

ASSESSING THE IMPLEMENTATION OF ONTARIO'S OVERALL BENEFIT
PERMIT APPLICATION: A CASE STUDY APPROACH

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Abstract

The value of biological offset programs has received mixed reviews. On the one hand, offset programs are considered a more flexible alternative than developing site control regulatory provisions. In some jurisdictions biological offset are market oriented, allowing proponents to purchase rehabilitated or created habitat to compensate for losses encountered during development. On the other hand, if the process becomes too difficult to maneuver or cost prohibited property owners and developers may try and avoid the process, which could lead to a further decline in the species and required habitat. This research contributes to this debate by assessing the implementation of Ontario's *Endangered Species Act* (ESA) Overall Benefit permit application process. The Overall Benefit permit is an offset program in the sense that development activities prevented under Section 9 and Section 10 of the ESA can be approved if the outcome of the development is an 'overall benefit' for the species or their habitat in the future. This research uses data available on the Environmental Registry and an Overall Benefit permit application file as a case study to assess implementation. The assessment is framed using normative principles (e.g. mitigation hierarchy, equivalency and currency of the offsets) and performance-based criteria (i.e. efficiency and equity). The findings indicate that the process is following the mitigation hierarchy; however, there does not appear to be equivalency or a clear currency when compensating for lost habitat. A database of available offset locations would improve the flexibility of offset alternatives. The uncertainty of offset benefits is mitigated through monitoring and reporting; it does not appear to restrict development activities. The process is not efficient, as delays in decision making and approval of incomplete phases on the application process contribute to the inefficiencies. Several key recommendations include the creation of a database of Overall Benefit permits to create an accepted currency. Each prescribed phase should have timelines to ensure efficiency of the process. Clarify the responsibility of the proponent or OMNRF through the Overall Benefit process and for ensuring the activities lead to an overall benefit within a reasonable time.

Keywords: Overall benefit permit; *Endangered Species Act*; habitat offset; policy evaluation; assessing implementation

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Chapter 1

1 Introduction

Conserving biodiversity in the face of ongoing demands for economic growth and development is a global challenge (Bull et al. 2013a). Human activity (e.g. agriculture, urban, forestry) has modified over 50% of the ice-free land area. The greatest pressure is concentrated in urban areas, as over half of the global population lives in urban settings (United Nations, 2015). In Ontario nearly 86% of the population lives in urban areas. The Greater Toronto Area is home to nearly a quarter of Canadians. Significant growth is predicted for the region that buffers the Greater Toronto Area from the surrounding “Greenbelt” zone. The state of biodiversity is on the decline in Ontario. In Ontario, the culmination of individual development activities has played a role in habitat loss, fragmentation and degradation are the leading causes of biodiversity loss. There has been little progress towards improving the status of ecosystems of concern or implementation of municipal natural heritage system planning in Ontario (Ontario Biodiversity Council, 2015). As such, the endangered and threatened species and their life cycle supporting habitat may be at risk of further decline. Biological offsets are widely used in attempt to reverse this trend.

A review of the literature indicates that policymakers often use a mix of alternatives when designing responses to stem the loss of critical habitat (e.g. legislation, market mechanisms, voluntary). Within the mix of alternatives are biological offsets, which are implemented in over 50 countries (Coralie et al. 2015; Fallding, 2004). The aim is to offset unavoidable residual impacts of development on protected species or critical habitat; this is how the demands for growth and development are balanced with efforts to enhance certain species. The use of biological offsets has gained political support, as evidenced by the number of countries using this approach to protect or enhance biological diversity (Coralie et al. 2015). Biodiversity offsets provide flexibility in finding solutions to achieving “no loss”, “no net loss” or “net gain” policy goals through negotiation instead of litigation (Coralie et al. 2015). Ultimately, biological offsets are often negotiated, guided by science, and involve consultation with various groups

including government, industry and other interested parties. Biological offsets are often a reactionary process, triggered by development activity that is likely to negatively impact a protected species or habitat. Biological offset permits are issued on a case-by-case basis. It is the cumulative issuing of biological offset permits that in part determines the long-term success of this approach.

However, some suggest that moving from the theory to practice of biological offsets is not without its challenges (Bull et al. 2013a; Curran et al. 2014). Bull et al. (2013a) identified a number of procedural (e.g. equivalence, time lag, uncertainty), and practical (e.g. compliance, measuring outcomes) challenges to implementing biodiversity offsets. Curran et al. (2014) found that offset ratios are often insufficient to account for the uncertainty and risk restoration failure. For these reasons, and others discussed in more detail in Chapter 2, the incremental loss of species habitat continues in some jurisdictions.

My research examines a case study of an Overall Benefit permit application to explore how Ontario's offset program aligns with the established principles and best processes for biological offsets. This research contributes to the growing body of literature on the implementation of biological offset programs (Rodriguez et al., 2012, Bull et al., 2013b, Curran et al., 2014). There appear to be fewer empirical studies of experiences at the provincial scale implementing biological offset programs relative to other jurisdictions (Norton, 2009, Quetier et al., 2014 and Regnery et al., 2013). As biodiversity offsets become more widely used, we need to evaluate the implementation of these programs. Despite the increasing number of net benefit offset policies, biodiversity losses continue to be reported. This research assesses the implementation of Ontario's offset program (i.e. Overall Benefit Permit) using an in-depth permit review and the Environmental Registry data.

1.1 Biological Offsets

Biological offsets are the spatial fix for growth and development impacts that are unavoidable by creating a net benefit in a separate location (McKenney and Kiesecker, 2010). Biological offsets provide a flexible alternative to prescriptive site design controls,

as it enables development to continue with no net loss or a net gain of equivalent habitat (Gibbons et al., 2015; Schulp et al., 2016). Biological offsets pose a risk, as creating habitat in alternate locations may not serve the same function as the critical habitat lost. Biological offset should be considered only as a last resort. The mitigation hierarchy typically involves four stages: avoid, minimize, rehabilitate and offset (Bull et al., 2013b) (Figure 1). First, try to avoid any negative impacts the proposed development may have on biodiversity (e.g. avoid development in endangered or threatened species habitat). Second, if complete avoidance is not feasible, try to minimize the size of the impact. Third, if development does occur within a protected habitat, use on-site restoration or rehabilitation to mitigate impacts. If the activity would still cause a residual impact, a biological offset can be sought to compensate for the loss (Regnery et al., 2013). The level of scrutiny or rigour at each stage determines how quickly projects can move through the mitigation hierarchy to the biological offset option.

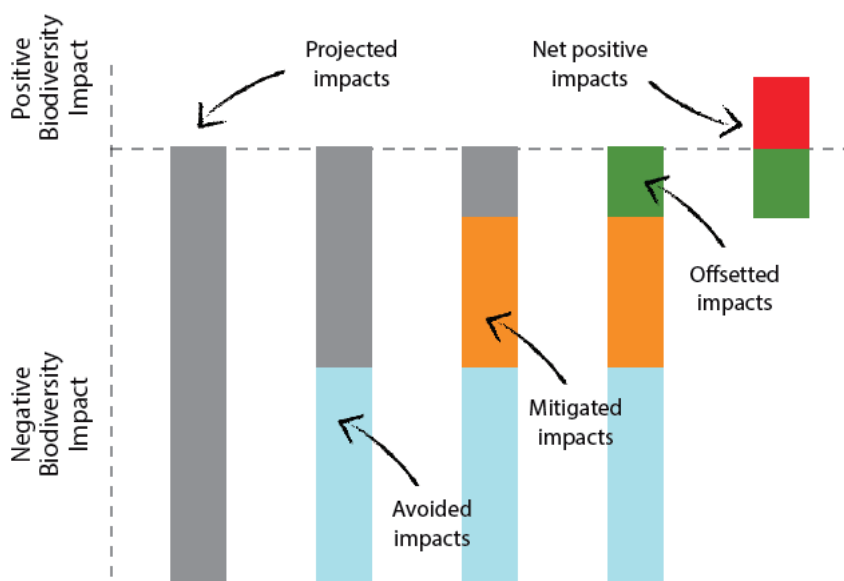


Figure 1-1 Mitigation Hierarchy Visualization (Source: Brownlee, 2014, p.7)

Ontario recognizes the importance of protecting endangered or threatened species and their critical habitat. In 1971, Ontario passed Canada's first endangered species legislation. In 2007, Ontario's *Endangered Species Act* (ESA) underwent a substantial revision. The purpose of the ESA is:

1. To identify species at risk based on the best available scientific information, including information obtained from community and aboriginal traditional knowledge.
2. To protect species at risk and their habitats, and promotes the recovery of species at risk
3. To promote stewardship activities to assist in the protection and recovery of species at risk (ESA, 2007, c.6, s. 1).

Specifically, the ESA (2007) Sections 9 and 10 protect species and their related habitat, respectively. Section 9 does not permit the killing, harming, harassing, capturing or taking a living member of a species listed on the federal Species at Risk list as an extirpated, endangered or threatened species. Section 10 does not allow a person to damage or destroy the habitat of a species listed on the Species at Risk list as endangered or threatened. Under the ESA (2007) legislation, the term habitat means it is required to carry out the species life processes, such as reproduction, rearing, hibernation, migration or feeding. However, Section 17(2)(c) allows persons to engage in an activity that would otherwise be prohibited by Sections 9 and 10. The Ontario Minister of Natural Resources and Forestry (OMNRF) may issue an Overall Benefit permit, if certain legislative conditions are met (i.e. achieve an overall benefit within a reasonable time, consider reasonable alternatives, and identify reasonable steps).

During the Overall Benefit permit application process the following type of conditions will be considered:

- Baseline condition of the species (e.g., numbers, current state, trend, sensitivity to disturbance, life processes) or habitat (e.g., amount, current state, trend, sensitivity to disturbance and functionality) that would be adversely affected by the activity;
- The severity, geographic extent, duration and permanency of the potential adverse effects likely to result from the proposed activity;
- Whether the proposed overall benefit actions are biologically and ecologically appropriate for the species;
- Recognition that in some circumstances, given the above, it may not be possible to achieve an overall benefit for the species

(Ontario Government, 2012).

The ESA (2007) preamble suggests the province will protect species at risk and their related habitat, with appropriate regard to social, economic and cultural considerations. The relative importance of each will vary by context and location. Proponents' will work through the application process in stages with the local OMNRF staff. The process involves seven-stages, including Information Gathering Form (IFG), Avoidance Alternative Form (AAF), and Overall Benefit Permit. The seven-stage process represents how Ontario intends to balance the need for growth and development, while ensuring a net gain in habitat to sustain the species life cycle. This seven-stage process is the focus of this research.

1.2 Research Objectives

The purpose of this research is to assess the implementation of Ontario's *Endangered Species Act's* (2007), Section 17(2)(c), Overall Benefit permit. The Overall Benefit application process is a multi-phase process that involves the proponent receiving three separate permit approvals from the OMNRF. Consistent with the mitigation hierarchy approach, if it is determined that there are no alternative solutions or mitigation measures to avoid the effects on endangered or threatened species or their required habitat, the proponent can apply for an Overall Benefit permit. This research uses an in-depth permit review to assess the implementation of Ontario Overall Benefit permit. The case study involves an application to build an access road to a future 28-lot subdivision development. The road crosses through a wetland containing gestation and hibernacula habitat of the Massasauga (*Sistrurus catenatus*), a threatened species. The specific objectives are as follows:

- i) describe Ontario's efforts to protect endangered and threatened species and their habitat;
- ii) review literature related to biological offset programs to develop a framework to assess the implementation of Ontario's Overall Benefit program;
- iii) describe the methods of data collection and in-depth case study design;

- iv) use principles and performance-based criteria to assess the implementation of the Overall Benefit permit process;
- v) identify the successes, challenges and lessons learned about Ontario's Overall Benefit program, and recommend future research needs.

1.3 Thesis Organization

The remainder of the thesis is divided into four chapters. Chapter 2 presents a review of literature surrounding biological offset policies that address three central topics. First, the review of Ontario's *Endangered Species Act* (2007) Section 17(2)(c) Overall Benefit permit program. Second, evidence from existing biological offset implementation research is summarized. Third, an evaluative framework based on previous studies is established to guide this research. Chapter 3 describes the methods of data collection and case study. The data sources include the online Environmental Registry Overall Benefit permits database, detailed Overall Benefit permit application, documentation and correspondence. Chapter 4 describes the permit process for an Overall Benefit permit application involving a 28-unit subdivision around two lakes that would contribute to the loss of the threatened Massasauga rattlesnake habitat. Chapter 5 uses the established principles and performance-based criteria to assess the implementation of an Overall Benefit permit, and concludes the by identifying key findings, recommendations, and the need for future research.

Chapter 2

2 Introduction

This chapter establishes the academic and institutional context for assessing the implementation of Ontario's *ESA* Section 17(2)(c) Overall Benefit permit process. The first section describes the international efforts to raise awareness about the loss of biodiversity, and encouraging more sustainable forms of development and growth. The second section describes the experience of implementing biological offset policies in the United States. The third section reviews the federal *Species at Risk Act* and Ontario's *Endangered Species Act* governance structure and previous research. The fourth section describes principles and criteria guiding efforts to assess the implementation of biological offset and related policies.

2.1 International Efforts to Conserve Biodiversity

Two central themes at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro Brazil were sustainable development and biodiversity conservation. The Convention on Biological Diversity was a key outcome of the UNCED in 1992. The Convention of Biological Diversity is an international legally-binding treaty, which has three main goals: conservation of biodiversity, sustainable use of biodiversity, and fair and equitable sharing of benefits arising from the use of genetic resources (United Nations, 2017). There are currently 196 Parties of the Convention on Biological Diversity, with 168 countries signing the Convention. Canada has been a signature Party since 1992. In 2010, during the Year of Biodiversity, the United Nations declared 2011-2020 the Decade of Biodiversity. The aim is to halt the loss of biodiversity by implementing a Strategic Plan for Biodiversity, and achieving the Aichi Biodiversity Targets. Overall, there are 5 overarching strategic goals and 20 targets to achieve by 2020. The five goals include:

1. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society;

2. Reduce the direct pressures on biodiversity and promote sustainable use;
3. To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity;
4. Enhance the benefits to all from biodiversity and ecosystem services; and
5. Enhance implementation through participatory planning, knowledge management and capacity building (UN Environment, 2017).

The Aichi Biodiversity Targets, much like earlier efforts, raise awareness about the global loss of biodiversity that inhibit the resiliency of species. It is up to each nation-state to develop plans based on the local political, social, economic and environmental context.

