Final Report for the 2008 Species at Risk Assessment of Georgina Island First Nation

Canada

ORE Oakridge Environmental Ltd

- EXECUTIVE SUMMARY-

In 2008, Georgina Island First Nation (GIFN) on Lake Simcoe, Ontario, contracted Landmark Associates to establish a Land Use Management Plan for Georgina Island. The Land Use Management Plan is intended to determine how the island community can continue to develop their their infrastructure, emergency and medical services and residential developments in a sustainable manner. As part of this growth plan, GIFN wanted to ensure that any rare wildlife or Natural Heritage Areas on their islands would be protected from the impacts of future growth.

In order to determine where these rarities are located on the First Nation's lands, Oakridge Environmental Limited was contracted by GIFN to inventory all three islands (Georgina, Fox, and Snake) for Species at Risk (SAR), their Critical Habitat and other ecologically sensitive or significant areas. The identified areas would in turn be incorporated into the Land Use Management Plan.

To facilitate the study, GIFN Administration staff contacted the federal government to discern whether there was a funding source for completing regional Species at Risk Assessments. The band staff were pointed in the direction of the Aboriginal Funds for Species at Risk (AFSAR) sector of Environment Canada/Canadian Wildlife Services.

AFSAR was developed out of a need to protect SAR in the many Aboriginal Communities of Canada since these lands possess an abundance of these species. In 2004, the Federal Government established a new Species at Risk Act through which AFSAR became available to provide funds for projects such as the one conducted at GIFN.

The application for AFSAR funding for GIFN was completed and the Regional Team that covers the majority of Ontario accepted the application, and the funds were released to GIFN for the 2007-2008 fiscal year. The following fiscal year (2008-2009), GIFN applied for more funding to complete a Geographic Information System (GIS) mapping database of Species at Risk on their islands and to also complete a SAR Protocol.

AFSAR is comprised of two (2) fund types: i) Aboriginal Capacity Building Fund (ACBF) and ii) the Aboriginal Critical Habitat Protection Fund (ACHPF). GIFN's funding was provided by the ACHPF. According to Environment Canada's website, the purpose of ACHPF is as follows:

> *"The ACHPF is supporting regional and local Aboriginal organizations and communities to protect critical habitat or important habitat anticipated to be designated as critical habitat under SARA. The fund is guided by the content of recovery strategies and actions plans as they are developed, and by the need to protect critical habitat under the Species at Risk Act. The fund can support a number of activities related to the protection and recovery of species at risk and their habitat."*

The AFSAR project consisted of the following main directives:

- Conduct a thorough literature review of several documents that pertain to GIFN's Natural Heritage;

- Complete a search for SAR on the Islands: A total of a month of field work was conducted between all three (3) islands searching for SAR over the course of 2008. The search resulted in several Federally and Provincially listed species being discovered. Utilizing a differential Global Satellite System (dGPS), ORE collected data in the field to incorporate into the GIS database;

- Create a new SAR GIS Database: A new air photo was flown as part of the project and a series of waypoint data were collected which was utilized to geo-reference the air photo plan. Subsequently, the waypoint data collected for SAR were located on the air photo, and the critical habitat was delineated on the air photo as well.

To facilitate the SAR GIS mapping, ORE also provided GIFN with a Technical Report which lists the SAR observed during the field season. The document also describes the habitat in which they were observed. The use of photos of the SAR and the habitat were also provided, where available. The document is intended to summarize the SAR findings for GIFN, and also to create a perception of these critical habitats which could be drawn upon in the future by the band when authorization to inventory private lands is given.

Once the SAR had been identified, the Protocol was formed in an attempt to lessen impacts to the SAR. The Protocol discusses methods and processes to protect GIFN SAR and provides some methods for implementation and requirements for conducting activities such as Impact Assessments on private landowner properties, and"in-house" methods for setting-up and implementing the GIS database and Protocol, itself. Other topics covered in the Protocol were enforcement of the guidelines/methods, land transfer agreements and/or compensation packages.

According to the staff at Environment Canada, the Protocol is the first of its kind ever completed for a First Nation in Canada.

Next steps for GIFN include the completion of a monitoring and management plan for American Ginseng (an Endangered species), which has in the past been harvested and may be susceptible to extirpation from Georgina Island. Since the majority of Ginseng occurrences were on private lands owned by Certificate of Possession Holders, these people should be contacted to obtain permission for the band to monitor and manage the species on these properties. Eventually, the goal is to establish a Conservation Agreement between the CP Holders and the Band Administration to monitor and protect the SAR and their Critical Habitat areas.

Acknowledgements

The consulting team would like to express appreciation to Chief Donna Big Canoe and Council Members who have been integral in authorizing, promoting and implementing the SAR project on behalf of Band members, both on and off the reserve. These Band members are the key stakeholders in this project.

The insightful direction, knowledge, advice and support provided by the Land Use and Species at Risk Steering Committee were instrumental in the liaison of the community and the completion of this study's tasks. Special thanks are offered to the SAR Coordinators / Project Managers, Ms. Kerry-Anne Charles and Ms. Janice Taylor, for their assistance and direction.

The Band Administration Office staff were very helpful throughout our study, providing assistance in contacting CP holders and determining which property owners possess lands containing SAR. Key staff members included Ms. Natalie Priester and Ms. Sylvia McCue.

ORE would like to express appreciation to Ms. Jodi Johnston for her assistance with the Aboriginal youth outreach sessions and her help in the door-to-door surveys.

Special thanks are extended to the many Band members and other individuals who responded to our requests for information and provided their knowledge of Species at Risk at Georgina Island First Nation.

Throughout the project, the staff of Landmark Associates Limited provided assistance with regard to integrating the SAR study and the SAR Protocol into the Community Land Use Plan/ Implementation Strategy.

We also acknowledge Environment Canada staff, and particularly Ms. Tania Morais (Aboriginal Liaison Biologist), who was integral in helping the Band apply for and acquire the funds to complete this SAR project. Without the funding, it would not have been possible to thoroughly assess GIFN for SAR and to set the protection measures necessary.

The project team members are listed below.

Steering Committee:

Ms. Natlie Priester
Ms. Sylvia McCue
Mr. Charlie Warren
Mr. Rob Porte
Ms. Lorrine Big Canoe
Mr. Ian Big Canoe

Consultant Team:

Mr. Rob West, HBSc., CSEB
Ms. Deanna Hergert, HBSc., CEPIT

Oakridge Environmental Ltd.
380 Armour Road, Suite 127
Peterborough, Ontario
K9H 7L7
(705) 745-1181

Canada

The Government of Canada
Aboriginal Funds for Species at Risk

ORE
Oakridge Environmental Ltd.

