research, education, and conservation action. FON champions wildlife, wetlands, and woodlands, and preserves essential habitat through its own system of nature reserves. FON is a charitable organization representing 15,000 members and over 105 member groups across Ontario. FON's web site is <<http://www.ontarionature.org>>