Canada and other countries are looking for ways to protect and recover biodiversity, while at the same time supporting growth and development. Expanding infrastructure and development will negatively impact biodiversity, if not implemented well. Almost 83% of the Earth's land surface has been influenced by human activity (Kerr and Dequise, 2004, p.1163). Land-use changes causing habitat losses are contributing to the decline of threatened birds and mammals, 83% and 89% respectively (Smith and Zollner, 2005). Globally, the number of species at risk of extinction increases annually (Kerr and Dequise, 2004), with habitat loss a major contributing factor (Pereira et al., 2004). The goal of biological offsets are to reverse this trend by identifying endangered and threatened species, establishing recovering plans, and promoting recovery through development applications on a case-by-case basis (Favaro et al., 2014). If threatened or endangers species are to recover, it is essential that habitats are protected and rehabilitated. Biological offsets target "no net loss" or "net gain" of habitat.

In order for no net loss or net gain policies to be successful, the policy needs to be clear in what is required to achieve replacement or net gain, and how offsets can contribute to that target objectives (Quetier et al., 2014, p.121). Quetier et al. (2014) express concerns about biological offset policies, such as the inability to enforce offsets mitigation or

inadequate resources to ensure the offset agreements are implemented. These can lead to paper compliance only, and not tangible progress towards sustaining species life cycle. Previous research identifies ongoing challenges with the practical implementation of biological offset policies.

2.2 Biodiversity Offset Policy Alternatives

The aims of offset measures are to achieve gains in biodiversity by creating new habitat or restoring habitat in another location. The target of no net loss or net gain of biodiversity has been adopted as a cornerstone of nature conservation policies (Gardner et al., 2013), and has created opportunities for habitat banking and tradable permits as policy alternatives (Bull et al., 2016). Biodiversity offsets have emerged with different approaches among jurisdictions. These include one-off offsets, net gain offsets, in-lieu fee, and bio-banking. A one-off offset is completed by the developer when the impact of the activity or development is known. This is also referred to as a “like-for-like” offset; whatever is destroyed or impacted must be recreated elsewhere. A net gain offset is similar to a like-for-like; however, the developer must leave the species or habitat in a better state than before the development activity occurs. Under in-lieu policies, the developer pays a third party to offset their development activity. The offset would then be the responsibility of the third party to maintain the habitat. Bio-banking (market based incentives) is when third parties have already created offsets for purchase. When a developer is impacting biodiversity, they would be permitted to purchase credits from a third party to offset their impact (OECD, 2013). As offsets become more popular, we need to assess the experiences of other jurisdictions, to learn about successes, challenges and lessons learned. For the purpose of this research, emphasis is on the experiences in the United States, Canada and Ontario.

2.3 Unites States *Endangered Species Act*

In 1973, the United States enacted the *Endangered Species Act* (ESA) for the protection of endangered and threatened species. Since its existence there have been ongoing challenges. The US ESA began as a command and control approach relying on legislation that threatened civil or criminal action to assure compliance with the prohibition on the

taking of endangered species (Mills, 2004). Some landowners were taking pre-emptive actions against endangered species to avoid the regulation (Rodriguez et al., 2012). For example, Lueck and Micheal (2003) found that in North Carolina landowners close to red-cockaded woodpecker's habitat harvested trees more often than other landowners without suitable habitat. This approach did not provide the landowner with an incentive to conserve and improve habitat on their property (Simmons et al., 2005). Initially there was limited success in protecting or recovering endangered and threatened species under the command and control approach, as species were on the decline and more species were being listed as endangered or threatened. There were very few success stories out of the US *ESA* (1973). In 1982 congress approved a significant change to the *ESA* by adding Section 10.

Under Section 10, landowners can complete a Habitat Conservation Plan (HCP) to protect a portion of their property in exchange for developing another part of their property (Simmons et al., 2005). "The purpose of the [HCP] is to help endangered species by providing a plan whereby landowners manage part of their land for endangered species and mitigate any 'takes' of endangered species that occur by conducting otherwise lawful actions such as farming" (Simmons et al., 2005, p.62). HCP has political support as a flexible method for resolving potential conflicts between private development and endangered species protection in the United States (Bean and Wilcove, 1997). An incidental take is defined as a "take that is incidental to and not the purpose of an otherwise lawful action" (Underwood, 2011, p.122). Within the first ten years of HCP being active, there was little success. "Between 1983 and 1994 fewer than 20 [HCP] were approved" (Mills, 2004, p.254). Landowners did not want to begin the process of completing a HCP because of the cost of the process and uncertain outcome (Mills, 2004). Also, there was no assurance that future mitigation could be required if the HCP targets were not achieved (Mills, 2004). Without landowner support, the HCP program was not likely to benefit endangered or threatened species or habitat.

In 1994, regulatory changes were made to encourage landowners to participate. The 'no surprises' policy was added that guaranteed landowners if changes were required to the habitat conservation plan in the future, the landowner would not be required to pay the

cost (Mills, 2004). The additional costs would be the responsibility of the government. The amendment to Section 10 of the US ESA allows the Secretary to issue permits for activities normally prohibited under the ESA. The Secretary may only issue a permit if the applicant has submitted an HCP. The HCP must illustrate the following items:

- (i) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
- (ii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized;
- (iii) such other measures that the secretary may require as being necessary or appropriate for the purposes of this plan;

If the Secretary finds, after opportunity for public comment, with regards to the permit application and the related conservation plan that:

- (iv) the taking will be incidental;
- (v) the applicant will, to the maximum extent practical, minimize and mitigate the impacts of such taking;
- (vi) the applicant will ensure that adequate funding for the plan will be provided;
- (vii) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
- (viii) the measures, if any, required under subparagraph (A) will be met; and he has received such other assurances as he may require that the plan will be implemented, the Secretary shall issue the permit (*ESA*, 1973, Section 10).

HCP should be based on scientifically justifiable decisions (Franklin et al., 2011). Harding et al. (2001) found that scientific committees, in cooperation with the agencies, could ensure that multiple plans for one species incorporated conservation goals specific to that species while allowing for a diversity of approaches across plans. Within the HCP process, it is important to evaluate how effectively science is used within these plans to ensure the long-term viability of these species (Kaiser, 1997). Harding et al. (2001) identified five stages of the habitat conservation planning process: “(1) assessment of the current states of the species (status); (2) estimation of the anticipated incidental take (take); (3) evaluation of how take would affect the species (impact); (4) measures proposed to minimize and mitigate the effect of take (mitigation); and (5) monitoring protocols for assessing the amount of take and effectiveness of mitigation measures (monitoring)” (p.490). The five stages identified in the US model are very similar to the

multi-stages approach identified in Chapter 1 for Ontario's Overall Benefit permit. The US has evolved with different options to achieve no net loss of endangered or threatened species, which involves third parties creating the offsets.

Langpap and Kerkvliet (2012) assess the effectiveness of HCP in promoting species recovery. Using a mix of data, including the preparation of HCP, species characteristics, species recovery status, and activities implemented they concluded the HCP are effective at recovering species. The analysis also includes characteristics like the size of HCP area, and number of species targeted within the plan. Langpap and Kerkvliet (2012) report species benefited from HCP, which covered larger areas. There was no evidence that multi-species plans were more effective than single-species targeted plans. Similarly, Laycock et al. (2011) evaluate the efficiency and effectiveness individual Species Action Plans towards improving the status or reducing threats in the United Kingdom. While spending on Species Action Plans was bias towards vertebrates, over half of the plans studied showed improved conservation status, and nearly one-third had reduced threats by at least 50% (Laycock et al., 2011).

Market-based incentives has led to the creation of Habitat Conservation Banking; it allows landowners to compensate for activities that are harmful to species habitat by purchase credits from others who have either conserved or restored habitat for that species elsewhere (Rodriguez et al., 2012). Rodriguez et al. (2012) found that 45.1% of the respondents would enter into a contract to restore and maintain endangered species habitat. Those respondents determined that on average they would enter into a contract for a period of approximately 10 years and that would cover 91.2 acres. Although other research indicates landowners may take pre-emptive against protected species to avoid the need to mitigate development impacts (Lueck and Micheal, 2003). Rodriguez et al. (2012) found that nearly half would protect a portion of the habitat on their property, provided that they did not face future economic costs.

The experience in the United States is that the incidental take permit processes and policies have been refined over the years to improve the process for landowners. The US continues to enhance the incidental take permit process, to better protect endangered and

threatened species and finding a balance for future development and protecting private landowner's property rights. However, it would appear program changes strengthen landowner rights and options to develop.

2.4 Canada Species at Risk Act, 2002

Canada's most recent National Report to the Convention on Biological Diversity (2014) identify a number of concerning trends including loss or fragmentation of terrestrial and aquatic habitats, and the decline of wetlands in southern Canada. There was some mixed success in protecting biodiversity. For instance, the extent of protected land has recently increased, in some regions above the Aichi Biodiversity Target of 17%. However, Canada is well below the target in highly developed regions and oceans. Some positive trends include an increasing number of stewardship initiatives and participation rates.

In Canada, the protection of biodiversity is a shared responsibility among the federal, provincial, territorial and local government, and First Nations. The Constitution Act, 1982 section 91 gives the federal government jurisdictional authority over marine wildlife and most wildlife and resources on federal lands and north of 60N; however, much of the 60N authority has been delegated to territorial governments. Sections 92 and 109 assign the provincial government's jurisdictional authority over terrestrial wildlife, lands and resources south of 60N. There is overlapping federal and provincial jurisdiction over freshwater species and migratory birds (Wojciechowski et al., 2013).

Upon ratifying the United Nations Convention on Biological Diversity, Canada pledged to take action towards the protection of species at risk and the ecosystems that support them. This led to the Accord for the Protection of Species at Risk in 1996 and support for a national strategy to prevent the extinction of species in Canada (Gau et al., 2007). The federal government met this commitment by enacting the *Species at Risk Act (SARA)* (2002). The *Species at Risk Act* can implement the federal 'safety net' clause. The 'safety net' clause gives the Minister the ability to take action in a different jurisdiction (provincial or territorial) if they are of the opinion that the jurisdiction is not providing effective protection of species at risk. The 'safety net' clause has yet to be enacted in Ontario. The Federal Government has issued to Emergency Orders (Safety Net Clause)

for the Greater Sage-Grouse and the Western Chorus Frog. The next section reviews the federal *SARA*.

2.5 Listing of Species at Risk

SARA (2002) assigned a group of experts to assess and determine which species should be listed or not listed. Assessed species are categorized as extinct, extirpated, endangered, threatened, special concern, or not at risk. The group responsible for making recommendations under the Federal Legislation is the ‘Committee on the Status of Endangered Wildlife in Canada (COSEWIC)’. COSEWIC was founded in 1977, and *SARA* legally established them in 2003. Members appointed to COSEWIC have experience and expertise with wildlife and biological science, including Aboriginal Traditional Knowledge, ecology, genetics, management, systematic or risk assessment, coupled with years of field experience. Members may be from academia, independent specialist, Aboriginal people, or the government, museums or independent biologist (Government of Canada, 2017).

Canada has adopted an “innovative approach to species listing that was intended to strengthen the role of science in listing decisions and provide transparency when political rationales for listing” (Findlay et al., 2009, p.1610). As part of the assessment, the committee identifies existing and potential threats to the species or indicates that there is insufficient information to classify the species and to indicate when a species is not currently at risk. COSEWIC only “considers scientific evidence relevant to a species’ recovery potential, and ignores socioeconomic costs or benefits of protection” (Favaro et al., 2014, p.1).

COSEWIC makes a recommendation to the federal government; however, the federal government decides what to do with the recommendations and assessments. Once an assessment is created the federal government has prescribed timelines under the *SARA* to determine what they are going to do with the recommendations and assessments.

Ontario’s *Endangered Species Act* (2007) follows a similar approach to the federal *SARA* (2002). The ESA established ‘Committee on the Status of *Species at Risk* in Ontario’

(COSSARO). The make-up of COSSARO is similar to COSEWIC in terms of the experience and expertise of its members. COSSARO reviews the information and data on a particular species, and makes a recommendation to the provincial government if a species should be listed or not. COSEWIC and COSSARO make a science-based recommendation on whether a species should be listed or not. However, once an assessment is created by COSEWIC or COSSARO it is forwarded to the appropriate Government. The Minister makes the final decision to list a species or not. The Minister must take into account the assessment of COSEWIC or COSSARO; however, they also take into account the potential social and economic impact the decision to list or not may have. Ultimately, the Minister makes the final decision on listing a species or not. They can also request more information from COSEWIC or COSSARO before making a decision.

In a report published by EcoJustice (2012), they reviewed the Federal Species at Risk laws and provinces and territories laws on Species at Risk. EcoJustice used four criteria to assess the protection of species at risk in different jurisdictions. The criteria included:

- Does the province or territory identify species that need help?
- Does the province or territory have laws that prohibit species from being harmed in various ways (including killing, harming, harassing, capturing, taking, possessing, selling or trading them)?
- Does the province or territory have laws in place requiring the government to identify and protect the required habitat for the species at risk to survive and recover?
- Does the province or territory have laws which require the preparation of science-based recovery plans and actions to implement these plans, with timelines designed to achieve survival and recovery for the species (EcoJustice, 2012 p.6).

Following the criteria above, EcoJustice determined Canada had a level at C- and Ontario slightly better at a C+. In 2012 the *SARA*, 2002 had listed 182 species that would be found in Ontario. The *ESA*, 2007 had listed 178 of the 182 species (98 percent). However, the EcoJustice policy review focuses on the legislative and regulatory

environment, not necessarily the effectiveness of implementing the various legislations in jurisdictions across Canada.

Species listed on the federal Species at Risk list receive protection from killing and harming, and also habitat protection. However, Section 73 permits the Minister to enter into an agreement or issue a permit “authorizing the person to engage in an activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals” (Government of Canada, 2017). The agreement may only be entered into if the Minister is of the opinion that:

- (a) the activity is scientific research relating to the conservation of the species and conducted by qualified persons;
 - (b) the activity benefits the species or is required to enhance its chance of survival in the wild; or
 - (c) affecting the species is incidental to the carrying out the activity
- (Government of Canada, 2017).

Section 73 permits activity that would otherwise be prohibited under the *SARA*. Section 73 states “at a minimum, it must be clear that the species would be better off as a result of the activity and any accompanying actions. In the case of research intended to help with the conservation of species at risk, the timeframe for achieving the overall benefit for the species may be long-term.”

In order for a permit to be issued under Section 73, the Minister must be of the opinions that the three preconditions have been met, which are:

- (a) All reasonable alternatives to the activity that would reduce the impact on species has been considered and the best solution has been adopted;
 - (b) All feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat on the residences of its individuals;
 - (c) the activity will not jeopardize the survival or recovery of the species
- (Government of Canada, 2017).

The federal government has implemented the ‘Permits Authorizing an Activity Affecting Listed Wildlife Species Regulations’. This regulation came into effect on June 19th, 2013. The regulation imposes a 90-day timeline for the government to either issue a permit or refuse a permit under Section 73. Since 2013, the federal government has achieved the 90-day service standard 79% of the time in 2013-2014, 97% in 2014-2015 and 93% in 2015-2016. The service standard was implemented to contribute to “consistency, predictability and transparency in the *SARA* permitting process by providing applicants with clear and measureable service standards” (Government of Canada, 2017).