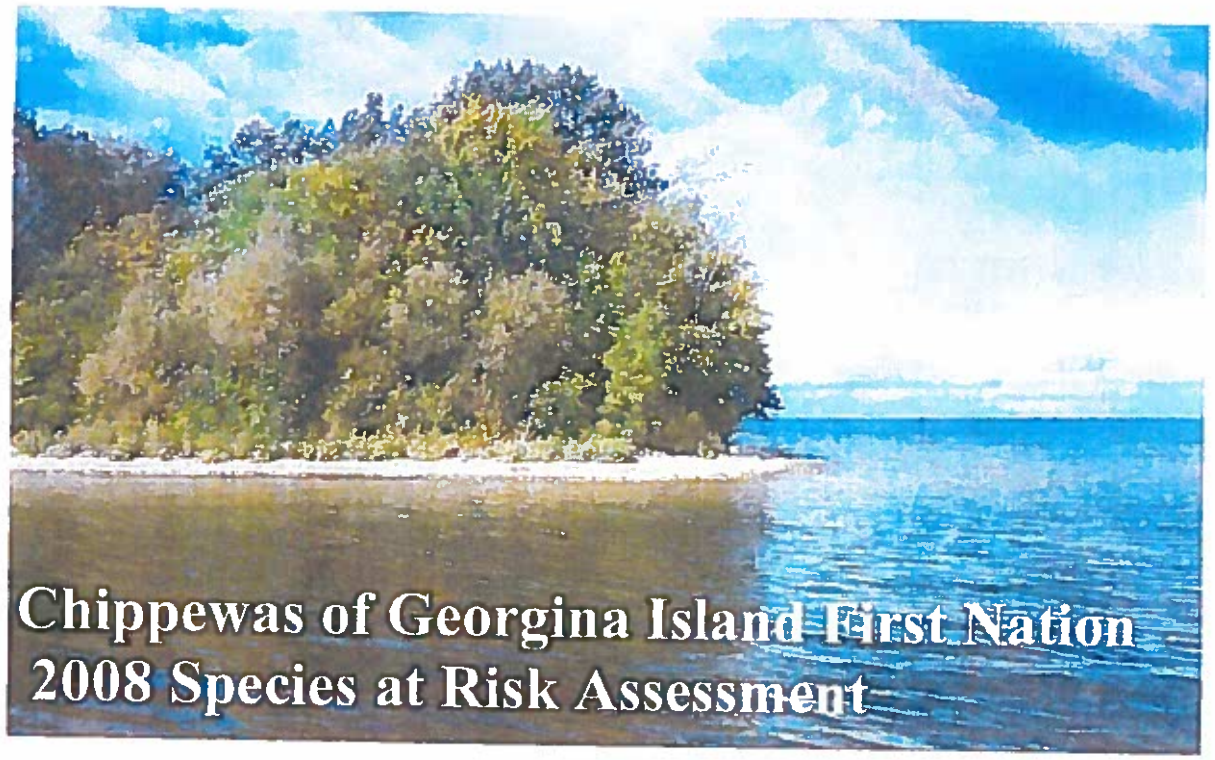
Table of Contents

References & Photo Credits

Glossary of Terms

List of Illustrations

List of Appendices



Chippewas of Georgina Island First Nation 2008 Species at Risk Assessment

1.0 Introduction

1.1 General

Oakridge Environmental Limited was contracted by the Georgina Island First Nation to complete a Species at Risk Mapping Project and to prepare a Species at Risk Protocol for the First Nation under the Aboriginal Funds for Species at Risk (AFSAR) Program. The AFSAR program is an important implementation element of the federal Species at Risk Act (SARA) intended to engage Aboriginal People in the protection of Species at Risk in their communities. The Act recognizes the important role of Aboriginal People with regard to wildlife conservation and also recognizes the need to incorporate Aboriginal Traditional Knowledge. Our study has focussed on completing inspections of Band-owned lands within Georgina Island, Fox Island and Snake Island. When possible, private lands suspected of containing Species at Risk (SAR) were also inspected, where permission from the owner could be obtained. The results of our inspections have been compiled into a series of maps which illustrate the location of the SAR and of their *critical habitat*.

This technical report is intended to provide the necessary mapping and scientific information for the First Nation to begin the process of protecting Species at Risk within the community. To that end, a *draft* SAR Protocol is presented in Appendix A In addition, our report provides a discussion of the possible "next steps" to be considered with regard to protection and recovery of SAR within the First Nation.

1.2 Terms of Reference

In support of the AFSAR and Canadian Species at Risk Act the following tasks have been completed as part of this study:

- Community outreach and education sessions, and collection of Aboriginal Traditional Knowledge (ATK) through door-to-door surveys;

- Review of existing background information, including past environmental studies, surveys and air photos, etc.;
- Compilation of relevant existing information i.e. from Canadian Wildlife Service, Ontario Ministry of Natural Resources and Natural Heritage Information Centre, etc.
- Approximately 25 days of in-field inspections compiling data on terrestrial and aquatic flora and fauna marking locations of SAR and their Critical Habitat
- Provide this final report to GIFN for review and recommended action;
- Production of GIS mapping database
- Composition of a Species at Risk Protocol

Figure 1: General Study Area Location

1.3 Study Area Location and Access

The Chippewas of Georgina Island First Nation is comprised of three (3) islands located within Lake Simcoe, in the south-central portion of Ontario (Figure 1). The islands are referred to as Georgina Island, Snake Island and Fox Island. All of the islands were included in this project.

Georgina Island possesses the largest land mass of the three (3) islands comprised of approximately 1,291 ha (3,190 acres). Snake Island is the second largest, covering an area of approximately 135 ha (333 acres), and Fox Island is the smallest, at 20 ha (49 acres).

Snake Island and Fox Island occur west of Georgina Island near the southern shore of Lake Simcoe in the area of Island Grove. Snake Island occurs approximately 1 km from the mainland and is visible from the marina/access point on the mainland shoreline. Fox Island occurs further north beyond Snake Island. Access to these islands is restricted to all but the seasonal residents that lease the waterfront properties from the Band Administration.

No Permanent-type roads occur on Snake Island or Fox Island. Rather, communal track-bare trail systems are utilized to access the seasonal residences around the perimeter of the islands. Snake Island also contains a series of trails through its interior, likely used as "short-cuts" to access developments on opposite shorelines.

Georgina Island occurs approximately 12 km east of Snake and Fox Islands and 2.1 km north of the mainland. Regular access to Georgina Island is via the ferry service out of Virginia Beach during the spring, summer and fall season. When the lake freezes over in winter, the island can be accessed by ice-skoot and/or the ice-road.

The ferry service accesses the southwestern corner of Georgina Island. Unlike Snake and Fox Islands, Georgina Island possesses tar and chip surface roadways that form a "u"-shape around the eastern, southern and western extent of the island. A "back-road" completes the circuit along the northern extremity of the island, however, is mostly suitable for either four-wheel drive vehicles of All Terrain Vehicle (ATV) usage. The majority of the

development on Georgina Island occurs proximal to the shoreline areas and is used abundantly by seasonal residents.

Georgina Island possesses a series of large interior wetlands comprised of marsh and wooded swampland in the souther half of the island. In addition, a very large lacustrine marsh extends across the entire southern shore of Georgina Island. Details regarding these wetlands and the shoreline / interior environments are provided in a later section.

2.0 Policy

2.1 Policy and First Nations

The Chippewas of Georgina Island First Nation is a Reserve with its lands set apart for the use and benefit of the Aboriginal People under the Indian Act in Section 91 (24) of the Constitution Act of 1867. Therefore, as an area of some federal responsibility, the Federal Species at Risk Act applies to these Aboriginal lands.

Since Aboriginal lands have not experienced development pressures to the same extent as other parts of the country, the majority of SAR in Canada occur on these lands. The Federal and Provincial governments recognize that Aboriginal communities are experiencing growth and that pressure on Aboriginal lands has begun to impact the natural habitats which are critical to many SAR.

Unfortunately, prior to implementing the Species at Risk Act, the federal government did not fully take into account the rights and traditional methods utilized by Aboriginal People. Consequently, the government is now asking for Aboriginal Peoples to develop their own principles/protocols to protect SAR, taking into account their heritage. A series of recent Aboriginal SAR Seminars has been organized by the Federal and Provincial Governments to convey this message and to assist First Nations with respect to becoming involved in the protection of SAR on their lands. The general consensus among the Chiefs of Ontario, is that Aboriginal People want their communities to protect SAR and that planning future growth wisely is the best approach.

2.2 The Species at Risk Act

The Species at Risk Act (SARA) was passed in the House of Commons on December 12th, 2002. The Act provides protection for rare species in Canada and shares responsibility for conservation of wildlife among the Provincial Governments. This approach enables government to work cooperatively to pursue the establishment of complementary legislation and programs for the protection and recovery of SAR in Canada.

> *The purpose of the SARA is to "prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from*

More specifically, Sections 32 and 33 of the Act indicate that:

> *32.(1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.*
>
> *(2) No person shall possess, collect, buy, sell or trade an individual of an wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part derivative of such an individual.*
>
> *33. No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction*

The role of Aboriginal Peoples of Canada is encouraged, supported and is considered essential to the conservation of wildlife in Canada. Traditional Aboriginal knowledge is considered very important to the development and implementation of recovery measures. Knowledge of wildlife species and ecosystems, and protection of their habitat is key to

the conservation of SAR. In this regard, protected areas are vital to the protection and recovery of SAR.

In addition to the above, the SARA also indicates that for each species deemed "At Risk", a Recovery Strategy would be required by the minister. The following excerpts from the SARA explains the requirements for an *Action Plan* if a Species at Risk is discovered:

> ***48.*** *(1) To the extent possible, an action plan must be prepared in cooperation with (d) every aboriginal organization that the competent minister considers will be directly affected by the action plan.*
>
> *(2) if the listed wildlife species is found in an area in respect of which a wildlife management board is authorized by a land claims agreement to perform functions in respect of wildlife species, and action plan must be prepared, to the extent that it will apply to that area, in accordance with the provisions of the agreement.*
>
> *(3) To the extent possible, an action plan must be prepared in consultation with any landowners, lessees and other person whom the competent minister considers to be directly affected by, or interested in, the action plan, including the government of any other country in which the species is found.*
>
> *49. (1) An action plan must include, with respect to the area to which the action plan relates,*
> *(a) an identification of the species' critical habitat, to the extent possible, based on the best available information and consistent with the recovery strategy, and examples of activities that area likely to result in it destruction;*
> *(c) an identification of any portions of the species' critical habitat that have not been protected;*
> *(d) a statement of the measures that are to monitor the recovery of the species and its long-term viability;*
> *(d.1) the methods to be used to monitor the recovery of the species and its long-term viability;*
> *(e) an evaluation of the socio-economic costs of the action plan and the benefits to be*
>
> *59. (2) The competent minister must make the recommendation in the recovery strategy or an action plan identified a portion of the critical habitat as being unprotected and the competent minister is of the opinion that the portion requires protection.*
>
> *(3) The regulations may include provisions requireing the doing of things that protect the critical habitat and provisions prohibiting activities that may adversely affect the critical habitat.*
>
> *(5) If the competent minister is of the opinion that regulation would affect a reserve or any other lands that are set apart for the use and benefit of a band under the Indian At, he or she must consult the Minister of Indian Affairs and Northern Development and the band before recommending the making of the regulation.*
>
> *60. (1) If a wildlife species has been classified as an endangered species...by a provincial minister, ...no person shall destroy any part of the habitat of that species that the provincial minister...has identified as essential to the survival or recovery of the species an that is on federal lands in the province...*
>
> *61. (1) No person shall destroy any part of the critical habitat of a listed endangered*

With regard to the preceding, Georgina Island First Nation has now completed the first step in this process, by identifying the SAR and mapping their critical habitat. Through this study, the required Action Plan has also commenced insofar as obtaining the band's consent and co-operation to protect these species.