It would appear however the emphasis is on efficiency, not necessarily the effectiveness of policy initiatives in achieving the intended biodiversity targets. The federal government has developed a mitigation hierarchy that needs to be followed before issuing a permit under Section 73 of *SARA*. The federal government has also recognized the importance of a clearly outlined process. The federal government relies on the provinces and territories to protect and recover endangered and threatened species in their province or territory.

The Federal Government and the Ontario Government list almost all of the same species. Ontario has listed 98% of the species that would occur in Ontario. It is important to have consistency across the two levels of Government. This overlap also permits the two levels of governments to share resources. Also, because almost all of the species listed on Ontario’s *ESA* are also listed on Canada’s *Species at Risk*, recovery strategies and habitat descriptions can be completed with both parties involved.

There are several previous studies of the federal *SARA*. Mammel (2014) uses a case study of the Osoyoos Indian Band economic develop projects to explore competing discourses concerning First Nations sovereignty and federal authority to implement *SARA*. Findlay et al. (2009) test the hypothesis that there is an inherent bias in the listing of marine and northern species under the federal *SARA*. Using COSEWIC data, and several jurisdictional and administrative variables they found that if a species had commercial or subsistence value, species were less likely to be listed at risk. Further, they

concluded there is a high level of congruence between COSEWIC recommendations and political support for listing species as protected under SARA; nearly 88% of COSEWIC recommendations receive political support for protection. This is a function of the local socioeconomic conditions that influence the political process.

2.6 Ontario's *Endangered Species Act*, 2007

Ontario's first ESA was passed in 1971; however, this research primarily focuses on the permit process initiated under the ESA, 2007 (S.O. 2007, c.6). Species listed as extirpated, endangered or threatened on the Species at Risk Ontario List are protected under the ESA Section 9(1) states that:

No person shall (a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Further, Section 10(1)(a) states that:

No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species.

Sections 9 and 10 are the cornerstone for recovering threatened and endangered species; however, these sections can be contravened. Section 17(2) permits the Minister to issue a permit only if it is: (a) necessary for public health and safety; (b) assists with the

protection or recovery; (c) can demonstrate an overall benefit; or (d) the activity will result in a significant social or economic benefit (Ontario Government, 2007). The majority of permits issued are under Subsection 17(2)(c), the Overall Benefit permit. Subsection 17(2)(c), is intended to balance the tensions over the demands for growth and development, while reversing the decline of species and critical habitat across the province.

Subsection 17(2)(c) states that:

if the Minister is of the opinion that the main purpose of the activity authorized by the permit is not to assist in the protection or recovery of the species specified in the permit, but,

(i) the Minister is of the opinion that an overall benefit to the species will be achieved within a reasonable time through requirements imposed by conditions of the permit,

(ii) the Minister is of the opinion that reasonable alternatives have been considered, including alternatives that would not adversely affect the species, and the best alternative has been adopted, and

(iii) the Minister is of the opinion that reasonable steps to minimize adverse effects on individual members of the species are required by conditions of the permit.

The Minister must also consider subsection 17(3) of the ESA, which are the Government Response Statements.

The Minister is not obligated to issue an Overall Benefit permit to a proponent. However, once a permit is issued, it is the responsibility of the proponent to meet the conditions set forth in the permit. Failure to meet the conditions could result in a contravention of the ESA and lead to prosecution under the act.

In order to receive a permit under Section 17(2)(c) the proponent must provide an overall benefit to the species that are (is) listed within the permit. Section 17(2)(c) clearly identifies three aspects of the permit approval process, the proponent must demonstrate that reasonable alternatives were considered, that there are reasonable steps to avoid adverse effects, and that benefits can be achieved in a reasonable time. This represents aspects of the mitigation hierarchy for Ontario's offset program. These three criteria will

help frame assessing the implementation of the Overall Benefit permitting program. Additional criteria are drawn from previous permit implementation research. These are outline in the next section.

The goal of the Overall Benefit program is to protect and recover species at risk by achieving a net gain for the species while at the same time allowing for economic development in the province. Some examples of Overall Benefit include increasing the number or distribution of species within their range, or reversing a population decline.

This section provides a brief overview of the application process; it is discussed in more detail in Chapter 4. After an initial screening meeting to discuss possible species at risk, the applicant completes several stages. In Phase 1, the applicant submits an Information Gathering Form (IGF) that details the location, development and other relevant information to the local MNRF District Office for approval. The purpose of Phase 1 is to gather the required information the proponents will need to submit to MNRF. The required information in Phase 1 is:

- Whether any protected species at risk or their habitats are present at or near the location of the proposed activity;
- The determination of potential effects of the activity on these species and habitats and whether the activity is likely to contravene subsection 9(1) or 10(1) of the ESA; and
- Whether it is advisable for the proponent to apply for an Overall Benefit permit under clause 17(2)(c) of the ESA prior to proceeding with the activity (Ontario Government, 2012).

Phase 2 is the Avoidance Alternative Form (AAF). Upon reviewing the information, the OMNRF staff determines if the activity will violate either Section 9 or 10. Through this stage the proponent must provide alternatives that would avoid contravention of the Act. If avoidance measures are not reasonably possible the proponent is advised to apply for an Overall Benefit permit.

Phase 3 sets out the three-tier mitigation hierarchy established under the ESA. The proponent must first demonstrate how *reasonable alternatives* were considered, and rationale for selecting the chosen alternative. Second, the proponent must describe the *reasonable steps* that will be taken to mitigate the adverse effects. Third, the proponent must demonstrate the benefits must be achieved within a *reasonable time*.

Once the applicant has notified the OMNRF of their intent to apply for an Overall Benefit permit, the Crown (through OMNRF) should begin consultation with Aboriginal communities (if appropriate). The application process can continue moving forward while Aboriginal consultation is happening; however, a final permit would not be granted until meaningful Aboriginal consultation has happened, by the proponent.

Phase 4 involves drafting the permit and consultation. The OMNRF completes an instrument proposal notice for posting on the provincial Environmental Registry for 30 days. This gives the public or other interested parties an opportunity to comment on the application. The decision notices are also posted on the Environmental Registry during Phase 5. Phase 5 is the final permit approval stage. The final legal language of the agreement is completed. There is no formal mechanism for appealing the denial of a permit. The proponent could continue to work with the local OMNRF staff to consider alternative proposals.

Phase 6 is the permit implementation stage. Under Section 36(1) it is an offence to contravene any provisions of the permit issued.

OMNRF should work with the proponent and developer and provide the following:

- Sharing available local-level OMNRF knowledge on species at risk and their habitats at or near the location of the proposed activity;
- Identifying any information gaps that may warrant additional species at risk surveys;
- Providing advice on appropriate methods for conducting species at risk surveys, which may include following species-specific protocols, where available;
- Providing resources containing additional species-specific information, reports and policy direction, where available;

- Advising the proponent on the consideration of avoidance alternatives for the activity and its subcomponents, that would not adversely affect the species at risk or protected habitat or otherwise contravene the ESA;
- Determining whether specific activities may require authorization under the ESA to avoid a contravention of the Act; and
- Providing advice on the development of an overall benefit permit application, including steps to minimize adverse effects on the species at risk or protected habitat and overall benefit actions, should a proponent elect to apply for an overall benefit permit.

(Ontario, 2012)

There appears to be a thorough vetting of development activities adversely affecting species at risk and their habitat. However, there continues to be an incremental decline in species at risk and their habitat. As such, an in-depth review of a permit can be the basis of assessing the implementation of Overall Benefit program.

The Environmental Commissioner of Ontario has written two reports with regards to the ESA. The first report, published in 2009, was titled *The Last Line of Defence – A Review of Ontario’s New Protections for Species at Risk*. The second report in 2013 was titled *Laying Siege to the Last Line of Defence – A Review of Ontario’s Weakened Protections for Species at Risk*. The Environmental Commissioners concluded that the 2007 update of the ESA contained a number of improvements, including recognizes a wider range of at-risk species (ECO, 2009). However, there were also concerns over the discretionary powers, such as the ability to issue approvals for prohibited activities. “These provisions contain broad powers which, if not exercised with great care, have the troubling potential to significantly undermine the law’s basic purpose of species protection and restoring species at risk will significantly rely on how the law is applied” (ECO, 2009, p.2).

The Advisory Panel, established to review the ESA (2007) before it was passed, supported the use of permits, agreements, and instruments as a flexible way to balance growth and development with protecting biodiversity. However, the Advisory Panel also cautioned about these tools... “given the clear and present dangers that threatened species at risk, exceptions cannot be allowed to become loopholes” (ECO, 2009, p.34). The key to successful implementation is a rigorous review of permit applications and applying the

precautionary principle at the various decision-making stages including the preliminary screening, information gathering form, avoidance alternative form and overall benefit when authorizing activities that would otherwise be prohibited under the ESA (ECO, 2009). The precautionary principle is “where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat” (ESA, 2007, preamble). The ECO was also concerned that these agreements, permits and instruments provide exceptions that could permit the killing of species at risk or destruction of their habitat; there was no appeal mechanism (ECO, 2009). There were other concerns, however for the purpose of this research, the concerns regarding permits are of particular interest.

In the second review was five years after the passing of the ESA. In 2013, the OMNRF created regulations to permit exemptions from certain activities receiving a permit from the OMNRF before contravening Sections 9 or 10 of the Act. The OMNRF had created a ‘rules-in-regulation’ system. Provided the proponents follow the rules, they can proceed with their activity. The exemptions included the following:

- Forestry operations;
- Hydro-electric generating stations;
- Aggregate pits and quarries;
- Ditch and drainage activities;
- Early exploration mining;
- Wind facilities;
- Development and infrastructure projects, including projects approved under individual and class environmental assessments (transitional only);
- Certain activities affecting butternut trees, chimney swift, bobolink, eastern meadowlark, barn swallow and specified aquatic species;
- Certain activities related to human health and safety;
- Damage or destruction of “safe harbor” habitat; and
- Activities geared towards species protection and recovery, and ecosystem conservation.

(Ontario, 2012)

The exemption permits these activities to move forward provided they follow the rules of the regulation, and to take prescribed steps to ‘minimize’ the ‘adverse effects’ of their activities. This is equivalent to a class environmental assessment; it is a checklist approach to ensuring construction practices follows accepted practices (e.g. erosion control structures, restricting hours of operation). Prior to the exemptions, these activities required an Overall Benefit permit. These reports shed light on the problem situation and political commitment towards the ESA. Each revision of the ESA seems to create opportunities to permit certain activities, essentially reducing the ability to achieve the net gain goal. We can also learn from research on the procedural and practical implementation within other jurisdictions. The following section will provide examples of research that has been conducted on offset policies.

2.7 Assessing policy implementation

Environmental policies are made and implemented under different contexts and conditions. Policy decisions are often guided by science and negotiated among various interested groups that may view problems and solutions differently. Policy formulation is not a rational or value-free process; the process is infused with values. As such, this research uses an open evaluation framework and mix of criteria based on a review of previous exemplary studies. This research is empirical, interpretive and critical and focuses on the implementation component of the policy evaluation framework.

The four components of the policy evaluation framework are: problem situation, policy, implementation and consequences. The *problem situation* involves considering the social, economic, and political context. The *policy* is the action aiming to change the perceived problem. *Implementation* is how the action is put into operation. Policy implementation needs to analyze the theory and practice. The *consequences* or outcomes of a policy are measures of the extent that policy aims are achieved (Hanberger, 2001). This research focuses primarily on the implementation component, using principles and performance-based criteria following the example of other biological offset studies.

We can categorize decision-making by considering three questions: What ought we do? What can we do? What do we do? These questions referred to normative, strategic and

operational level decision-making. Ideally, the ‘what ought we do’ questions are based on accepted principles or values. This is one level of evaluation applied in this research. The principles are derived from previous offset studies. The other aspect of this research is the implementation of the Ontario’s biological offset permit, or operational level decisions. In many jurisdictions, the biological offset permit is associated with a building permit or related application. It is likely the case-by-case permit decisions that contribute to the incremental loss of species and habitat degradation. Thus, an in-depth review of a biological offset permit case study reveals how the principles are being applied at the operational scale.

Policy implementation research can be categorized as performance-based or conformance-based. The performance-based evaluation focuses on process, whereas conformance-based evaluation concentrates on the outcomes of the implementation process. The performance-based approach is appropriate for decisions affected by a high degree of uncertainty and long-term planning decisions (Laurian et al., 2004). The Ontario Overall Benefit permit application decisions have a degree of uncertainty, in that it is difficult to predict if the biological offset will provide the same ecosystem service as the impacted habitat. Each Overall Benefit permit application decision has long-term ramifications for the recovery of species.

2.8 Previous Offset Research

A review of biological offset research will establish the principles and performance-based criteria to frame this permit review. The previous research covers the problem situation, policy, implementation, and consequences, using both qualitative and quantitative data. We can further organize the research into two categories: 1) species risk assessment, identification and recovery strategy process, and 2) conservation policies. Within each of these aspects, we can apply normative principles and performance criteria to assess the implementation of Ontario’s offset program.

2.8.1 Offset Guiding Principles

A number of guiding principles and values are re-occurring in the offset research. Bull et al. (201a3), Norton (2009), Brownlee (2014), and others use widely recognized principles

to frame their evaluation of offset programs. First, the *mitigation hierarchy* should ensure biodiversity offsets are used as a last resort; a mitigation hierarchy must first seek to avoid, lessen, mitigate before seeking offset resolutions (Norton, 2008; Bull et al., 2013a). Second, the *equivalency* of the proposed offset is also important to review to ensure the negative affect of the development will be replaced by something considered of equal standard or higher (Norton 2009; Bull et al., 2013a; Brownlee, 2014). How closely must offset replicate impacted site? Third, the *offset availability* considers if on-site or off-site offsets are allowed, and how finding appropriate locations are facilitated (Norton 2009; Brownlee 2014). Fourth, *clear currency* is required that allows a transparent quantification of values to be lost and gained in order to ensure no net loss or net gain targets are achieved (Bull et al. 2013a; Norton, 2009). Fifth, the process must consider the *uncertainty* of the outcomes of offset activities. Does the process facilitate learning and adaptive management (Norton 2009)? Sixth, the *longevity* of the offset is required to be equivalent or longer than the proposed construction or damage (Norton 2009). Seven, *meaningful consultation* is an essential component of the offset program, as landowners, consultants, government staff, stakeholders, and First Nations can engage in the process. How are parties engaged? These principles can frame the assessment of Ontario's Overall Benefit permit implementation, along with performance-based criteria.