Important exceptions to the Species at Risk Act are outlined in Section 83 of the Act, and include the following:

> *83. (5) Subsection 32(2) and paragraph 36 (1)(b) do not apply to a person who possesses an individual of a listed extirpated, endangered or threatened species, or any part or derivative of such an individual, if...*
> *(b) it is used by any aboriginal person for ceremonial or medicinal purposes, or it is part of ceremonial dress used for ceremonial or*

Section 102 of the Act provides information with respect to sentencing if an individual is found to be in contravention of the Act:

> *102. A court that imposes a sentence shall take into account, in addition to any other principles that is required to consider, the following factors:*
> *a) the harm or risk caused by the commission of the offence;*
> *b) whether the offender was found to have committed the offence intentionally, recklessly or inadvertently;*
> *c) whether the offender was found by the court to have been negligent or incompetent or to have shown a lack of concern with respect to the commission of the offence;*
> *d) any property, benefit or advantage received or receivable by the offender to which, but for the commission of the offence, the offender would not have been entitled;*
> *e) any evidence from which the court may reasonably conclude that the offender has a history of non-compliance with legislation designed to protect wildlife species, and*
> *f) all available sanctions that are reasonable in the circumstances, with particular attention*

The SAR Protocol (Appendix A) will examine the legislation in more detail with respect to the Species at Risk Act and how it applies to Georgina Island First Nation.

2.3 Georgina Island First Nation Policy

Although a Capital Land Use Plan was developed for the First Nation in 2005 (Neegan Burnside Environmental & Engineering Limited), it did not take into account SAR or the sensitive environments present on the Islands, such as wetlands or forested areas. Consequently, there is no designation available for Band-owned lands that would control or preclude development of sensitive areas. As such, it is understood that a moratorium was placed on development within the First Nation which was to provide time to create the Land Use Plan, accordingly.

It is expected that the SAR mapping and the SAR Protocol presented herein will be considered for implementation through the updated Land Use Plan.

Because the majority of private lands have not been inspected, it is expected that these will be updated within the few years either voluntarily by the private landowners or through an application-type process, that will be discussed further in the SAR Protocol.

3.0 Background Information

3.1 Literature Review

As part of the SAR mapping project, ORE staff researched any available literature that could contain information/data with respect to SAR on the islands.

The following documents were reviewed:

1. Burnside Environmental. 1999. Phase 2 Environmental Site Assessment, Chippewas of Georgina Island First Nation.
2. Chippewas of Georgina Island First Nation. 1996. The Chippewas of Georgina Island Lake Simcoe Littoral Zone Study.
3. Lake Simcoe Environmental Management Strategy. 2003. State of the Lake Simcoe Watershed.
4. Neegan Burnside Engineering and Environmental Ltd. 2000. Revised Draft Phase 2 Environmental Site Assessment, Chippewas of Georgina Island First Nation.
5. Ontario Ministry of the Natural Resources - Lake Simcoe Fisheries Assessment Unit. 1991. Lake Simcoe Littoral Zone Study.
6. Silv-Econ Limited. 2004. Georgina Island Forest Management Plan 2000-2019.
7. Silv-Econ Limited. 2008. Environmental Issues and Priorities of the Chippewas of Georgina Island.
8. Varga, S., K., Mewa, J.V. Jalava, C. Jacobsen and L. Tebby. 1998. Preliminary Inventory of Georgina, Snake & Fox Islands. Ontario Ministry of Natural Resouces, Aurora District. 41 pp.

The most pertinent information with respect to SAR was sourced from the Preliminary Inventory of Georgina, Snake & Fox Islands by Aurora District OMNR staff, the Silv-Econ reports and the State of the Lake Simcoe Watershed report. These reports listed several SAR to potentially occur within Georgina Island First Nation.

A brief overview of the most important background data sources is provided below.

A) Varga, S., K., Mewa, J.V. Jalava, C. Jacobsen and L. Tebby. 1998. Preliminary Inventory of Georgina, Snake & Fox Islands. Ontario Ministry of Natural Resources, Aurora District. 41 pp.

The Preliminary Inventory of Georgina, Snake and Fox Islands by the OMNR's Steve Varga et. al. provided excellent background for potential SAR to occur on all three (3) islands.

On Fox Island, the OMNR observed a small prairie remnant on the southeastern part of the island. No SAR were observed to occur in the prairie community. However, the presence of this community could attract certain avian SAR that would forage on the seeds of the grasses in this community. Those SAR may not have been present during their fall season inspections.

On Snake Island, inventories by the OMNR provided Butternut (Schedule 1 - Endangered) which, according to the OMNR, occurred within the Wet Mesic Broadleaf Forest - Terrestrial Community.

Preliminary inspections on Georgina Island resulted in only regionally rare species being recorded. In one instance, the report states that Grass-leaved Arrowhead had been found along the south shore of the island . According to the report, it is both nationally and provincially rare. Both the Natural Heritage Information Centre and the SARA Registry website site indicate the current status of this species. According to the SARA Registry, this species is not listed under any of the Schedules, and therefore, is considered "not at risk". The NHIC lists this species as "secure" for the province.

The document also has a bird section, in which historical data collected by the OMNR suggests that the following SAR have been associated with the island forest and shoreline communities in the past:

- Forster's Tern and Caspian Tern - nesting on Sand Islands in 1992
- Least Bittern - Early 1980's nesting in the marshes
- Red-headed Woodpecker - 1982 on Snake Island

The remaining species of avifauna observed on the islands were considered "sensitive" in the Greater Toronto Area (GTA) as they require large tracts of mature woodland to breed within.

The Forster's Tern is considered to be a provincially rare species with a status of "May Be at Risk". The Caspian Tern has a provincial status of "sensitive". However both Tern species are considered "not at risk" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and neither has any status according to the SARA Registry, suggesting that both are common federally.

According to the SARA, Least Bittern is a Schedule 1 species and is listed both federally and provincially as Threatened. This species was presumably observed within the marsh habitat within the southwestern corner of Georgina Island, or perhaps, within the large wetland complex in the central to eastern portion of the island.

Red-Headed Woodpecker, a Schedule 1 - Special Concern bird species, was apparently observed on Snake Island. This species prefers both moist and dry mature maple forest habitats. These woodpeckers typically nest in Sugar Maples or Red Maples at the edge of a park-like setting. The development along the shoreline, in addition to the adjacent mature maple woods provides ideal habitat for this species.

Varga et al. (1998) suggested that the islands have not been thoroughly examined for bird species, and that future investigations should focus on completing a series of breeding bird surveys to identify whether SAR utilize the diverse vegetation communities available to them on the islands of GIFN.

B) Silv-Econ Limited. 2004. Georgina Island Forest Management Plan 2000-2019.

The Silv-Econ Forest Management Plan had a Biological Inventory Section which pertained mainly to the forest communities on Georgina Island. The report also provides a potential list of avian species that would find the woodland habitats attractive. Some of the species referred to in the report were:

- Caspian Tern (Provincially Rare, Federally not at Risk)
- Golden-winged Warbler (Schedule 1 - Threatened)
- Red-headed Woodpecker (Schedule 3 - Special Concern)
- Red-shouldered Hawk (Schedule 3- Special Concern)

The report also stated that American Ginseng (Schedule 1-Endangered), although, it was not observed during the inspections by Silv-Econ due to the lateness in the year, it was apparently supposed to occur within the interior forests of Georgina Island. The report also stated that Butternut (Schedule 1-Endangered) was observed scattered throughout the island within the forest communities.

C) Lake Simcoe Environmental Management Strategy. 2003. State of the Lake Simcoe Watershed.

The State of the Lake Simcoe Watershed (2003) report was also an excellent source for SAR pertaining to GIFN lands. Although, no specific reference was made with respect to SAR on GIFN, Fox Island was recognized to contain a remnant prairie habitat.

The report identified several SAR associated with Lake Simcoe watershed, including:

- **Purple Twayblade** (Schedule 1 - Endangered);
- **American Ginseng** (Schedule 1 - Endangered);
- **Eastern Prairie White Fringed Orchid** (Schedule 1- Endangered)
- **Tuberous Indian Plantain** (Schedule 1 - Special Concern)
- **Red Shouldered Hawk** (Not at Risk Federally but Sensitive Provincially);
- **Cerulean Warbler** (Schedule 1 - Special Concern)
- **Eastern Milksnake** (Schedule 1 - Special Concern)

The **Purple Twayblade** (*Liparis liliifolia*) occurs in oak savannahs that provide partial shade. It is typically associated with damp conditions of these successional forest communities where natural disturbances have occurred. The only known location within the GIFN to have these characteristics is the prairie habitat on Fox Island.

American Ginseng (*Panax quinquefolius*) prefers mature, deciduous-dominated woodlands. The combination of hummocky terrain and moist organic soils on the forest floor is preferred by this species. Ginseng tends to occur in areas that possess little to no understorey where it remains open and airy. Habitat for this species is abundant on GIFN.

Eastern Prairie White Fringed Orchid (*Platanthera leucophaea*) was observed within the Lake Simcoe watershed in Cook's Bay area. This species prefers wet prairies, fens, bogs, and sometimes old fields. Little to no suitable habitat occurs within GIFN for this species.

Tuberous Indian Plantain (*Arnoglossum plantagineum*) occurs within wet to moist meadows and lacustrine fens. According to the SARA Registry site, this plantain has been observed along the western shore of Lake Simcoe. Suitable habitat for the Tuberous Indian Plantain was not observed along the shoreline or wetlands of GIFN.

Red-shouldered Hawk prefers to nest in large-tract deciduous-mixed wood forests that abut large lakes or wetlands. The stick nest of this species is typically constructed within the main crotch of a mature deciduous tree. GIFN has an abundance of habitat suitable to Red-shouldered Hawk.

Cerulean Warbler (*Dendroica cerulea*) also prefers large tracts of deciduous forests to nest and breed within. This species is adaptive to both mature and younger, secondary successional woodlands consisting of either moist-wet bottomlands or dry upland habitat. GIFN has an abundance of this habitat suitable to Cerulean Warbler.

Eastern Milksnake (*Lampropeltis triangulum*) is very adaptive like most snake species. Milksnake prefers to nest in abandoned rodent dens or in hollowed fallen trees. The snake will also hibernate within the foundations or remnants of old buildings/structures or fractured bedrock dens. Milksnake are a communal species during hibernation until spring season when they mate, and then separate. Milksnake can be observed within a variety of habitats, as its location changes according to the weather when its thermal-regulation requirements change. There is suitable habitat for this species on all three (3) islands.

All of the above mentioned species are potential SAR for GIFN.

D) Silv-Econ Limited. 2008. Environmental Issues and Priorities of the Chippewas of Georgina Island.

This report did not focus uniquely on SAR, but prioritized environmental issues in a broader sense according to surveys that were conducted with Georgina Island residents.

Among the environmental themes was Natural Heritage which includes SAR. According to the Silv-Econ Limited (2008) survey results, the Natural Heritage component scored among the highest of the GIFN environmental priorities. The mission

statement that evolved from the surveys was:

"To sustain and protect the expansiveness, beauty, history, and diversity of the reserve's flora and fauna for future generations to enjoy".

One of the key components that were revealed by the Silv-Econ Limited surveys was the necessity for the First Nation to establish its own by-laws and have an enforcement officer to manage /enforce the environmental priorities of GIFN.

This priority is discussed and addressed in more detail in the SAR Protocol.

3.2 Database and Agency Inquiries

3.2.1 General

As part of the background data review, ORE contacted various websites that would have pertinent background data regarding SAR on the islands. Agencies that were contacted include:

- The Species at Risk Registry website;
- Natural Heritage Information Centre (NHIC) website
- Lake Simcoe Region Conservation Authority (LSRCA);
- Ontario Breeding Bird Atlas (OBBA);
- Ontario Ministry of Natural Resources - Aurora District Office.

The following sections provide a summary of the pertinent SAR information relevant to GIFN.

3.2.2 Species at Risk Registry

The Species at Risk Registry site contains a generic mapping module that lists the types of SAR that may be present in an area, based on a geographic query search.

According to the mapping module, there may be seven (7) to ten (10) SAR in the general vicinity of the study areas, surrounding lands, and waterways. These include:

Species	*Schedule*	*Status*
Gray Fox	1	Threatened
Acadian Flycatcher	1	Endangered
Cerulean Warbler	1	Special Concern
Least Bittern	1	Endangered
Northern Bobwhite	1	Endangered
Yellow Rail	1	Special Concern
Blanding's Turtle	1	Threatened
Eastern Hog-nosed Snake	1	Threatened
Milksnake	1	Special Concern
Northern Map Turtle	1	Special Concern
Spotted Turtle	1	Endangered
Monarch	1	Special Concern
American Ginseng	1	Endangered
Butternut	1	Endangered

The SARA Schedules are as follows:

Schedule 1: the official list of species that are classified as extirpated, endangered, threatened, and of special concern.

Schedule 2: a list of species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3: a list of species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Due to the mapping module being a generalized "regional tool", occasionally it incorporates species that may be slightly north or south of the query area. In this case, Eastern Hognose Snake would occur

further north of the GIFN towards the contact between the Ordovician Limestone and the Precambrian Shield.

Another species that was highlighted in the search was Northern Bobwhite. If this species did occur on the mainland or on one of the islands nearby, it was likely trapped and released to the area. This quail-like bird is typically associated with the croplands and forest regions of southern Ontario. The only remaining refuge for this Northern Bobwhite is on Walpole Island First Nation Reserve, therefore, it is very unlikely that this species would occur on, or proximal to, GIFN, unless an attempt was made to reintroduce "pen-reared birds in the area.

Figure 2 is an image extracted from the website demonstrating that SAR are known to occur in the area.

Figure 2. Canadian Wildlife Service Species at Risk Registry Mapping, Environment Canada, 2007

3.2.3 *Natural Heritage Information Centre (NHIC)*

A geographical search of the NHIC database revealed that four (4) species of significance have been identified within approximately a one (1) kilometre radius of the study areas.

Figure 3 is an image taken from the NHIC's database which provides the approximate location of these occurrences.

Figure 3. NHIC Geographic Query, Queen's Printer for Ontario, 2008

Each occurrence is identified to occur within a 1 km by 1 km square and are listed below:

EO ID	Scientific Name	Common Name	COSEWIC/MNR
363	*Sterna caspia*	Caspian Tern	NAR/NAR
371	*Sterna caspia*	Caspian Tern	NAR/NAR
32460	*Sensitive Species*	Unnamed	Threatened (Both)
90984	*Sensitive Species*	Unnamed	Special Concern (Both)

The NHIC database does not provide specific details regarding these occurrences through its public portal. Occurrence data are not generally revealed to the public in the interest of protecting sensitive species and/or features. Direct contact with the NHIC or the Ontario Ministry of Natural Resources (local or district office) is required to obtain site specific species data.

According to the NHIC geographical data, there are two occurrences of Caspian Tern (*Sterna caspia*) associated with the Sand Islands. Caspian Terns prefer to breed and inhabit large marshland areas on the Great Lakes systems and inland waterways.

The third and fourth species identified in the database are simply referred to as "Sensitive Species" in the mapping. Typically, Sensitive Species are some type of SAR reptile that are frequently targeted by poachers, therefore, the NHIC prefers not to post the species on the publicly accessed portal.

The NHIC also identifies Areas of Natural and

Scientific Interest (ANSI). The nearest Area of Natural and Scientific Interest (ANSI) is the provincially significant Life Science area - Georgina Island Wetlands. These wetlands comprise the large coastal marsh along the southern extent of Georgina Island and the large interior marsh located in the island's southeastern to east-central portions.

The natural area occurrences also include the islands themselves, whereby the general vegetation on the islands is provided by the NHIC and appears to have been based on the preliminary inventory of the island that was completed by the OMNR in 1998.

The NHIC's Element Occurrence reports for these local occurrences are provided in Appendix B.

3.2.4 Ontario Ministry of Natural Resources - District Office

To further explore the background data from the OMNR's database, Ms. Emma Followes, Biologist with the Aurora OMNR District Office, was contacted in regards to the Sensitive Species posted on the NHIC database. Ms. Followes provided information regarding the Sensitive Species 32460 and 90984 listed in the NHIC database. These are Blanding's Turtle and Milksnake, respectively.

Often, the NHIC will protect the identity of reptiles because they may inhabit a tightly niched area for many years. Having any kind of approximate area denoted for these creatures subjects them to the risk of poaching for consumption or collection for the illegal animal/pet trade industry.

3.2.5 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (Cadman et. al., 1987) utilizes a method of dividing Ontario into 10 km by 10 km square areas. Naturalists and volunteers collect data on bird species nesting within or migrating through their assigned 10 km squared area. The atlas was consulted to compile a list of locally known bird species. The OBBA is a relatively new source of information, therefore, older occurrences that predate the inception of the OBBA are not recorded. In addition, the NHIC database was queried with respect to vulnerable, threatened or endangered (VTE) bird species.

The following bird species were identified to occur within the 10 km by 10 km squares - 17PK20 and 17PK31, in York Region No. 45, that contain the subject site:

Species Common Name	*Significance Federal/Provincial*
Red-headed Woodpecker	Federal/Provincial
Great Egret	Provincial
Wilson's Phalarope	Provincial
Trumpeter Swan	Provincial
Great Black-backed Gull	Provincial
Caspian Tern	Provincial
Forster's Tern	Provincial

Red-headed Woodpecker has been a reoccurring species among the lists by the agencies for the Lake Simcoe Watershed, however, this species was not observed on any of the islands during the most recent surveys. Interestingly, an ORE staff member had seen this species across the lake on the mainland within a Red Maple Swamp south of Lagoon City this past summer. Snake Island and Georgina Island possess habitat that is similar to that observed south of Lagoon City where the Red-headed Woodpecker was sighted.