2.8.2 Performance-based criteria

In addition to principles, we can consider performance-based criteria. McDonald et al. (2015) assess the efficiency and effectiveness of Australia's efforts to protect at risk species by focusing on the outcomes. They identified several weaknesses with Australia's species protection policy and management, including a lengthy and biased species listing process; inadequate resources; lack of transparency, failure to consider uncertainties, and no adaptive management. McDonald et al. (2015) recommended rationalizing the species listing process, prioritize funding for key habitat, increasing transparency and accountability, and addressing uncertainty through adaptive management.

There are also studies that attempt to model the impacts of alternative offset policies to identify the ideal approach for the desired outcome. Gordon et al. (2011) uses a case study of a proposed urban expansion project in Australia that would result in the loss of

endangered native grassland ecological offset in Australia. Three policy alternatives were modeled to quantify overall impact on amount of native grassland recovered. Rodriguez et al. (2012) survey farm advisory board members in North Carolina to determine the incentives most likely to encourage participation in the State's efforts to conserve endangered species. The respondents preferred contracts to protect species, as opposed to property easements. Also, the most preferred duration of contract was 10 years, and market mechanisms were necessary to gain interest in the program. If there was a perceived economic disadvantage, respondents were less likely to participate in species conservation efforts.

Male and Bean (2005) use data from Recovery Reports submitted to Congress from 1988-2002 to track species recovery and status. They found that nearly half of the species listed were consistently improving. However, they caution against over optimism about the level of recovery, as nearly 40% of all species listed failed to have a report. Like McDonald et al., (2015), Male and Bean (2005) found bias towards the more visible or charismatic species correlated with greater recovery.

Regnery et al. (2013) reviewed derogation files, which describe mitigation measures to ensure offsets are achieving no net loss goals. This particular study reviewed 85 development projects in France (2009-2010). In reviewing the files, Regnery et al., (2013), gathered information on type of effect (reversible vs. irreversible) and characteristics of affected and offset sites (i.e. types of species, total area). A database was created on the species affected by the offset. The study determined offsets fell into three categories. The three categories were i) no offset, ii) partial offset and iii) species equality. This type of study can help in determining cumulative impacts on species, including which species are being affected by offsets.

Studies have been completed to identify some of the difficulties other jurisdictions have currently experiencing with the implementation of biological offsets. In most of the jurisdictions the goals of the policy is to achieve no net loss and possibly a net gain to biodiversity, the studies have identified different reviews of the implementation. From these studies, Ontario's ESA, 2007 needs to be reviewed to determine if the ESA is

meeting the objectives of the policy. The next section will identify the frameworks used to review Ontario's ESA.

2.8.3 Policy Evaluation Framework

The framework established to identify if Ontario offset program is meeting the defined objectives will use the five principles (i.e. mitigation hierarchy, equivalency, offset availability, currency, longevity and collaboration) and two performance criteria (i.e. efficiency and equity). There will also be a discussion in Chapter 5 regarding the practical issues identified, compliance, measuring ecological outcomes and uncertainty.

The previous studies discussed in last two sections provide the basis for assessing the implementation of Ontario's Overall Benefit program. The methods of data collection are discussed in Chapter 3.

Chapter 3

3 Introduction

This research involves an in-depth review of an Overall Benefit permit application made through Ontario's *ESA*, 2007. This research uses a mix of principles and performance-based criteria to assess the implementation of an Overall Benefit permit application. Data for this study came from secondary and primary sources.

3.1 Data Collection

The data collection includes information from the Environmental Registry. The OMNRF is responsible for posting every Overall Benefit permit on the Registry for a period of 30 days. The information collected from the Environmental Registry was taken from all of the permits available at the time of this review. There were 204 permits posted on the Registry from 2007 to 2016. The information taken from the permit information included the following:

- The permit number;
- The date the permit was applied for;
- The date a decision was made on the permit;
- The location of the development;
- Whether the applicant was from the private or public sector;
- The person, company or Ministry which applied for the permit;
- The species affected;
- The development type;
- Whether the species was endangered or threatened;
- If objections were received;
- The longitude and latitude; and
- The MNRF office which dealt with the permit.

The data collected created a comprehensive list of information from each of the permits listed on the Environmental Registry. The information gained from the data was limited.

It did not explain the process of the Overall Benefit permit, nor did it provide a timeline on the process. The information gathered showed if a permit was granted or if the applicants withdrew their application. The process was unclear. The data from the Environmental Registry identified whether the applicants were from the private or public sector, which species were being affected, and in some cases provided the required Overall Benefit to the species. As shown in Figure 3-1, from the 204 permits listed on the Environmental Registry, 118 permits were from the private sector and 84 permits were from the public sector.

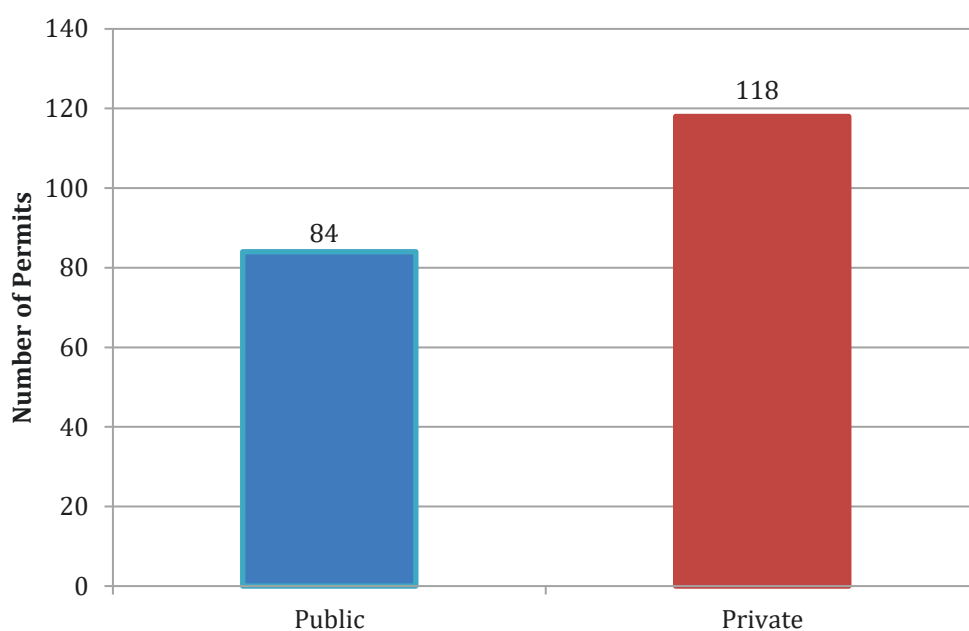


Figure 3-1 Overall Benefit Permits Issued to the Public and Private Sector

(Ontario, 2012)

The data was then reviewed to see which development activities were requiring Overall Benefit permits. As shown in Figure 3-2, there was a mix of development activities that required Overall Benefit permits, including residential development, green energy projects, sewer and municipal upgrades, highway construction, bridge and culvert work, aggregate, rail, commercial and industrial development and others. Residential development required the most amount of permits (49 permits), followed by green energy projects (38 permits) and bridge and culvert work (28 permits)

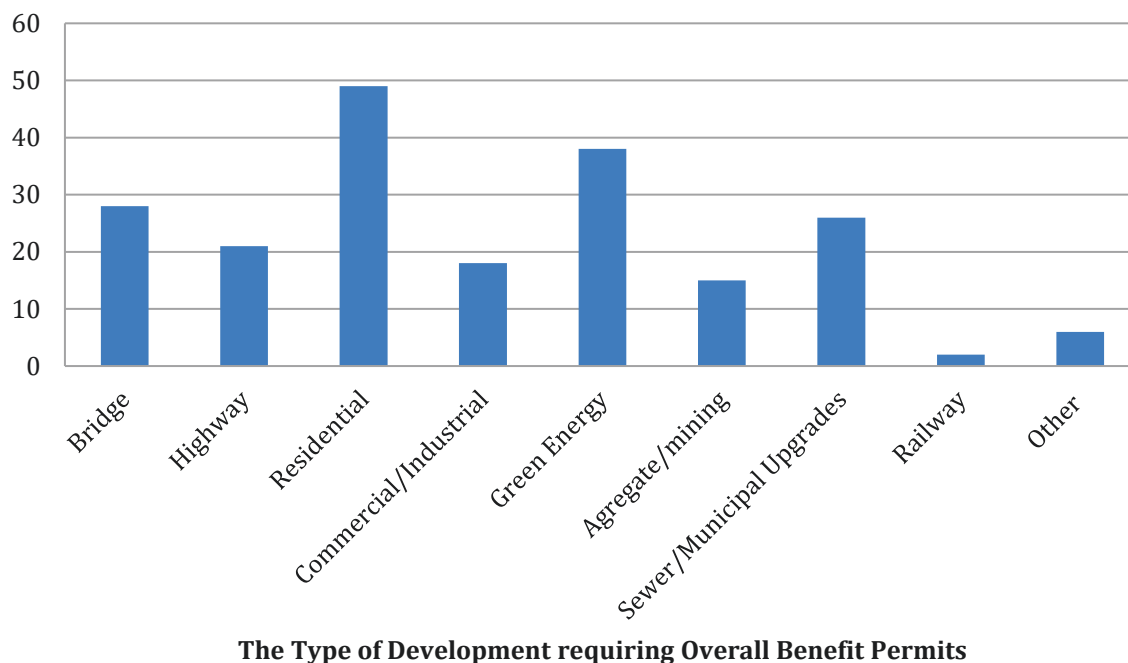


Figure 3-2 Types of Development Activity requiring Overall Benefit Permits

The activities identify which development activities required Overall Benefit permits. Information was gathered to identify species affected by the Overall Benefit permits.

Figure 3-3 shows which species were affected by the Overall Benefit permits. The species which have been subject to the most Overall Benefit permits were the Redside Dace (28%), Bobolink (17%) and the Butternut Tree (16%).

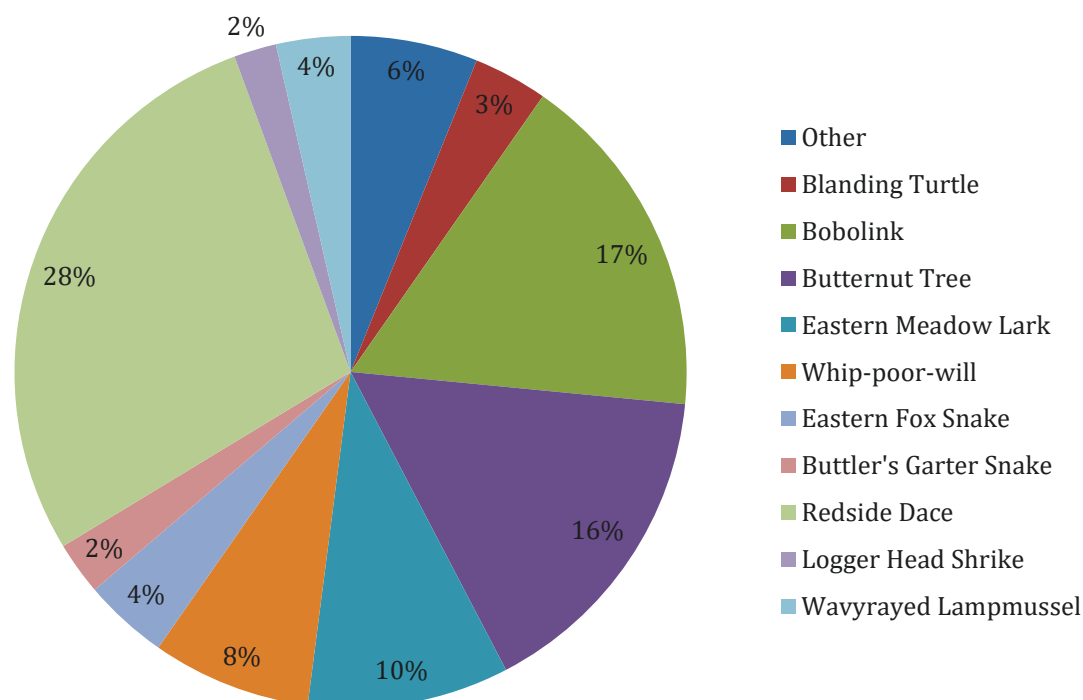


Figure 3-3 Species included in an Overall Benefit Permit

Based on the information provided, it was difficult to assess whether the proposed Overall Benefits for different species were similar, because each species requires different habitat to carry out their life cycles and species in most cases are transient.

One species that was easy to compare different Overall Benefit requirements was the Butternut Tree. While reviewing the permits in some instances the proponent was required to replant 2.6 seedlings for each tree removed. In other examples the proponents were required to replant 28 seedlings for each tree removed. The median seedlings required to create an Overall Benefit for Butternut Tree was 7.9 trees which were required to be healthy after 5 years. Based on the Environmental registry it is not clear why some permits have a ratio of 1:2.6 and other have a ratio of 1:28. This information was valuable, however insufficient to be used for my research. The data also did not explain or provide timelines on the process of the Overall Benefit permit. It was determined that the best way to understand the process and timelines of the Overall

Benefit permit, was to approach the OMNRF and seek input through interviews and questions.

A request was made, for six Overall Benefit permits, through the Freedom of Information and Protection of Privacy Act (FIPPA). The permits were not randomly chosen off of the list, the permits were selected from three different years, 2011, 2013, and 2015. The reason for selecting permits from different years was to ensure the process was consistent from the beginning to the present day. Three of the Overall Benefit permits were regarding Butternut Trees and three were regarding Bobolinks. The Butternut Tree and Bobolink were chosen because they were two of the species which appeared in most applications. Selecting the same species over different periods of time allowed for comparisons between different permits.

The FIPPA request appeared promising in terms of receiving the data within a reasonable timeframe. Nevertheless, substantial material was held back for the following reasons:

- Section 18 has been applied to a portion of the records to protect the economic and other interests of Ontario.
- Section 19 has been applied to a portion of the records to protect solicitor-client privilege.
- Section 21(1) has been applied to a portion of the records to protect the personal information of an individual (MNRF, January 3, 2017, Letter).

Only a portion of the permit information was available through the FIPPA request, so it was difficult to follow the phases of application process, negotiations and implementation of the Overall Benefit permit. In order to gain access to a complete Overall Benefit permit application file, a request was made to a local environmental consulting firm to access all of the information. Upon receiving permission from the proponent the consulting firm provided complete access of an Overall Benefit permit application. The information obtained included the Information Gathering Form, Avoidance Alternative Form, the Overall Benefit permit and the correspondence outlining the discussions and

negotiations of the Overall Benefit permit. Although the data is from a single case study, it provides insight into the Overall Benefit permit application process.

3.2 Case Study

A detailed case study is an acceptable research methodology in geography. Nevertheless, the issues and challenges with case studies include, “unscientific nature (because findings cannot be replicated) and reliance on overgeneralizable findings” (Hardwick, 2009, p.444). These concerns are understandable, yet there are ways to overcome them. A case study may be unique to each situation. Case studies can use the findings to address and contribute to larger questions, issues and theories (Hardwick, 2009, p.444).

For this thesis, a case study approach is appropriate because the context of the case study appears to be consistent with other proposed Overall Benefit permits within the Province. For example, the proposed development activity is for a residential subdivision; residential subdivisions are the second highest development to require an Overall Benefit permit. The purpose of this study is to understand the implementation of an Overall Benefit permit. Potentially using larger-scale data sets could overlook or blur the significance of individual stories (Hardwick, 2009, p.444). The case study will capture and analyze the lived experience of people, and understand the Overall Benefit permit and timelines. The data on the Environmental Registry provides limited information with regards to the details of the process. The level of information posted on the Environmental Registry does not provide the level of detail required to access the implementation of the Overall Benefit program.

A case study approach conducting an in-depth analysis of one permit will allow for scaling of the findings to respond to larger research questions. The case study may identify challenges, issues and successes the OMNRF may have, with processing the Overall Benefit permits. OMNRF can reflect on a detailed case study and find ways to improve and learn from the process.

3.2.1 The Massasauga (*Sistrurus catenatus*)

The case study involves activity that will destroy gestation and hibernacula of the Massasauga (*Sistrurus catenatus*) rattlesnake. The Massasauga is listed as threatened by COSEWIC for the declining population caused by the fragmentation and loss of habitat. There are four known separate regions of Massasauga in Ontario: 1) eastern Georgian Bay; 2) Bruce Peninsula; 3) Port Colborne; and 4) the Windsor and LaSalle region. There are two separate populations of Massasauga on the SARO list. The Carolinian population is endangered, whereas the Great Lakes – St. Lawrence population is listed as threatened. A federal action plan for the Massasauga is targeted for completion by December 2020. However, the recovery approaches for the Massasauga include habitat protection, restoration, communication and outreach, research, and population management (Parks Canada Agency 2015, vi). The level of concern is high that development (e.g. roads, housing), and peat and mineral extraction may threaten recovery strategies. For instance, roads can kill snakes if built in the traditional path of movement by destroying or fragmenting habitat, and separating populations, which cause habitat degradation and population fragmentation (Parks Canada Agency 2015, 8). Activities that are likely to disturb the Massasauga critical habitat are road construction, housing development, aggregate extraction and, forestry (Parks Canada Agency, 2015). This research involves the eastern Georgian Bay population (Figure 3-4), and the construction of a road to a future subdivision will destroy Massasauga gestation and hibernacula habitat.

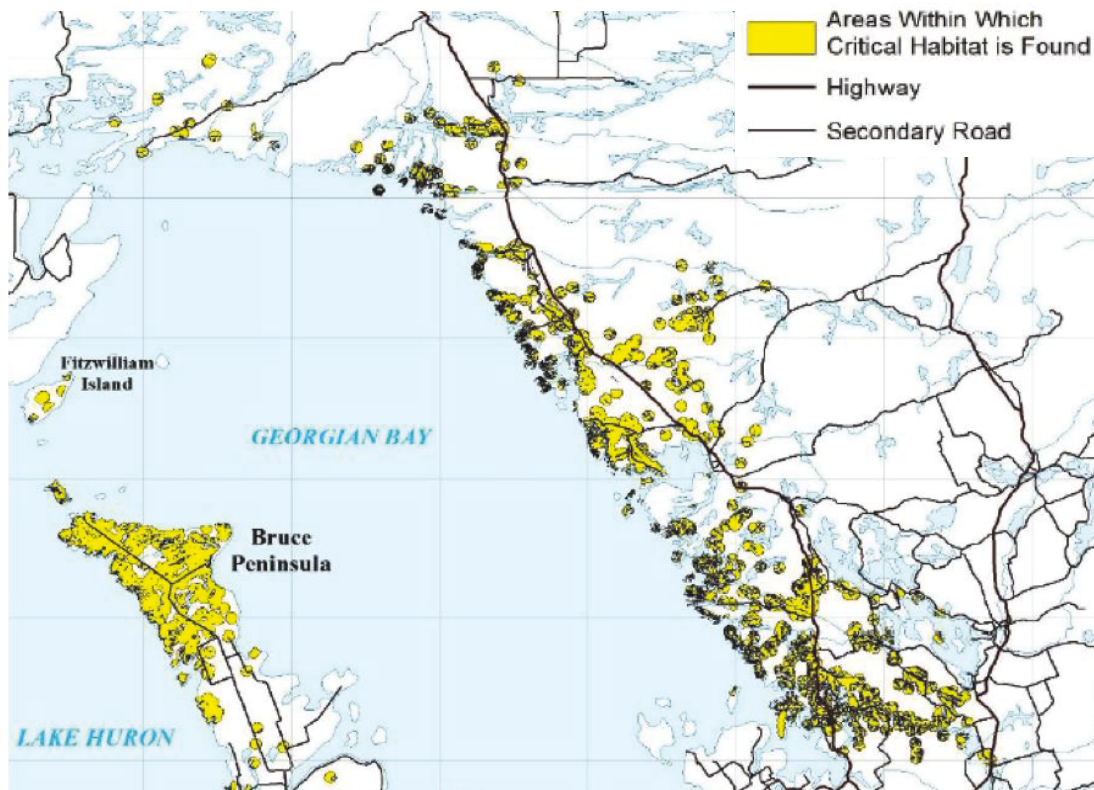


Figure 3-4 Eastern Georgian Bay Massasauga Critical Habitat

Ontario uses a science-based approach to identify important life cycle supporting habitat. There are three categories that are ranked based on the level tolerance to disturbance. Category 1 has the lowest tolerance, which means disturbance of the habitat will threaten the recovery of species. Category 3 habitat has the highest level of tolerance, which means alteration of the habitat has less risk of threatening population recovery. Massasauga category 1 habitat includes gestation and hibernacula sites. Any alternation within 30 m of a gestation site or 100 m from hibernacula can disrupt the life cycle processes, such reproduction, hibernation and thermal control (see Figure 3-5) (OMNRF, N.D.).

Despite the goal of achieving a net gain for species recovery, data indicate that critical habitat is on the decline across Ontario. This raises questions about the effectiveness of the permitting process. My research looks at the permitting process that allows the destruction of critical habitat that support the life cycle of the Massasauga by creating a net species benefit. My research contributes to a growing number of studies on the effectiveness of biological offsets.

Chapter 4

4 Introduction

The purpose of Chapter 4 is to describe the Overall Benefit permit application case study using the phases of the *ESA* Section 17(2)(c) application process described in Chapter 2. This chapter will describe the stages of the permitting process and correspondence between the proponent (often the consultant) and the OMNRF staff throughout the application process. The biological offset principles and performance criteria frame the discussion in Chapter 5.

4.1 The Initial Development Plan

In 1987 the proponent in this case study purchased a large parcel of vacant land, approximately 1.2 km² (300 acres), fronting on two lakes (Salmon Lake and Clear Lake) in the Parry Sound District. The proponent purchased the property with a long-term plan to build a small residential subdivision in the Municipality of Seguin. The property did not have any direct frontage onto a publicly owned road; there was Crown land to the north and the west, and private land to the east and south surrounding the property (Figure 4-1). The blue boundary on map is the subject property proposed for a future subdivision. The brown line represents the proposed road, which crosses over a wetland on Crown land, to access Salmon Lake Road.

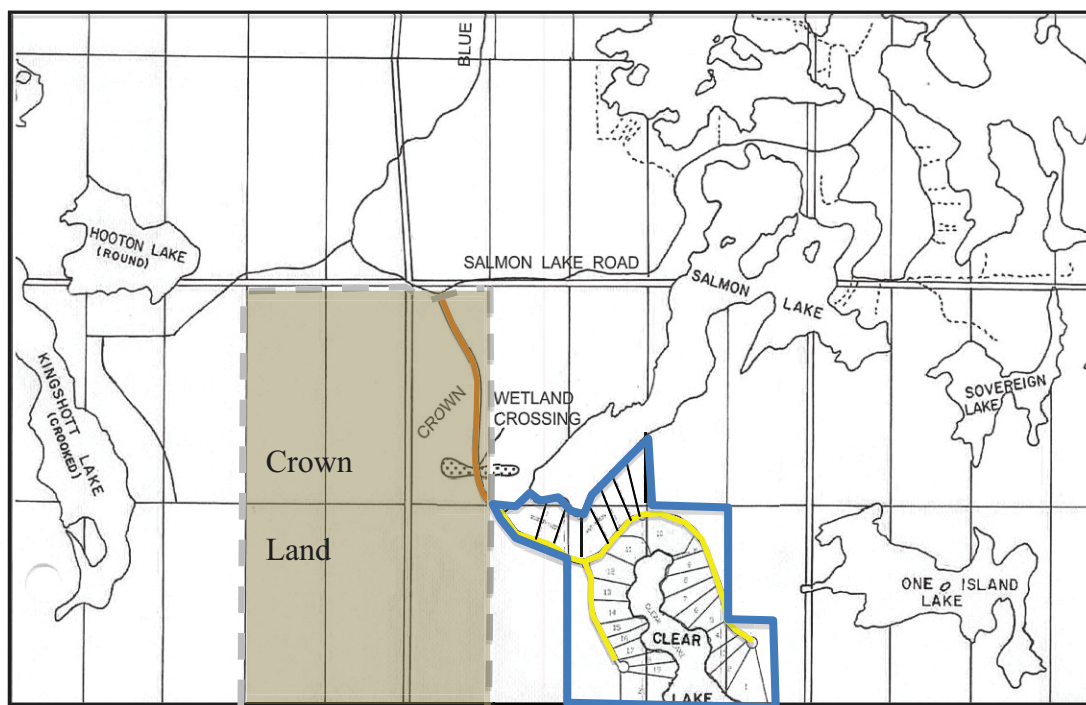


Figure 4-1 Subject Lands Purchased in 1987

In this case, the proponent was not a large development firm. The long-term plan was to seek development approvals in stages as funds became available. The costs to develop a serviced subdivision can be substantial. It is not uncommon for small-scale developments, such as this, to move forward in several phases. Nevertheless, road access was a key constraining factor in the subdivision development plan. The access road is what ultimately triggers the need for an Overall Benefit permit in this case. A portion of the nearly 1km road would cross directly through a wetland.

Between 1988 and 1990, the proponent received work permits from the local OMNRF office to cut timber along the proposed access road on Crown land. In 1991, the proponent surveyed the proposed right-of-way over Crown Land to be used as the entrance road to the subdivision. Between 1991 and 1997, the property owners started working towards designing their subdivisions and the planning stage. In 2003, a Crown Land reserve was established on adjacent property that excludes the previously surveyed

access road. Despite the series of approved work permits to cut timber along the proposed access road, no formal approval had been granted by the OMNRF. Figure 4-2 illustrates the proposed road on Crown Land, the dotted area shows the location of the wetland.

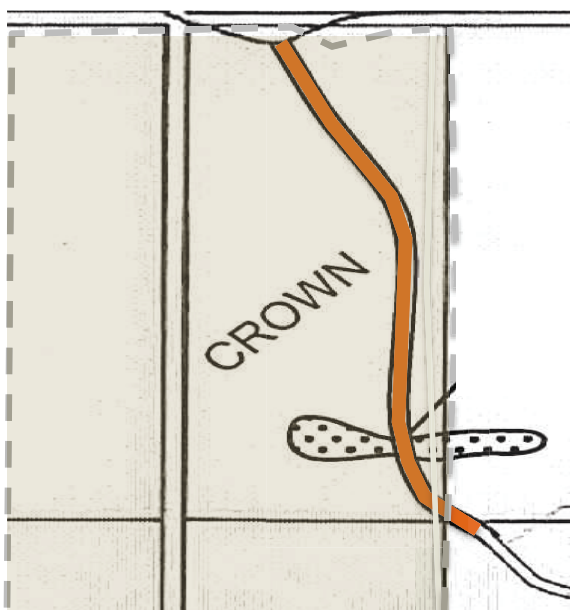


Figure 4-2 Proposed Road Over Crown Land

In 1991 the proponent applied for an eight-lot subdivision on the Salmon Lake portion of the property. At that time, the Municipality of Seguin did not have subdivision approval, so the Ontario Ministry of Municipal Affairs (OMMA) reviewed the subdivision permit application. The eight-lot subdivision application received Draft Plan approval on September 25, 1991, with a list of conditions to be satisfied prior to final registration of the subdivision. Second, in 1997 the proponent applied to the OMMA for a Draft Plan of Subdivision for an additional 20-lot subdivision on the portion of property surrounding Clear Lake. The abutting Township of Archipelago and a private landowner appealed the approval of this Draft Plan of Subdivision decision to the Ontario Municipal Board. They were concerned about the potential impact of the lake frontage development on Clear Lake. The applicant and appellants agreed to zone a portion of the lake frontage to an environmentally sensitive zone, in both the Official Plan and Zoning By-law. The appeal was settled between the three parties and the Ontario Municipal Board upheld the OMMA decision with conditions.

In addition to the OMMA conditions, the OMNRF had conditions with regard to the creation and transferring of the road:

It has been our practice to transfer land for the road purposes directly from the Crown to the municipality. This involves the production of a survey plan, payment of a fee and preparation of a patent document. The township, in this instance has not indicated their intention to assume the road (MNR Letter to MMA, October 19, 1989).

In 1997, the OMMA did not place a time limit on the Draft Plan of Subdivision approval for satisfying the conditions. Over a ten-year period from 1998 to 2007 the proponent cleared approximately 700 m of the surveyed access road. In 2005, an engineering firm was retained to design and construct the access road (Figure 4-3). Once the road was constructed to the appropriate standards, and all other conditions were satisfied, the subdivision lots could be sold. However, the context for development in Ontario changed. The ESA (2007) did not permit development within the habitat of an endangered or threatened species.