The Great Egret is a Provincially Rare species that appeared late in the summer and was alone. The male Egret remained until early fall before migrating southward.

Wilson's Phalarope was not observed during the inspections, however, some other more common waders were observed. These include Greater Yellowlegs and Spotted Sandpiper, which were identified to occur in the near-shore areas during the summer months and fall migration period.

Trumpeter Swans were not observed in the area,

however, these migratory species may occur on Lake Simcoe from time to time.

Great Black-backed Gulls were observed during the 2008 field inspections, congregating and foraging within the Sandy Islands area that occur off the southwest corner of Georgina Island. It is believed that these gulls were breeding on the islands.

Forster's Tern was not observed during the 2008 breeding bird investigations near any of the wetland habitats on GIFN. However, the marshy habitats on the southwestern corner of Georgina Island and the large interior wetlands are suitable habitat for this species.

The Ontario Breeding Bird Atlas data are provided in Appendix C.

3.2.6 Lake Simcoe Region Conservation Authority (LSRCA)

LSRCA was contacted on March 6, 2008. Mr. Ian Walker, Planner forwarded our request to Ms. Kim Baker, Senior Natural Heritage Biologist. According to Ms. Baker, the LSRCA does not have any records for Species at Risk on GIFN. However, she was able to direct us to their website which outlines the SAR that are known to occur in the Lake Simcoe Watershed Region.

The majority of SAR plants, reptiles and birds identified in the LSRCA list have been described in previous sections of this report. Interestingly however, the LSRCA extends their list of SAR to some mammals, molluscs, and insects.

The Provincially Significant Northern Long-eared Bat is included in the list. It is understood that bat related inspections on the northern part of the island have been completed (by others) in support of a wind-energy study. To date, administration staff have not indicated that any rare bat species have been identified.

According to the LSRCA list of SAR, the following molluscs have been identified in the watershed:

- Northern Three-tooth (*Triodopsis tridentata*)
- Tapered Vertigo (*Vertigo elatior*)

Since this project is federally funded, and these two (2) terrestrial snail species are listed as a Provincially Significant as opposed to Federally Significant, we did not actively seek their occurrence at GIFN. Nevertheless, these molluscs were not detected by ORE staff during the inspections.

The list of SAR insects for the watershed was restricted to Lepidoptera which includes butterflies, moths, and skippers. The only federally at risk species in the list is Monarch. The remainder are provincially rare.

4.0 Aboriginal Traditional Knowledge (ATK)

4.1 Community Awareness Meeting

As part of the terms of reference for the SAR Mapping Project and Protocol, the band was required to gather SAR-related Aboriginal Traditional Knowledge from the CP (Certificate of Possession) holders.

Prior to completing the field assessment portion, the band held a "kick-off" meeting at the Community Centre on May 29, 2008. Approximately 65 people attended the meeting.

The meeting was held in the evening and provided photographs of the target species. A short movie on Species At Risk provided by Environment Canada was set to continuously loop in the background for the attendees. The children in the group were provided with crayons and some outlines of SAR for them to colour.

Door prizes were donated by the Band Administration, Landmark Associates Limited, and Oakridge Environmental to encourage people to attend.

During the community meeting, people were asked to circulate to the different posts and observe the images of the various species that were to be targeted for the GIFN SAR inspections. ORE staff moved from post to post and recorded any credible information regarding sightings of the target species that the community members expressed. A Species at Risk questionnaire was created specifically for this event and a total of thirty-nine (39) questionnaires was filled-out providing information with respect Species at Risk sightings. The total number of people that attended the information session was approximately sixty-five (65) members and seasonal residents. The majority of which, were CP Holders.

In this regard, the community meeting provided an abundance of information with respect to SAR and their locations on GIFN.

The two (2) most prevalent species known to the residents on the islands were Milksnake and American Ginseng. Having a very large scale air photo posted at the meeting allowed for the community members to indicate the approximate location of where they had sighted the SAR.

The data compiled during the community meeting was invaluable and provided ORE with a clear idea of areas to focus the inspections on in the upcoming field season. Copies of the questionnaires collected in the Species at Risk "Kick-off" meeting are provided in Appendix D.

Gratitude is extended to all that attended and participated in the community meeting and to NISH Radio Station for announcing several times the date and time of the Community Meeting.

5.0 Data Collection & Mapping

5.1 Methodology

The mapping component of this project required a total of twenty-one (21) days in the field, the majority of which were utilized to map Georgina Island (15 days). The remainder of the inspection days was split between Snake and Fox Islands. Inspections were completed between February 2008 and October 2008.

Inspections focussed on band-owned lands, however, some private landowners allowed ORE staff to inspect their properties as well.

The late winter/early spring season inspections were completed to initially identify the location of any Butternut (*Juglans cinerea*) and track for Gray Fox (*Urocyon cinereoargenteus*) on the islands. The majority of the inspections for SAR flora and fauna were completed in the spring, summer and early fall seasons.

Site inspections were completed based on the following methodology-protocols:

Avifauna

Avifauna surveys were completed between 5 AM and 9 AM during what are referred to as the "chorus hours. Typically the majority of breeders sing or call during these early morning hours and then in the afternoon, they become less vocal. In addition some early to late evening hour surveys were completed also (until approximately 12 AM) to accommodate the opportunity to identify of any significant nocturnal breeding birds that potentially occur onsite.

Conditions during the inspections were ideal. The majority of the inspections were completed during the breeding season and weather conditions were anywhere from warm and sunny to wet and rainy for the spring season diurnal inspections. Light winds were experienced during the majority of afternoon inspections, however, during the early morning and evening inspections, conditions were calm and audible fauna could be easily identified.

When deemed necessary, a Sony Hi-MD Mini Disc Portable Recording Device (digital) and Senheiser Shotgun microphone with Normal and Extended Range was utilized to record during the busy chorus hours.

Odonata & Lepidoptera

Insects were identified by carefully netting and observing the species. Each specie caught was released unharmed. The majority of species were photographed either on vegetation within the habitat or while being carefully handled. Conditions were often ideal with very light winds which kept the majority of insects close to the ground-level for observation. Periodically, species observed out-of-reach were identified through binoculars.

The field, wetland and woodland communities possessed a variety of floral species that were enticing to the insects, therefore allowing observations to be made at a distance without capturing or disturbing the individuals.

The warmer afternoons provided an abundance of species that were very active. Early morning inspections provided less active individuals as the heavy dew on their wings made them more approachable.

To determine the different vegetation communities, ORE staff completed freeform inspections of the micro-habitats within the larger habitat communities

observed throughout the year. In doing so, it is believed that the majority of Odonata and Lepidoptera observed were very representative of the population present on the islands.

Mammals

Mammals were identified by either direct observation or via their tracks and/or scat on the ground surface.

Only one (1) significant specie of mammal, Gray Fox, was on the target list. Winter inspections were performed to determine whether this specie was present in suitable habitat conditions. For the remainder of the year incidental observations comprised the remainder or the inspections.

Vegetation

From the initial inspections completed in February and March 2008, ORE staff were able to identify and map the predominant communities by transecting the islands through the array of ATV trails present. The track-log on the differential GPS was used to determine where inspections had not been completed and these were the focus of subsequent targeted inspections.

Because the island areas are large, our inspections focussed primarily on the target species and their habitats. Once the habitat critical to the target species had been inspected, other vegetation communities were inspected for other potential SAR.

Shoreline areas around the perimeter of Georgina Island range from hard escarpment-type shorelines along the northwest, to loose rubble-like shorelines along the east and west sides. Beach habitat occurs intermittently along the shoreline in areas where small points would allow for slower depositional environments to occur. The shorelines of Snake and Fox Islands are mostly comprised of loose rubble-like materials, also with intermittent sand beaches in protected areas.

The shoreline areas were inspected via land and by canoe.

5.2 Target Species

In accordance with the requirements of the Terms of Reference, the following list of target species was compiled for GIFN from the available background data.

Specie	*Schedule*	*Status*
Gray Fox	1	Threatened
Cerulean Warbler	1	Special Concern
Least Bittern	1	Endangered
Yellow Rail	1	Special Concern
Blanding's Turtle	1	Threatened
Milksnake	1	Special Concern
Northern Map Turtle	1	Special Concern
Spotted Turtle	1	Endangered
Monarch	1	Special Concern
American Ginseng	1	Endangered
Butternut	1	Endangered

The above listed species were the focus of the 2008 field inspections and mapping at GIFN.

Aerial photography was initially utilized to delineate the potential habitat of the SAR target list. Follow-up inspections and surveys were then completed in the habitats that would most likely support the target species. For example, inspections for the listed turtle species focussed on wetland and shoreline areas of the islands. Similarly, Least Bittern and Yellow Rail were sought in the same environments.

Milksnake and Gray Fox are "generalist" species with respect to habitat, meaning that they don't just prefer one specific niche but a mixture of different habitats. As such, they have an affinity for edge environments which include both woodlands and open fields that abut either shoreline or wetland habitats. As

predatory species, being located in among a variety of habitats increases their chances of finding prey.

Cerulean Warbler, American Ginseng, and Butternut all tend to be associated with dense rich-woodlands. Notwithstanding, Butternut seems able grow in a multitude of habitats from moist to dry and from immature to mature forests.

5.3 Mapping Database

A Geographic Information System (GIS) Map of SAR was prepared at the end of the 2008 field season to present the compiled data. A draft SAR map was provided to GIFN in October 2008. The latest version of the mapping is provided in the pocket located at the end of this document and is referred to as Figure 4. A digital version of the map has also been provided to the First Nation.

Field data were geo-referenced utilizing a Garmin 76 Map Differential Global Positioning System (DGPS). Accuracy of the system was on average less than a two (2) metre radius around the location point with improved accuracy obtained through the use of the Wide Area Augmentation System (WAAS). The data were collected utilizing North American Datam 83.

The SAR data collected for each of the islands were overlain on three (3) separate air photo images that were flown in September 2008 by Eye in the Sky Air Photography. The air photos were geo-referenced by ORE staff utilizing additional waypoint data collected for reference features on each island.

6.0 The Species at Risk of Georgina Island First Nation

6.1 Species at Risk Identified

Among the eleven (11) target species outlined in the previous chapter, only four (4) were identified on GIFN lands,. These were:

1. American Ginseng (*Panax quinquefolius*)
2. Butternut (*Juglans cinereq*)
3. Monarch (*Danaus plexippus*)
4. Milksnake (*Lampropeltis triangulum*)

However, in addition to the SAR mentioned above, ORE staff observed seven (7) other SAR or Sensitive Species on the islands, including:

5. Hooded Warbler (*Wilsonia citrina*)
6. Peregrine Falcon (*Falco peregrinus anatum*)
7. Bald Eagle (*Haliaeetus leucocephalus*)
8. Great Egret (*Ardea alba*)
9. Canvasback (*Aythya valisneria*)
10. Caspian Tern (*Sterna caspia*)
11. Great Black-backed Gull (*Larus marinus*)

Among the species identified, the first six (6) are both federally and provincially rare, and the last five (5) are provincially rare.

The location of the SAR are provided on the map database (Figure 4) located in a pocket at the end of this document. Details about the location and conditions of the areas where the SAR were identified are discussed in the following sections.

6.2 American Ginseng (*Panax quinquefolius*)

6.2.1 Habitat Location & Description

American Ginseng was observed only on Georgina Island in the central forest area. The area of the Ginseng is very remote, however, a series of All Terrain Vehicle (ATV) trails accesses the population. The trails appear to be used regularly.

The Ginseng population appears to be synonymous with the moist Sugar Maple (*Acer saccharum*) dominated areas. This moist regime occurs on the eastern half of the core maple forest woodland. Based on our inspections, the western half of the deciduous tract appears damp to dry and due to this slight change in moisture regime, the Ginseng appears to be incapable of growing in this portion of the forest.

The area where the Ginseng flourishes consists of the moist transition zone between the drier upland deciduous forest to the west, and the wet Red Maple forest to the east. The Ginseng population appears to occupy an arc around the edge of the Red Maple swampland, directly within which it appears to be too wet for the Ginseng to occur. The Red Maple Swamp to the east appears to be a watershed collection area that drains to the main marshland to the southeast of the core woodlands, eventually discharging to Lake Simcoe along the southeast shoreline.

Topography in the Ginseng-rich area is "hummocky". The hummocks are often only 0.61 m (2 ft) to 0.9 m (3 ft) in depth. The pockets within these hummocks were often inundated with surface water. The clayey till soil materials overlying the shallow bedrock conditions likely perch the surface water in these pools for longer periods to create the moist regime that is preferred by the Ginseng. The upper soil materials in the area appear to be a relatively thick accumulation of organic humus that has been continually replenished by the leaf litter from the forest canopy and the downed decaying trees. Photos of the hummocky moist terrain are presented in Figure 5.

The Ginseng does not occur directly within the vernal

pools, but rather on the small island-like hummocks surrounding these depressions. The Ginseng was often associated with deadfall, sometimes growing directly on the edge of the woody debris on the forest floor, almost parasitic in nature. It was also noted that the mature plants growing next to the downfall appeared to be healthier with more prongs, suggesting that the decaying logs provide an influx of nutrients to these more localized occurrences, potentially allowing them to mature more quickly. Micro-conditions around the Ginseng were typically

Figure 5. Hummocky moist Ginseng habitat

observed to be relatively open and void of low-growing understory species.

Perhaps the most common associate or indicator species for Ginseng habitat was Ground-Hemlock (*Tsuga canadensis*). Often, when staff would approach the hummocks that contained tufts of Ground Hemlock, there was a high probability that Ginseng would be present in the open areas between the hemlock.

Other associate species to the Ginseng included:

- Sweet-Cicely	*Osmorhiza berteroi*
- Rattlesnake Fern	*Botrychium virginianum*
- Marginal Wood-fern	*Dryopteris marginalis*
- Clustered Snakeroot	*Sanicula canadensis*
- Two-Leaf Toothwort	*Cardamine diphylla*
- American Spikenard	*Aralia racemosa*
- Canada Violet	*Viola canadensis*
- Canada Wild-Ginger	*Asarum canadense*
- Sarsaparilla	*Aralia nudicaulis*
- Blue Cohosh	*Caulophyllum thalictroides*
- Lady Fern	*Athyrium filix-femina ssp. angustum*
- Spinulose Shield-fern	*Dryopteris carthusiana*
- Woolly Blue Violet	*Viola sororia*
- Bitternut Hickory	*Carya cordiformis*
- Butternut	*Juglans cinerea*
- Eastern White Cedar	*Thuja occidentalis*
- Eastern Hemlock	*Tsuga canadensis*
- Herb Robert	*Geranium robertianum*
- Large White Trillium	*Trillium grandiflorum*
- False Solomon's-Seal	*Maianthemum racemosum ssp. racemosum*

Considering the high density of the plants in some areas, a single reference (GPS waypoint) location had to represent several Ginseng plants. Some smaller colonies or outlier plants occur around the edge of the main habitat. This was observed in the northern and southern portion of the forest where the wetter Red Maple Swamp conditions occur.

As illustrated by Figure 6, the majority of the Ginseng occurrences are on private lands. However, some significant populations of Ginseng also occur on band-owned lands.

Figure 6. The Species at Risk identified by ORE staff on Georgina Island during the 2008 assessment of GIFN are identified on this map with an overlay of a survey which indicates the property owners.

6.2.2 *Potential Threats*

a) American Ginseng is sought after by people for its root which is believed to have medicinal value, boosting the human immune system. The most common practice is to dry the root, grind it and use it to make tea. Unfortunately, this practice requires complete removal of the root, thus inevitably resulting in the death of the plant. Over-harvesting frequently occurs, resulting in significant reduction to Ginseng populations and their genetic diversity over time. In many cases, these intensive harvests result in the Ginseng being extirpated from an area altogether. We feel that the main potential impact to the population of American Ginseng on GIFN is this threat of over-harvesting.

b) The habitat of American Ginseng is very specialized. It requires moist, mature deciduous forest habitat, whereby the canopy reduces the desiccating effects of the sun to retain soil moisture. Therefore, alterations or removal of the canopy can have a profound effect on the health of the Ginseng and its sustainability in the affected area. Consequently, tree harvesting or removal of the canopy for development could result in significant negative impacts to the Ginseng population.

c) The Ginseng population at GIFN could also be impacted by passive use of the woodland habitat. The interior of Georgina Island possesses a large number of ATV trails throughout. Unknowingly, some of these trails cross through the critical habitat of the Ginseng and, as indicated by Figure 7, some plants are being driven over by this usage.

Figure 7. ATV trails are actively used throughout the Ginseng habitat on Georgina Island posing threat to some plants that occur directly trail-side.

Although the plant's roots may survive this impact, the above ground growth can be destroyed and as a result, the plant could become incapable of producing a seed crop for that year. A harvested Ginseng population, such as that of GIFN, is particularly dependent on reproduction to survive. Therefore, any loss of this potential source of seed is a significant threat to the Ginseng population.

6.3 Butternut (*Juglans cinerea*)

6.3.1 Background

Butternut, as previously discussed, occurs within a variety of habitat types. It can occur in mature dense woodlands, on the edge of watercourses, on almost bare bedrock and in open fields.

Butternut, or sometimes referred to as White Walnut, is listed as a Schedule 1 - Endangered species, mainly due to a fungus, referred to as "Butternut Canker" (*Sirococcus clavigignenti-juglandacearum*), which can ultimately kill the tree if it becomes infected. As a result of this fungus, it is anticipated by the authorities that the species may eventually become extirpated from Southern Ontario and Quebec.

Authorities are attempting to identify whether there are certain Butternuts that have developed an immunity to the fatal fungus. The Ontario Ministry of Natural Resources has established the Gene Conservancy Branch to identify this potential immunity within more healthy Butternut trees.

6.3.2 Location & Description

The 2008 field inspections resulted in the identification of Butternut on all three (3) islands of GIFN. The majority were observed on Snake Island which still possesses some excellent "old growth" woodland - included are some Butternut. The majority of the Butternut observed on Snake Island occurred through the island's mid-portion within a north-south trending swath. The inset photo of Figure 8 is of an old growth Butternut utilized as an alter by Aboriginal People.