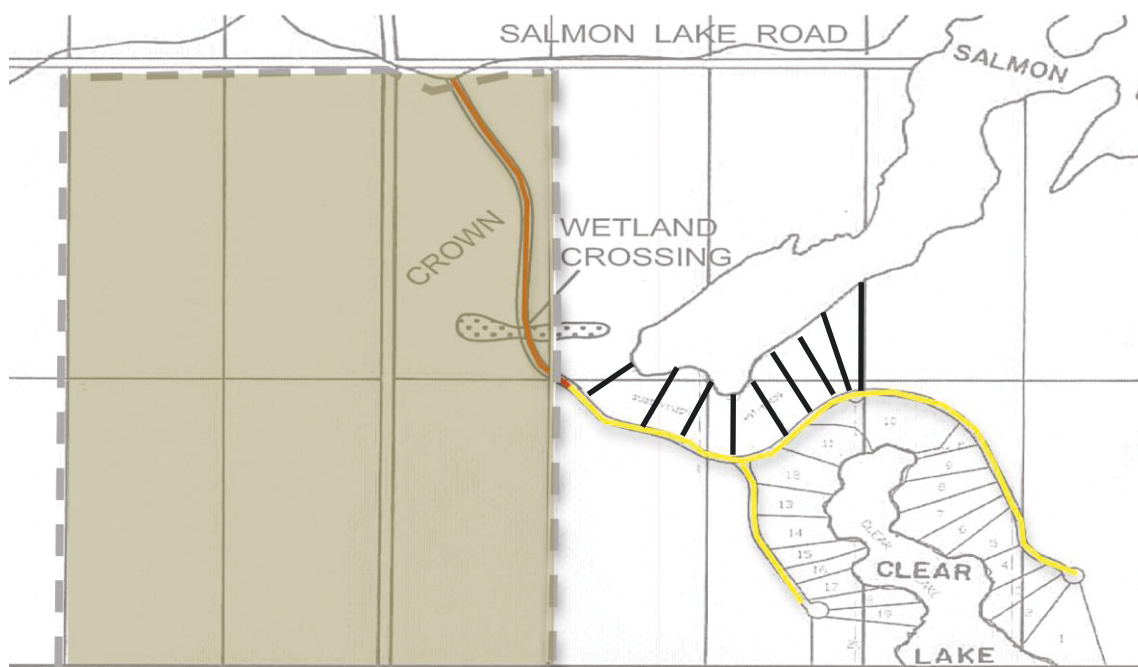


Figure 4-3 Proposed Subdivisions, 8 Lots on Salmon Lake and 20 Lots on Clear Lake

4.2 The Overall Benefit Permit Application

For over a decade, the proponent had applied for and received work permits to cut Crown timber along the proposed subdivision road allowance. However, in 2007 the proponent was denied a work permit for cutting timber. A letter from the OMNRF stated that a wetland along the access road provide hibernation habitat for the eastern Georgian Bay Massasauga, a threatened species (OMNRF correspondence letter, July 4, 2007). The letter indicated that a work permit to cut timber along the proposed road would not be approved until mitigation measures were in place to reduce any impact on the Massasauga or supporting habitat. The letter included a list of possible mitigation measures:

- Maintaining the function of the hibernation complexes;
- Minimizing the destruction of the habitat;
- Provide a natural passageway with a minimum span of 4m under the road;
- Permanent barrier fencing;
- Timing restrictions; and
- Construction workers to undergo species at risk awareness training (OMNRF correspondence letter dated July 4th, 2007).

The letter suggests through appropriate mitigation the impact on the hibernacula could be mitigated. The letter does not reference the *ESA* (2007) when discussing habitat protection. Initially, the *ESA* (2007c.6,5) exempted Section 10 (i.e. habitat protection) until June 30th, 2013. The Massasauga is a transitional species, which were protected in 2008. Transitional species means the species became protected with the passing of the 2007 Act, and habitat protection would not come into effect until 2013. In 2012, the proponents hired an environmental consultant to take the lead implementing the mitigation measures outlined in the OMNR letter.

In 2012, the consultant contacted the local OMNRF to set up a meeting to discuss the proposed access road. Based on the initial letter, the consultant thought the OMNRF

concerns could be mitigated. However, the need to mitigate the impact on a threatened species habitat eventually triggered the need for an Overall Benefit permit.

4.2.1 Preliminary Screening

The first step is a ‘preliminary screening’. The proponent discussed the proposed activity with local OMNRF staff. The OMNRF staff advised the proponent on potential species at risk (SAR) or habitat protection concerns. In the case, the consultant coordinated meetings with OMNRF staff on behalf of the proponent. At the preliminary meeting the OMNRF staff advised the proponent that the Massasauga Rattlesnake and possibly the Whip-poor-will, both threatened species, were within the area of the proposed access road. In the spring of 2013, the consultant conducted three site visits on May 27, May 28 and June 20, 2013 to survey for the Massasauga and Whip-poor-will. The consultant met with the OMNRF staff in the fall of 2013 to report that they confirmed the presence of the Massasauga, along with hibernacula and gestation sites in a wetland within the road allowance. The consultant reported that gestation sites might be a limiting factor in this area. The Massasauga appeared to be using rock piles left by people as gestation sites. According to the consultant’s notes from the September 10, 2013 meeting, OMNRF staff agreed gestation sites could be a limiting factor in the area. The creation of gestation sites could be considered as part of the Overall Benefit. The consultant found no evidence of Whip-poor-will. At the end of the meeting, the consultant thought that the construction of the road might contravene Section 9 or 10 of the ESA (2007). The Consultant began the Overall Benefit permit process.

4.2.2 Information Gathering Form

On April 7, 2014, the consultant submitted the Information Gathering Form (IGF), Alternative Avoidance Form (AAF) and the Overall Benefit Permit (C-PAF) at the same time. However, the regulation requires that the phases of the process be dealt with separately. On June 16, 2014, the consultant emailed to the OMNRF office asking for the status of the application review and timeline for completion. The OMNRF email response indicated they would contact the proponent once the review was complete, and were

unable to provide a definite time frame for completing the review (email from MNRF, June 25, 2014 to Consultant).

The Information Gathering Form should provide the local OMNRF District staff with sufficient information to assess the proposed activity. This is intended to be an iterative process, involving communication and cooperation between the OMNRF staff and the proponent. The required information includes details of the proposed activity (e.g. purpose location, timing), identification of protected species habitat, effects the activity may have on protected species, identification of alternative approaches, and identification of approval or authorization required by other legislation. The OMNRF staff determine if there is sufficient information to adequately assess the impacts of proposed activity, and whether it is advisable for the proponent to apply for an Overall Benefit Permit under clause 17 (2) (c) prior to proceeding with the activity.

On September 26, 2014 the OMNRF District staff concludes that the IGF was incomplete for the following reasons:

- The IGF only considers aspects of the road construction that crosses the wetland that is confirmed habitat. However, the IGF does not address the impact of the entire access road or the future impacts of the subdivision development
- The IGF did not consider a broader range of species that had been added to the Ontario SARO list since 2007.

In this instance, there appeared to be disagreement on how to adequately scope the project impacts. The consultant has a narrow interpretation, whereas the OMNRF staff interprets the scope more broadly in space and time. This dispute is not clearly addressed in the early stages of the process, and so it reappears throughout the stages of the permit application process.

The consultant requested a meeting to clarify what species and elements of the development were required for the IGF. At a meeting on October 9th, 2014 the OMNRF District staff identifies six additional endangered or threatened species: Northern Myotis, Little Brown Myotis, Eastern Small-Footed Myotis, Blanding's Turtle, Spotted Turtle

and Eastern Hog-nosed Snake. However, the three *Myotis* were listed after the preliminary meeting was held in the spring of 2013. The OMNRF staff advised the consultant that a desktop review and assessment would be appropriate, and no additional fieldwork would be required. The consultant's report concluded,

“it is unlikely there is significant habitat in or immediately adjacent the road corridor. Potential impacts to the species will be avoided through suggested mitigation. It is proposed to move forward with a C permit submission for the proposed crossing of known hibernacula for Massasauga Rattlesnakes. No other species or habitats are expected to be eligible for an *Endangered Species Act* authorization” (IGF application, October 27th, 2014).

On December 12, 2014, the consultant received a notice from the OMNRF staff that the IGF application was incomplete. The OMNRF staff required additional information about the impacts of road construction on Blanding's Turtle, Spotted Turtle, and Eastern Hog-nose snake, details about road construction, and the design of the culverts (OMNRF correspondence, December 12, 2014). On December 22nd, 2014 the consultant submitted the revised IGF with additional information.

On February 19th, 2015 the OMNRF staff requested additional information, including

- the coordinates of the center of the proposed culvert crossing;
- how gestation sites may be impacted by blasting of rock;
- provide levels of activity on the proposed road; and
- proposed timelines are not reasonable (OMNRF correspondence, February 19th, 2015).

The OMNRF staff also recommended concurrently submitting the Avoidance Alternatives Form (AAF) with the revised IGF. The consultant submitted the revised IGF and the AAF on February 20th, 2015. The OMNRF staff deemed the IGF complete, so OMNRF staff and the consultant agreed the Massasauga critical habitat (i.e. gestation and hibernacula) was within the road allowance. If development were to proceed as planned,

the activity would likely contravene Sections 9(1) or 10(1) of the ESA. The applicant moved to the avoidance alternative phase.

4.2.3 Avoidance Alternatives Form

The AAF ensures the applicant adequately considers alternative ways to achieve the same objective, by eliminating or limiting the impact on the endangered or threatened species or their habitat. The AAF should demonstrate that reasonable alternatives that would prevent adverse impacts on protected species were considered. In this case, with the Crown Reserve on one side, and private land on the other, relocation alternatives were limited. While the consultant concluded that not building the road would have no adverse impact on the Massasauga or critical habitat. However, since this would prevent the development of the residential properties, this was not seen as a desirable alternative. The avoidance alternatives focused on changing the route of the road through the wetland and alternative construction designs. The consultant was of the opinion that the only viable solution was to develop a road through the wetland. Other alternatives were considered, which would have had less of an impact on the Massasauga. However, doing nothing or considering moving the development to an alternate location was not desirable or feasible.

The proponent and consultant felt the development could move forward with the proper mitigation measures such as, timing restrictions to not contravene Section 9, and only a minor impact on the critical habitat that would be mitigated by creating an Overall Benefit for the Massasauga. The AAF was submitted to OMNRF staff on February 20th, 2015. The AAF was considered complete and accepted by OMNRF.

4.2.4 Overall Benefit Permit

On March 3rd, 2015 the consultant submits the Overall Benefit permit application (also known as CPAF). The application includes a mitigation plan that describes what measures will be taken during all phases of the project to protect the species and their habitat. The access road mitigation plan involved surveying the exact location of the road and the route across the narrowest section of the wetland and avoiding existing hibernacula. The timing of activities, such as blasting, installation of footings and fill

material will occur when the Massasauga are not using hibernacula or gestation sites. The Massasauga leaves the hibernacula early spring, and enters gestation sites in mid-June. The period after hibernation is ideal for some of the activities. The work area would be temporary fenced and would be swept for species prior to any work being completed. The proposed mitigation for the installation of the open bottom culvert would utilize timing restrictions and a temporary fence would be placed around the work area and swept for snakes. Any blasting of rock barren adjacent to the wetland, the consultants proposed to move the rock pile in advance of active season to keep snakes away from the blasting area. The use of blast mats would be used to minimize scattered rocks. Finally, the backfill and roadbed construction would be completed with timing restrictions and the work area to be fenced and swept before construction began.

It is stated in the permit application that the project should result in the,

creation of quality gestation sites on rock barrens adjacent the known hibernaculum. Suitable table rocks will be imported and situated on rock barrens nearby the hibernaculum. Currently the rock barrens do not offer quality gestation habitat; it is thought this is a limiting factor in the area (Overall Benefit Permit, 2015, p.7).

The newly created habitat would be close to other critical habitat features, such as the connectivity to the Massasauga foraging areas.

The OMNRF staff provided feedback and asked for additional information, which included:

- a map showing where the fence is going;
- How many gestation sites will be created?
- Where will the rocks for the new gestation sites come from?;
- How will the heavy rocks be moved to the site (what type of equipment etc.);
- Need clearer drawings/maps showing the exact location and orientation of the culvert to quantify the level of impact to the hibernation site;
- What is the size of the area (m² or acres) that will be filled compared to the size of the entire hibernation sites;

- How will they ensure off-road vehicles don't rip through the hibernation site and rock outcrop directly adjacent to the proposed road? (MNRF correspondence, 2015)

The parties met to discuss what constituted an Overall Benefit in this situation.

On April 1st, 2015 the OMNRF staff and consultant meet to discuss the process to move towards an Overall Benefit. It was decided that the negotiations concerning the Overall Benefit permit could occur at the same time as posting on the Environmental Registry (mandatory 30 days), and initiate Aboriginal consultation. Aboriginal groups were given 8 weeks to reply to the Overall Benefit permit application. The OMNRF staff said the 90-day service guarantee started once all of the above mentioned items were completed and a draft Overall Benefit permit was proposed.

At this point of the process, the OMNRF staff asked if a clear span bridge had been considered as an alternative. The consultant indicated that the Municipality does not want to maintain a bridge, and the cost would be too high and not feasible for the size of the development. The OMNRF staff wanted to conduct a site visit to discuss the option of a clear span bridge and review the site.

The OMNRF staff had concerns, as the road would destroy the Massasauga category 1 critical habitat. The OMNRF staff conceded if a bridge was not feasible, then more culverts were necessary. However, there was no indication of what number of culverts would be required. The consultant explains that more culverts would require more footings, which would cause more damage to the wetland and the Massasauga habitat. The OMNRF staff asks for evidence to support the claim that more culverts would be more harmful to the habitat.

On June 5 2015, a letter from the OMNRF states they are of the opinion a bridge would provide avoidance of the impact. The OMNRF staff will discuss the bridge option with the Municipality. The consultant sent correspondence to OMNRF staff reporting that no matter the type of crossing (i.e. bridge, one 4m culvert, two 4m culvert) the initial impact to the habitat would be the same. All of the habitat within the footprint of the road would be impacted or completely excavated to install the crossing. A 4m above-ground opening

was sufficient for snake movement. The consultant provided a comparison of the alternatives discussed, including a clear span bridge, which would have had a negative impact on the habitat.

The consultant also provides the culvert standards for the Highway 69 lane expansion for comparison. The Highway 69 project has more vehicles, travelling faster and a wider footprint; however, the culvert standards were less than the proposed access road to the subdivision development. The Highway 69 Overall Benefit permit required a 3 x 2.4 m closed bottom eco-passage every 500 m. The subdivision access road requires a 4 x 1.5 m open bottom eco-passage every 22 m.

The OMNRF staff reiterates that a bridge would avoid the impact. Nevertheless, the Municipality would not take over a bridge because of the high cost and liability. The OMNRF staff reports that an Overall Benefit must be more than no-net-loss or an exchange of like-for-like, the proposal must improve the current conditions of the site. At this point, the OMNRF staff raises concerns about the associated residential 28-lot development. The OMNRF staff argues that the subdivision development should be addressed under this Overall Benefit permit. This was discussed during the initial preliminary meeting; however, it did not appear to be an issue when considering avoidance alternatives.

On December 4th, 2015 several OMNRF staff, consultant, proponent and legal representation met to clarify the actions requiring immediate attention. First, OMNRF staff provides details about the status of consultation with Aboriginal Communities. All appropriate First Nations communities and/or delegated representative(s) were sent notice of the Overall Benefit application. Only one First Nation community requests additional information. The OMNRF staff still needs to meet with Chief and Council to learn about their specific interest or concerns. The consultant asked for a description of the consultation process. The MNRF staff suggested consultation was an evolving process. However, the Crown needed to be satisfied that the consultation was meaningful and adequate.