Figure 8. An old-growth Butternut on Snake Island that is utilized for ceremonial purposes

Overall, the Butternut trees identified at GIFN were situated within mature deciduous forests dominated by Sugar

Maple (*Acer saccharum*), Red Oak (*Quercus rubra*) and American Beech (*Fagus grandifolia*) with minor Eastern Hemlock (*Tsuga canadensis*). These rich-woodland areas possessed Butternut that were sometimes 3 ft to 4 ft in diameter. As mentioned above, the majority of the Butternut observed at GIFN occurs within the mid-portion swath of Snake Island, but it was also observed to occur within the wetter southern portions of the mature forest area containing mixtures of White and Green Ash (*Fraxinus Americana* and *pennsylvanica*, respectively) and Red Maple (*Acer rubra*). Overall, the health of the Butternut on Snake Island was the best of the three islands. Although the canker was still present on the majority of the population, most specimens appeared to be intact with fewer root flairs and fewer lesions on the main trunk.

Fox Island was also identified to possess Butternut which was scattered throughout the mid to northern portion of the island. Fox Island's vegetation is less mature and the Butternut were often observed directly along the side of the trail or at the edge of the development areas associated with the waterfront. Overall, the health of the Butternut on Fox Island was not very good. The majority of the observed trees exhibited cankers on all parts of the tree, quite often the bark was pealing from the camber in the majority of the upper limbs. Figure 9 illustrates the general condition of the Butternut on Fox Island.

Figure 9. The Butternut trees on Fox Island displayed poor health on the upper limbs as a result of the Butternut Canker.

The Butternut population on Georgina Island is also scattered throughout the island, although most of the occurrences were in the island's central area, associated with the mature forest habitats. The overall health of these trees was speculative as they did show signs of being infected. However, some of the trees in the northwestern end of the island (associated with a smaller Sugar Maple Forest tract) were relatively healthy in appearance. Figure 10 presents a representative photo of a Butternut on Georgina Island that was not of good health.

Figure 10. Some Butternut trees on Georgina Island were impacted fatally by the Butternut Canker, while others were still healthy specimens not yet infected

Since Butternut occurs in a variety of habitats, the "critical habitat" for this species has not been delineated. Rather, individual locations would have to be reviewed on a case-by case basis.

6.3.3 Potential Threats

a) The main threat to the Butternut population is from the canker, but it is unknown to what extent the fungus will ultimately impact the Butternut populations. Only time will tell whether the Butternut will succumb to natural succession or survive the spread of the disease.

b) Another threat to the Butternut population is from the removal of the species by humans for development purposes, fuel or as a carving wood. Removal further reduces the potential for a resistant strain of butternut to be located and potentially retain the population in Ontario and Quebec.

6.4 Monarch (*Danaus plexippus*)

6.4.1 General

The Monarch is a butterfly that appears frequently in Ontario but is diminishing across the rest of Canada. This species used to span the entire nation, but now Ontario is one of the last remaining regions that this butterfly occurs.

Each year, Monarchs migrate in the millions to the Mexican rainforest where they overwinter. Since they concentrate in one area, Monarchs are particularly vulnerable to the use of DDT and other chemical pesticides, as well as from storm activities. Each of these has had a profound effect on the Monarch population in the past.

Figure 11. There are only minor differences between the Monarch and Viceroy butterflies. Monarch is located on the left, Viceroy on the right, for comparison purposes.

A common species that is often mistaken as Monarch by the untrained eye is the Viceroy. This species is orange with black striping on the wings and a black body, appearing very similar to the Monarch. However, the Monarch does not possess any lateral stripes across mid-wing. All the black stripes on the Monarchs' wings occur either horizontally or vertically. Figure 11 illustrates a Monarch and Viceroy for comparison purposes.

Monarchs prefer open sunny areas in fields. The main food source and larval plant is the milkweed, hence, they comprise the only family member of the "Milkweed Butterflies" in Ontario. The milkweed species are sought after by the Monarch during the adult state, as the leaves are the main food source. Monarchs will also lay eggs on the milkweed plant so that when the eggs hatch, their larvae can be nourished by the leaves.

6.4.2 Location & Description

Monarchs were observed on the islands mainly in the open field areas which are associated with the existing development.

On Georgina Island, Monarchs were observed within the south-eastern corner along Loon Road. Monarchs were also observed in the northern fields where a relatively stable population of Kansas or Common Milkweed (*Asclepia syrica*) occurs.

Monarchs were also observed in the western potion of Snake Island at the edge of the trails prior to a woodland area. Monarchs were also identified along the mid-eastern section of Fox Island where development along the shoreline area has occurred. More specifically, they were observed in the rear yards of three (3) seasonal residences. Several milkweed plants were identified in the tallgrass areas between the rear yards of each property along this eastern shoreline of Fox Island.

6.4.3 Potential Threats

a) The main potential threat to the Monarch is from the residual use of herbicides and pesticides. These non-specific herbicides and pesticides bio-accumulate in the system of the Monarch (and other butterflies) and could eventually exterminate the Monarch from the area.

b) Increased development of open areas causes degradation of the tallgrass environment which contain the milkweed species that Monarchs prefer. Milkweed is also often removed as a "weed" species when the tallgrass habitat borders and openfields are converted to landscaped and manicured lawns.

6.5 Milksnake (*Lampropeltis triangulum*)

6.5.1 General

The Milksnake is part of the constrictor family of snakes, whereby it catches its prey by initially striking it, then wraps its body around it and squeezes.

The Milksnake is highly coloured with coppery-brown blotches down the entire length of its body. The brown blotches are outlined by a dark-black border. The matrix of the snake is a creamy off-white colour on which the blotches dominate. Toward the head of the snake, the dark blotches occur in such way that a light "Y"-shape occurs between the base of the head and the eye-level, which is very indicative of this species.

This snake got its name from farmers whereby folklore suggested that it would come out at night and feed off the milk of the cows. This type of disdain for snakes is not unusual. Retrospectively speaking, the Milksnake would be drawn to the farms as their favourite food source (mice and rats) are common in those areas. Unknowingly, the snake was of benefit to the farmers as it would keep the rodent population under control.

6.5.2 Location & Habitat Description

During the assessment, Milksnake was only observed on Georgina Island. However, due to the elusiveness of this species and difficulties detecting it in densely vegetated areas, ORE staff relied mainly on sightings suggested by the local residents.

To delineate the critical habitat of the Milksnake, ORE staff gathered Aboriginal Traditional Knowledge (ATK) from residents in addition to checking for "Dead-on Road (DOR) specimens.

Milksnakes occur in a wide-variety of habitats, however, the common elements for their critical habitat tend to include the following:

- open field/tallgrass areas
- mature woodlands
- shoreline on lakes, wetlands, or rivers

Overall, the habitat typically requires a component of wet or moist conditions. The combination of these types of habitat provide the Milksnake with a variety of conditions in which to find food and to thermo-regulate its body.

The southwest corner of the island appears to contain this combination of habitats. As expected, the Milksnake has been observed by ORE staff and residents, occurring in this area. Most sightings have been along Chief Joseph Snake Road, between the ferry landing and the Administration Building.

ATK from Elder Charlie Warren suggests that Milksnake is also highly prevalent along the north eastern side of the island along Loon Road. Mr. Warren recalls many times observing Milksnake along the roadway next to the tallgrass area and further north along the trail that contains a combination of open field and shallow fractured limestone bedrock at surface. Therefore, it is possible that the Milksnake may migrate to these fractured rock areas in the north to hibernate during the winter and then travel to the southern parts of Georgina Island to access the moister regimes during the hot summer months.

The SAR Mapping (Figure 4) illustrates the general area where the Milksnake is known to occur. However, these areas should be considered approximate until the actual location of the hibernaculum and migration path route can be determined.

Milksnake was not observed on Fox and Snake Islands, nor did any of the seasonal residents or Elders possessing ATK know of Milksnake on these islands.

Figure 12 presents a photo of a Milksnake taken by GIFN resident Rachel Fournier on Chief Joseph Snake Road on Georgina Island.

6.5.3 Potential Threats

a) Snakes often relocate to roadways because they utilize the warm road surface during the cool morning and evening hours to elevate their body temperature. In addition, sometimes the roadway is merely obstacle within the migrational path of this species to access more suitable habitat. Unfortunately, this behaviour puts the snakes at risk of being run-over. Consequently, the largest threat to Milksnakes on Georgina Island is from traffic.

Figure12. A Milksnake photographed on Georgina Island by Band Member, Rachel Fornier illustrating the colourful coppery-brown blotches that occur down the length of its body.

b) Milksnake is also threatened by human persecution, typically a result of fear on behalf of the person. In general, snakes are held in contempt by people, however, they play a very important role in the ecosystem. Typically, when a snake ventures into the backyard of a resident, it is fatally injured and removed by the land owner rather than being left alone and allowed to pass through. Instances of intentional harm to this species were noted on Georgina Island. For example, ORE staff observed a large Milksnake dead in the middle of Chief Joseph Snake Road that had been killed by a motorist (Figure 13). The location of the specimen in the centre of the road suggests that the snake had been intentionally struck, rather than attempting to avert the snake.

c) Another potential threat to the Milksnake population on Georgina Island is from degradation of their hibernaculum habitat. Milksnake are communal in the sense that they will gather together in the fall and share a hibernaculum over the course of the winter. Therefore, depending on where the hibernaculum occurs on Georgina Island, it is possible that development (e.g., quarry, housing, road construction, etc. could damage a portion of this species' critical habitat.