The second item for discussion was the adequacy of proposed mitigation measures. The OMNRF staff expresses concerns about unsafe road crossing for the snakes. The OMNRF staff request full fencing along the road to eliminate road mortality. The OMNRF staff and consultant agree with the installation of 'circle backs' would prevent snakes from going onto Salmon Lake Road, directing snakes back to the eco-passages.

The OMNRF staff asks that the eco-passages be designed and located in areas that would benefit the snakes; however, there was no standard for the amount of required eco-passages or the spacing between them. The OMNRF staff indicates they will consult the District offices for input. The additional mitigation items include education for construction workers, and appropriate design of fences and eco-passages.

As the conditions of the Overall Benefit continued to be negotiated, the consultant recommends creating and improving of gestation sites within the area. The OMNRF staff indicates that gestation sites would provide some benefit to the area; however, their experience was that artificial gestation sites failed to work at other sites in the province. So, the OMNRF staff believes the Overall Benefit should occur on the site. At this stalemate, the consultant notices an abandoned aggregate pit near the subject property that could help achieving the Overall Benefit for the Massasauga.

The consultant proposes to create five gestation sites. The OMNRF staff agrees that five gestation sites may improve category 1 habitat in the area; however, it did not make up for the loss of hibernacula. The OMNRF staff suggested the consultant contact other agencies who were doing Massasauga work (e.g. Georgian Bay Biosphere Reserve) for potential projects/ideas for Overall Benefit. The consultant is advised to complete and submit a revised AAF and Overall Benefit permit based on the discussion at the December 4th 2015 meeting (OMNRF meeting minutes from the December 4th, 2015).

At this point the process seems stalled, so the proponent approaches the owner of the aggregate pit about rehabilitating the site. The owner was willing to sell his 0.02 km² (2 ha) abandoned aggregate pit. The consultant sent a letter to OMNRF staff for feedback on this alternative.

“Assuming we satisfy all of the mitigation issues discussed at the meeting on Friday, we feel we will achieve [an Overall Benefit] with this approach. Would you be in agreement in principle with this?” (Consultant correspondence sent to OMNRF Staff, December 7, 2015).

On January 11th, 2016, the consultant sent OMNRF staff notice that the aggregate owner was willing to allow the proponent to purchase and rehabilitate the site. Once the rehabilitation was complete, the land would be surrendered to the Crown. The consultant asked if the OMNRF staff would provide an Overall Benefit or sufficient biological offset if the aggregate site was purchased. The consultant submitted a Proposed Rehabilitation Plan, Aggregate Permit #19633, Part of Lot 30 Concession 2, Geographic Township of Foley, Salmon Lake Road for OMNRF staff to review. In general the rehabilitation activities included, cleaning debris from the site, spreading topsoil and planting vegetation, and preventing vehicles from entering the property to protect sensitive habitat.

On January 25, 2016, OMNRF staff responds via email indicating they generally support the rehabilitation plan. Some of the minor changes include the amount of topsoil applied and the location(s) of the topsoil treatment, the thickness of the table rocks used for gestation sites, the density and location of plantings in some areas. The OMNRF staff advises that these specific details of the plan can be determined at a later date. It was the OMNRF staff intention to make it a condition of the permit that a detailed plan, with more specific details about the proposal (such as the exact location of, and material dimensions for gestation sites, the species to be planned, the amount of topsoil to be applied, etc.), be submitted for OMNRF staff for review and approval, prior to undertaking these Overall Benefit plans.

The OMNRF staff request this information be included in the proposal, “a revised C-PAF that summarizes the contents of the various submissions and supplementary documents that have been submitted, as well as the December 4th, 2015 meetings discussions. Please ensure that the Overall Benefit permit includes all the proposed mitigation, Overall Benefit and avoidance alternatives for the project (OMNRF correspondence sent to consultant, January 25, 2016).

The consultant submitted the revised AAF application and the revised Overall Benefit permit to MNRF on January 26th, 2016. The AAF considers three alternatives: do nothing, alternate location, and alternate wetland crossing design (i.e. bridge). The consultant report compares the different options for crossing the wetland, and concludes each affect the habitat. The impact to the wetland was approximately 375 m² of the total 11,466 m² of the wetland. This represented a disturbance of 3.25%. The crossing the proponent would like to use was a 3 m wide x 1.8 m high x 12.5 m long box culvert that provided an openness ratio of 0.31. The openness ratio was calculated by dividing a culvert's cross sectional area by its length. This allowed a large passage for snakes on the surface of the wetland combined with the permanent fencing, which should serve to effectively funnel snakes (and other animals) under the road.

The Overall Benefit permit application requires an explanation for the best alternative.

Best Alternative: Proceed with the road and crossing as planned.

This alternative consists of a 3 m x 1.8 m h box culvert that will sit on a granular road base that will destroy a small portion of wetland habitat (hibernacula). The crossing approaches (road bed) will also impact wetland habitat. There is potential for disturbance to a human-created rock pile which marks a survey location; it may need to be relocated. A small portion of the rock barren will be removed to accommodate the road and build it to Municipal standards. There is private land to the immediate east of the proposed crossing and a provincial Conservation Reserve to the immediate west of the proposed crossing.

The chosen alternative also includes the installation of permanent reptile exclusion fencing and two additional eco-passages (both 2.4m box culverts which provide an openness ration of 0.29) to be installed at key locations along the existing road corridor. The exact locations are delineated on the attached mapping. The exclusion fencing will be installed for the entire length of the road (both sides), Animex brand, with one side embossed to allow for egress from the road side anywhere along its length. The fence will be buried 10-20 cm (or manufacturer's specifications), with an additional 60 cm height, plus a 10 cm angled 'lip' treatment to discourage egress from the non-road side. The ends at both Salmon Lake Road and where the road meets private land to the south will receive 'circle-back' end treatments to discourage snakes from entering the road corridor, instead funneling them back along the fence and through one of the tree available eco-passages.

Rationale: The specific location of the crossing was selected based on a number of field visits; ensuring the narrowest location of the crossing within the limited Crown Land area. The Crown Land area available for the crossing is a small strip measuring approximately 60 m in width between the two adjacent (private & CR) lands. The length of what would be required to cross the wetland varies between 30 m to 60 m. The most easterly area was chosen for the crossing because it represents the narrowest (30 m) wetland width, which will result in the smallest development footprint within the hibernacula. A 3-metre box culvert should allow for continued water exchange throughout the wetland area and movement of snakes and other wildlife under the road.

Land ownership constraints (Conservation Reserve to the west & private land to the east) make it impossible to avoid crossing the rock barren. The blasting will result in the removal of some of the rock barren and may necessitate relocation of the human-created rock pile that snakes were documented using.

Appropriate timing restrictions, avoidance measures (temporary exclusion fencing around active work areas) and mitigation will be employed to minimize impacts to individuals. Additionally, avoidance measures and mitigation for the habitat should serve to reduce potential impacts on the habitat. If appropriate mitigation and avoidance measures are implemented, it is expected to avoid Sec.9 (species impacts) contravention during the construction of the crossing and road (Overall Benefit Permit, January 26, 2016).

The proposed Overall Benefit on the adjacent property includes the following:

- 1) Creation of quality gestation sites on rock barrens adjacent the known hibernaculum. Suitable table rocks will be imported and situated on rock barrens nearby the hibernaculum. Currently the rock barrens do not offer quality gestation habitat; it is thought this is a limiting factor in this area.
- 2) Responsible for the rehabilitation of an existing adjacent permitted aggregate pit; completing the required rehabilitation with a focus on Massasauga habitat; surrendering the permit to the Crown in order to protect the habitat in perpetuity. The specific details of the aggregate pit rehabilitation will be further negotiated and approved by MNRF as a condition of the C Permit prior to undertaking the works.

The OMNRF staff responds to the January 26th, 2016, submission of the AAF and Overall Benefit Permit by asking for clarification of six questions:

- 1) Although the proposed locations and sizes of the proposed eco-passages appear sufficient, during construction and post-construction the eco-passages

may require additional minor work to assist with their function. For example, the addition of “landscaping” within the eco-passage to make them more appealing for reptile passage (e.g. placement of conifer tree branches, refuge, vegetation, etc.). Please revise your CPAF (page 5/6) to include this.

- 2) Page 9 of the CPAF notes that created gestation sites and the aggregate pit rehabilitation (i.e. the overall benefit proposals) will be monitored for three seasons post construction. The MNRF will require five years of post-construction monitoring of the OB.
- 3) Page 5 of the CPAF in the “Construction: Blasting Rock Barren Adjacent wetland” section states that: “**If** habitat relocated, monitor use of habitat in new location, pre, during and post construction”. It is the MNRF’s understanding that this rock pile will need to be relocated as a result of the road construction (i.e. it is within the road footprint). It should be determined whether the rock pile will need to be removed or not, and the CPAF should be revised to reflect that. MNRF agrees that if the rock pile needs to be relocated it should be monitored pre, during and post construction.
- 4) As we’ve previously discussed, minor changes and more specific details of the aggregate pit OB rehabilitation will need to be determined prior to implementing the OB proposal. These details will likely depend on the conditions of the pit at the time of rehabilitation. As such, it is our intention to make it a condition of the permit that a detailed plan, which will contain more specific details on the proposal (such as the exact location of, material dimensions for gestation sites, the species to be planted, the amount of topsoil to be applied, etc.), be submitted for MNRF review and approval, prior to undertaking these OB works.
- 5) Currently there is no effectiveness monitoring of the eco-passages proposed. ESA 17(2)(c) permits generally require monitoring of both the mitigation and OB to determine the effectiveness of both the mitigation measures and the OB. Please include a minimum of 5 years of post-construction eco-passage effectiveness monitoring in the CPAF. The MNRF recommends that monitoring eco-passages include the installation of cameras to evaluate use. Cameras will not be required to be installed and monitored year-round, however targeted monitoring should be proposed (i.e. installing cameras during key times or the year, such as movement periods, to determine if they are being utilizing and by what species).
- 6) You have stated on page 5 of the CPAF that “Annual inspection of condition of permanent fence will be conducted as part of routine road maintenance and inspection e.g. road crew.”. To clarify, it is ultimately the responsibility of the permit holder to ensure that all permit conditions are implemented and complied with. This includes the inspection and maintenance of the permanent fencing.

Please revise your AAF and C-PAF to reflect these comments and resubmit both forms to MNRF (Email from MNRF to Consultants, April 1st, 2016).

The OMNRF correspondence reports they are currently engaged in Aboriginal consultation. The OMNRF staff met with the leadership and staff of Wasauksing First Nation (WFN) on March 23rd, 2016. WFN identified that they will need to share the additional details of the project, and Overall Benefit proposal with other community members before providing OMNRF with any comments. OMNRF staff advised they could not deem the Overall Benefit permit complete until they had received correspondence from WFN.

The consultant had not heard anything with regards to consultation with the Aboriginal communities. A letter was sent to OMNRF to request information on the process and what they could expect for timing. On June 3rd, 2016, MNRF staff provided a response. The response to the questions in the letter was as follows:

1. Yes, we are currently waiting for Wasauksing First Nations (WFN) to provide a formal preliminary proposal regarding their capacity needs.
2. We do not have a timeline of when we should expect the proposal, at this time, but we will be contacting WFN.
3. We do not know who at WFN will be preparing the proposal. MNRF will be working with WFN and we will let you know immediately if there is anything required from you. Also, we will ask WFN if there is anything you can provide to help with consultation.
4. I apologize this information was not sent to you sooner: Upon review of MNRF's summary documents, the records show that during the Ontario's Living Legacy (OLL) discussions in 2002, First Nations did indicate that they use the proposed Conservation Reserve lands for the exercise of Aboriginal and treaty rights, however, there were no specific comments provided regarding use of the specific Crane Lake Forest Reserve (C27). This should not be interpreted to mean that Aboriginal communities in the area did not use/are not using Crane Lake Forest Reserve or other nearby Crown lands. It only means that they did not provide a comment specific to C27 during OLL consultations, which is reflective of the higher level of these discussions. These consultations were specific to the Conservation Reserve lands and did not include consultation about the adjacent Crown land and potential future uses such as this specific road (Email from MNRF to Consultants, June 3rd, 2016).

The consultant contacted WFN directly and scheduled a meeting for November 10th, 2016. The applicant and the WFN entered into a Memorandum of Understanding. The WFN were beneficiaries under the Robinson-Huron Treaty of 1850. The WFN asserted

their Aboriginal and Treaty Rights in their Traditional Territory based on historic use and occupation of lands and water therein and that such rights were recognized and affirmed by s. 35 of the Constitutional Act, 1982. The Memorandum had a confidentiality clause within it, so the details of the Memorandum of Understanding were not available.

The OMNRF staff replied on December 22nd, 2016, that they had not received the MOU. The consultants would resend the MOU. The OMNRF staff reported that once they had the MOU they could start drafting the Overall Benefit Permit, this was to begin in the new year, 2017.

On January 18th, 2017, the consultant and OMNRF staff had a teleconference. The OMNRF staff provided an update on the status with both the Aboriginal consultation and the Overall Benefit permit. The final consultation letter went out to First Nation communities, which stated OMNRF staff would proceed with the issuance of the work permit and would seek the Minister's decision on the Overall Benefit permit.

The next steps involved drafting an Overall Benefit permit for Minister approval. The draft permit would be sent to OMNRF's biologist to review for completeness and accuracy. The draft permit would then be sent to Legal Services Branch for review. The OMNRF staff explains that at this stage there really should not be any surprises. The OMNRF staff reiterated they would be drafting the permit, and it would take 2-3 weeks. During this period, the property owner had received an offer to sell the subdivision property. On January 30th, 2017, the property owners sold the property. The new property owners bought the property with the intent to finish the Overall Benefit permit and develop the lands of the eight-lot and the twenty-lot residential subdivision.

The OMNRF staff contact the consultant in early February for a meeting to review the draft permit. The consultants requested a copy of the draft permit before the meeting, allowing them time to review the permit. The OMNRF staff says they would not send a draft copy of the permit prior to the meeting. At the meeting, OMNRF staff had prepared a summary sheet of any changes from the original discussions and the main highlights of the permits. The consultants were permitted to review the draft permit, but were not able to have a copy for a lawyer review.

The OMNRF staff report that the 90-day service guarantee had started and the permit had been drafted. Therefore, the Overall Benefit Permit should be issued on May 7th, 2017. On May 30th, 2017 the notice was placed on the Environmental Registry indicating the permit had been issued. The consultant reviewed the permit and felt there had been changes made to the conditions of the permit, which were not in the agreement they reviewed in February. There are still discussions going on with OMNRF staff with regards to these changes to date. However, the new proponent does not want the negotiations of the revised Overall Benefit plan made public, or available for this research.