Figure 13. Many Milksnakes at GIFN are killed by being stuck by motor traffic on the roadways

6.6 Hooded Warbler (*Wilsonia citrina*)

6.6.1 General

Hooded Warbler is a Schedule 1 Threatened species of the Species at Risk Act and is also considered Threatened by the Provincial Endangered Species Act.

A small bird species similar in size to a Chickadee, the male Hooded Warbler is predominately yellow with grey-yellow wings and a distinctive black-cap on its crown that circumscribes the eyes and face area reconnecting at the base of the throat. The female is a brilliant yellow and possesses only a minor cap that extends from the crown to the base of the nape.

Figure 14 is a representative photograph illustrating the Hooded Warbler.

Historically, this species did not migrate any further north than the "Golden Horseshoe" area around Lake Ontario and occurred mainly within the most southerly extent of Ontario along Lake Erie and Lake St. Clair. However, in recent years, the Hooded Warbler appears to be extending its range further north into south-central Ontario. Based on the Ontario Breeding Bird Atlas, some sightings have occurred at latitudes north of Lake Simcoe. The OBBA maps suggest that a sighting has been established within minutes of the south shore of Lake Simcoe.

Figure 14. The Hooded Warbler displays a distinct black cap that circumscribes its eyes and face, connecting at the throat.

The Hooded Warbler prefers edge habitats and open areas next to relatively mature deciduous woodland. These edge habitats or openings within the canopy contain early succession shrub species whose dense foliage provides excellent nesting locations for this species. Hooded Warblers nests tend to be suspended approximately waist to chest-high in the shrubbery which effectively conceals the nest and young.

6.6.2 Location and Habitat Description

The Hooded Warbler was observed on GIFN at the northern tip of Fox Island. It was believed to be a female as the hood was not observed to finish around the throat and nape as it would on a male. It was seen near the end of the summer season in habitat that appears to be suitable for this species.

This warbler was observed in a shrubby opening within the forest canopy on the main trail that accesses the seasonal homes on the northern end of Fox Island. The trail contained early succession ground cover such as goldenrods, asters and grass species. The shrubs and trees in the transition zone were mostly between two to ten metres in height, and graded into the surrounding tall Maple and Oak mature woods. The shrub species in the edge habitat consisted of Sugar Maple, Red Raspberry, Paper Birch, Serviceberry, Common Lilac, Northern Prickly Ash, Staghorn Sumac and Meadow Willow.

The early succession corridor was open and sunny with an abundance of grapes and other vine species that provided excellent cover over the shrubs in the area.

A potential Hooded Warbler nest was identified to occur at chest-level on the southeast corner of the island. However, the nest did not appear to be inhabited this past summer as no fresh grass or sprigs was present. Therefore, it is presumed at this time that the Hooded Warbler on Fox Island may have been migrating through the area on its way to wintering grounds, or perhaps back to its nesting area south or north of the site.

If the Hooded Warbler were to be migrating north of its historical range, GIFN would provide excellent habitat for it with large tracts of mature woodlands and more open shrubby habitats.

6.6.3 Potential Threats

a) Potential threats to the Hooded Warbler include the removal of forest areas for development or forestry. This species is a highly woodland-sensitive bird. therefore, any destruction to the large tracts of woodland would displace this species from the area.

b) Another threat is the use of pesticides and herbicides which bio-accumulate in the food chain to the point of causing sterilization of the male/female avian or such that the shell of the eggs are weakened. causing the eggs to break when the female sits on them. Point Source herbicides that are utilized directly on the weeds are less likely to have an effect

compared to herbicides that are broadcasted on lawns, etc.

c) Hooded Warbler is not a game bird and is unlikely to be intentionally persecuted by humans.

6.7 Peregrine Falcon (*Falco peregrinus anatum*)

6.7.1 General

Peregrine Falcon is listed as a Threatened species under Schedule 1 of the Species at Risk Act.

The Peregrine Falcon is a small raptor species that hunts mainly for rodents and small birds. This falcon has been deemed the fastest animal in the world during a dive when attempting to retrieve its prey. The male and female are very similar in appearance. The dark pronounced "moustache" and cloak extending from the head down its back to the wings and tail feathers are fairly pronounced (Figure 15).

Figure 15. The distinctive "moustache" and cloak of the peregrine Falcon are clearly illustrated in this image.

According to the Ontario Breeding Bird Atlas data, Peregrine Falcon was probably nesting on the west end of Kempenfelt Bay. The species is also known

to nest along the Bruce Peninsula and in the northern communities above Sudbury.

6.7.2 Location & Habitat Description

The Peregrine Falcon was observed off the east-tip of Fox Island in September 2008. The falcon flew directly overhead and was being chased by an American Robin (*Turdus migratorius*) out over the water. The falcon then turned and flew overhead again into the woodlands of Fox Island.
This was the first and only sighting of this species on Fox Island, therefore leading us to believe that the Peregrine Falcon was likely migrating through the area to the south. Perhaps it was foraging on the island and the American Robin did not like its presence within its territory.

This species may inhabit building tops on occasion, but typically prefers the ledges of cliff faces overlooking large water bodies such as the Great Lakes. Consequently, the most suitable habitats in Ontario occur along the north edge of the Bruce Peninsula, the Niagara Escarpment, and in the more northern communities above Sudbury and Sault St. Marie.

6.7.3 Potential Threats

a) The main threat to the Peregrine Falcon is the use pesticides. Peregrines are at top of the food-chain and are therefore susceptible to the bio-accumulation of contaminants in their prey. This was the case with DDT which nearly wiped-out the Peregine population in the 1970's and 80's. DDT has been banned for use by both the Canadian and American governments, however, it may still be in use by some third-world countries as it is inexpensive to make. Unfortunately, Peregrines migrate to these third world countries during the winter months and may still be affected by this agent.

b) Other threats are from degradation of the cliff habitats along the waterfront in Southern Ontario as new developments (i.e. subdivisions, ski-hills, golf-courses, etc.) also find these cliff habitats attractive for there view.

c) Impacts from GIFN are highly unlikely as this

species was merely migrating through the area on its way to overwinter in warmer climates.

6.8 Bald Eagle (*Haliaeetus leucocephalus*)

6.8.1 General

The Bald Eagle is considered to be Not at Risk by the Federal Species at Risk Act, anymore, but is listed as Endangered by the Provincial Endangered Species Act.

In 2007, this species was downgraded by both the Species at Risk Act and the Endangered Species Act and is now only considered to be Endangered in the south-central portion of Ontario.

The Bald Eagle is well known by the residents on the island as it is a very spiritualistic raptor to the Aboriginal People. The male is quite often associated with the attributes of strength and virtue and is seen as the pinnacle of the animal world by Aboriginal People in North America.

6.8.2 Location and Habitat Description

This species was only observed during the winter month inspections in February and March of 2008 on the southeastern part of Fox Island. No sightings occurred during the summer field inspections. It is therefore anticipated that the observed male and female Bald Eagles were migratory birds from the north. The pair was soaring above Fox Island when a localized snow storm pushed them down to the treetops.

During the winter months it is common for Bald Eagles and other birds from the northern boreal habitats to migrate into southern Ontario as more food becomes available once the majority of spring/summer breeding species migrate to overwinter in the warmer climates to the south.

In this case, Bald Eagles are often observed during the winter months on all three islands of GIFN. However, it is unlikely that the Eagles would remain to nest during the spring/summer breeding period, even though suitable habitats are available on the islands. This may be attributed to this species propensity for remote breeding habitats.

6.8.3 Potential Threats

a) Bald Eagles tend to overwinter in the area and then migrate northward to their nesting grounds. Impacts during the winter months may be in the form of disturbances to their roosting area by humans or injury by vehicular traffic on the area roads. Overall, there is very little impact associated with this species during the winter months. DDT was the main reason why Bald Eagles experienced a decline in past two to three decades, however bans on this chemical in the United States and Canada have resulted in the stabilization of the raptor's populations.

6.9 Great Egret (*Ardea alba*)

6.9.1 General

The Great Egret is not considered to be "at Risk" by either the Species at Risk Act or the Endangered Species Act. However, the Natural Heritage Information Centre (NHIC) considers this species to be potentially at risk within the province.

The Great Egret is part of the Heron Family with a similar appearance and stature to that of the Great Blue Heron except with entirely white plumage. This makes the Great Egret a very striking avian when observed in flight or along the shore.

Typically, this species is associated with the wetlands of the south and is often observed within the Everglades of Florida. Consequently, it is revered as a more southern species and the fact that it has become more prevalent in southern Ontario suggests that its northern range may be extending into the Great Lakes system.