Chapter 5

5 Discussion and Conclusion

The discussion section was framed using a mix of different principles to assess the implementation of Ontario's Overall Benefit permit program. The five key principles included: mitigation hierarchy; currency and equivalency; timing and duration; offset availability; and uncertainty. I also use two performance-based criteria, efficiency and equity to assess implementation. How well the process aligns with these principles was the central question framing this research.

5.1 Discussion

5.1.1 Mitigation Hierarchy

A key question concerning the use of biological offsets is how rigorous is the assessment at first three stages (i.e. avoid, minimize, rehabilitate) of the mitigation hierarchy? In Ontario, the permit process requires the applicant to complete an Information Gathering Form (IGF) and Alternative Avoidance Form (AAF) before considering a biological offset. In this case study, the proponent attempted to submit all three permit requirements simultaneously; however, the OMNRF staff indicated that each stage of the permitting process are dealt with sequentially.

The IGF was determined to be incomplete because the project was too narrowly scoped around the access road, and failed to incorporate the impacts of the proposed future 28-lot subdivision. Also, the Species at Risk Ontario (SARO) list included new species that the proponent should consider surveying on the property. The consultant conducted a desktop survey of the property and determined that the additional species on SARO list would not be impacted by the road construction. There is no mention of re-scoping the project to include the subdivision development. The revised IGF is determined to be incomplete; more information on the location and design of the road, as well as the potential impacts on the Blanding Turtle, Eastern Hog-Nose and Spotted Turtle. Again, the consultant provided additional evidence that these species were not located within the property. The OMNRF requested additional information about the culvert design and location;

however, the applicant was permitted to move onto the Avoidance Alternative Form (AAF) with the required modifications of the IGF. The issue of scoping the project does not appear to be resolved at this point of the application.

The AAF reviews alternatives to avoid and mitigate potential impact on the general habitat of the Massasauga, including Category 1 gestation and hibernacula habitat sites. Most of the discussions surrounding the AAF focus on the road location, design and construction methods to determine the foreseeable short-term and long-term impacts on the Massasauga. The location was moved to a narrower portion of the wetland, to minimize the extent of impacted area. The size and number of culverts was also the focus of much debate among the experts. At several stages of the process the OMNRF staff recommended a bridge to avoid impacting the critical habitat sites and wetland. However, the consultant argues that the two options would have similar impacts. Also, the Municipality did not want to accept responsibility for a bridge. Much like the scoping issue in the IGF, the bridge issue is not formally discarded from the list of alternatives.

Based on the comments and questions from the OMNRF staff, considerable effort was put forth to find alternatives to avoid and minimize the impact of the road construction. This is consistent with the mitigation hierarchy. However, there were several circumstances when the consultant and OMNRF staff opinions differ on the impacts of the alternative designs. The onus was on the consultant to assess the impacts of alternative designs. There did not appear to be closure at the end of the avoidance alternatives stage. For instance, the question over the scoping the project and bridge crossing lingered throughout the application process.

In order to mitigate the loss of critical habitat, the consultant's plan recommends the following actions. First, delineating the boundaries of the road to reduce unnecessary clearing and cutting of trees. Second, the timing of the activities was to take place after species had migrated from the area. Third, fencing was proposed along the proposed road. Fourth, eco-passages were to be installed to permit species to use this area as a travel corridor without crossing the road. The first option was not to damage or destroy the habitat. Throughout the process the consultant sought ways to both avoid and mitigate

any potential harm to the Massasauga or habitat. The consultant modified the crossing to the narrowest location of the wetland, minimizing the impact to 3.25% of the wetland. In this instance, the process follows the hierarchy of avoiding and mitigating impacts. In this case, the OMNRF and consultant followed the mitigation hierarchy outlined in the ESA. Although even after the avoidance and mitigation there was a residual impact that could not be avoided, which required an offset. Even though the aggregate pit was already scheduled for rehabilitation, creating habitat for the Massasauga qualified as a net gain.

It would be hard to argue that the process moved quickly through the mitigation hierarchy; it took nearly two year to work through the avoidance and mitigation phases. However, it is difficult to discern the rigour of the science-based approach. A desktop survey was sufficient for assessing if several threatened species or habitat was in the area of the access road. The OMNRF staff prefers the bridge over the wetland to avoid impacting the critical habitat. However, the cost of this option and the opinion that the impacts would be the same as the culvert design made it less desirable. The offset must benefit the species recovery, and must be equivalent to the damaged habitat.

5.1.2 Equivalency and Currency

To ensure that biological offset achieve a net gain, there must be clearly defined process to determine the equivalency and currency of the values to be lost or gained. In this case it was determined that values lost were approximately 325 m² (3.25%) of the total wetland area, gestation and hibernacula sites for the Massasauga. However, only the loss of gestation sites is required to be offset. In order to create the same habitat the proponents would have to create an additional 325m² of wetland habitat. There was no discussion around the creation of additional wetland to make up for area filled for the access road.

The Overall Benefit permit for this case was posted on the Environmental Registry on May 30th, 2017. The Overall Benefit permit requires the proponent to complete the following tasks to create an Overall Benefit for the Massasauga:

- Creation/enhancement of 2 ha of habitat through the rehabilitation of an existing aggregate pit including the creation of six (6) gestation sites;
- Creation of additional five (5) gestation sites outside of the rehabilitated aggregate pit; and
- Extensive monitoring over 10 years is required for the newly created gestation site and created and enhancement habitat, with requirements for the proponent to determine the effectiveness of the measures, with requirements to relocate the gestation sites if the locations are not being used (Environmental Registry, 2017).

The proposed and accepted Overall Benefit is to create an additional 11 gestation sites and monitor the effectiveness over the next 10 years. The proposed habitat loss is to the hibernacula. The consultant made note that the gestation sites could be a limiting factor within the area. It is unclear if the creation of 11 gestation sites would make up for the 3.25% of the hibernacula that will be impacted.

The wetland is currently a hibernacula for the Massasauga; however there is uncertainty with respect to the effectiveness of the rehabilitation actions. The regulation states that a proponent must “undertake actions that contribute to improve the circumstances for the species. It must include more than steps to minimize adverse effects on the species or habitats” (Ontario Government, 2007). The hibernaculum and gestation sites are both equally important to the life cycle of the Massasauga; both habitats are identified as category 1 habitat in the provincial recovery strategy. There is not a clear currency in this case. The habitat loss includes the wetland hibernacula and gestation sites, yet the Overall Benefit involves rehabilitating an aggregate pit and creating 11 gestation sites.

5.1.3 Duration and timing

The third principle is the duration and the timing of the proposed development and impact on the species habitat. We consider the short-term (i.e. construction) and long-term duration (i.e. use and maintenance) of impacts. The road construction phase will involve excavation, filling and blasting through the wetland area. To mitigate the short-term impacts, construction activities will be restricted to times when the Massasauga is

not using the habitat. According to the Massasauga recovery strategy (Parks Canada Agency 2015), late spring (mid-April to early June) is a period when the snakes have left the hibernacula and prior to females occupying gestation sites. The road construction through the wetland area is anticipated to take three weeks.

The long-term losses include gestation sites and wetland hibernacula habitat. Additionally, the road will provide access to a proposed residential subdivision development. The road will create a year-round access to the subdivision that will increase the risk of road mortality. The road is designed with culverts that allow the Massasauga will be able to continue navigating the wetland area. However, the Recovery Strategy for the Massasauga in Canada reports that in late summer the males are seeking mates, and are vulnerable to vehicle traffic.

The proponent is required to monitor the gestation sites for a period of 10 years. If the gestation sites are not used by the Massasauga, the proponent is required to move the gestation sites. Although it is not clear what additional actions would be proposed. It seems similar to the US ESA program prior to the no surprise clause.

5.1.4 Offset availability

The fourth principle is the ‘offset availability’. The proposed Overall Benefit included the creation of the 11 gestation sites. It also involved the rehabilitation of an abutting 2 ha quarry operation. In the letter dated September 30, 2015 the OMNRF staff reported they were not satisfied that reasonable steps to minimize adverse effects on the species have been proposed, and to date, the overall benefit actions proposed are not sufficient in comparison to the impacts associated with the project” (MNRF letter dated September 15, 2015). This letter led the property owner and applicant to look for additional ways to create an Overall Benefit.

The property owner was aware of the abandoned quarry across the road that required rehabilitation. The property owner approached the permit holder of the quarry to see if he could take over the permit. In this instance, it was fortuitous that the proponent was aware of the aggregate pit. There is no evidence to suggest this is normal practice, and if

the property owner did not learn of the quarry, the OMNRF may not have ever put the rehabilitation of an offsite quarry as an option to create an Overall Benefit. Perhaps creating an inventory connecting habitat available for rehabilitation would help select suitable offset sites. However, if the quarry was scheduled to be rehabilitated regardless of the road access permit should it be consider a new offsite habitat?

5.1.5 Uncertainty

The fifth principle is ‘uncertainty’. Uncertainty was evident throughout the process. There was uncertainty at the beginning of which species should be monitored on site. The process is unclear if the species is the responsibility of the applicant or the OMNRF and who determines which species should be monitored. There was uncertainty if the crossing of the wetland would have an negative impact on the Massasauga. The OMNRF staff was suggesting the construction of a clear span bridge to avoid the habitat loss. At the same time the consultants were of the opinion that the construction of a bridge would have the same impacts on the habitat. The proposed Overall Benefit was the creation of 11 gestation sites. The OMNRF staff was concerned that the newly created gestation sites may not work. Previous research and their experience show that snakes do not often use human build gestation sites. So, it was uncertain the gestation sites would actually create a benefit for the Massasauga. Yet this knowledge did not prevent issuing an overall benefit permit for constructing the access road. The rehabilitation of the 2 ha quarry might have offered greater habitat potential for the species, but it is uncertain if the Massasauga is using the old quarry site or if they will migrate to the site.

The proponents were required to monitor the site for 10 years. It was reported on the Environmental Registry that if the gestation sites were not working, the proponent would be required to move the gestation sites. Once the construction began on the road, the hibernaculum was affected, however the benefit might not have happened right away or potentially ever. This is a concern with the process. In other jurisdictions, the requirement is to create the benefit before the construction can happen. In this case, it would mean rehabilitating the quarry and demonstrating the use of hibernacula and gestation sites.

5.1.6 Efficiency

An important aspect of successful policy is the implementation. Meeting the objectives and goals of the policy, however in the case of the ESA there needs to be a balance between, economic development and environmental protection. The OMNRF must balance growth with protection of species and their habitats. As shown in the United States, if policy is too challenging to navigate, timely, or costly, developers will find alternatives to avoid regulation. In addition, property owners who felt the process was onerous, would avoid permits, and in some examples have a negative impact on the species or their habitat in hoping they do not get caught. If property owners and developers go this route, the damage will be done to the species habitat and ultimately the species will suffer.

In the case study there were examples of the process not being efficient. A couple key examples occurred in this case study. There was a large number of staff turnover, this is not necessarily anyone's fault, yet, there did not appear to be continuity from one staff member to the next, which meant each new staff member was starting the file from the beginning.

The turnaround time of responding to the applicants was lengthy. As well, it was always the consultant following up with OMNRF staff to see where the process was at and what the next steps would be. In the end, the process for this particular Overall Benefit permit took almost ten years, within the ten years, the proponents were not actively pursuing the permit. However, from 2013 when the consultants were hired, the permit was actively pursued. If the *Endangered Species Act* is to have a successful buy-in from the private sector the process needs to be more efficient. If the process is too long, costly and cumbersome, developers will either not develop in Ontario or take the risk of developing without a permit, at the expense of endangered and threatened species. Developers would like to have a clear understanding of the process and expected timelines and costs.

5.1.7 Equity

An important portion of a successful implementation of the Overall Benefit permits is equity to achieve an Overall Benefit. As more permits are issued, potential developers should know what will be expected of them in order to create an Overall Benefit. Although a full analysis of all of the permits has not been completed, there is some evidence to suggest that the process is not currently equitable.

The consultants showed an example of an Overall Benefit permit issued on Highway 69, which was also involved Massasauga critical habitat. The design requirement for the Highway 69 expansion was less than required for a subdivision access road. The consultant shared this evidence with the OMNRF staff. The Highway 69 would have higher daily traffic, the traffic speed is faster, the corridor width is wider and the requirement was to use ecopassages with a size of 3 metres by 2.4 metres and an ecopassage was required every 500 metres. In the case study, the ecopassage were supposed to be 4 metres by 1.5 metres and every 22 metres. There is a cost associated with every ecopassage, and if ecopassages are needed every 22 metres, everyone should have the same criteria. In the final permit, the applicants were required to put in 3 ecopassages as part of the Overall Benefit, which is a higher standard than the Highway 69 example.

Another example of inconsistency was demonstrated in Chapter 3 regarding the butternut tree. In some examples, the permits the applicant were required to plant 2.6 seedlings for every tree removed, and in another example 28 seedlings were required to plant for every 1 tree removed. It is unclear why some proponents were held to a higher standard. The average amount of trees to be planted is 7.9 per every tree removed. Therefore, based on the case study and information on the Environmental Registry, it appears there are inconsistencies in the process of creating an Overall Benefit.

5.1.8 Discussion

The policy has been evaluated with the five principles, mitigation hierarchy, equivalency and currency, duration and timing, offset availability and uncertainty. The process of

receiving and achieving an Overall Benefit appears to follow some of the principles. However, there are concerns the process is not achieving all of the principles within this framework.

The process follows the mitigation hierarchy. The applicant is expected to look for alternatives to avoid or mitigate any potential effects on a species or their habitat. This was evident within this case study. The proponents were expected to look at the alternative solutions which would not affect the species. The mitigation hierarchy was the only clear principle being followed. It was unclear if the additional four principles were being achieved.

The proposed Overall Benefit is not providing equivalency in the proposed benefit to the species. It is unclear if the proposed Overall Benefit, in this particular case, could be used as a currency in future applications. The policy needs to be clear in what is being affected and what the overall gain is to the species. It is clear that OMNRF does not want to lose any species habitat; however when the permit was issued habitat was affected. It was not clear what the overall impact would be to the species with the loss of the habitat, or if the habitat was so small, maybe the impact would be minimal. It is also unclear if this Overall Benefit would be used as currency in the future. For example, for every 325m² of hibernaculum habitat destroyed, 11 gestation sites would be required to be created. This does not seem like a valid currency, because eventually the overall cumulative impact to the hibernaculum would be on a larger scale and the species requires hibernaculum and gestation sites to carry out their life cycle.

Similarly, because there are uncertainties with the creation and use of the gestation sites, the duration of the affect this development would have on the habitat could potentially last longer than the gain. If the gestation sites are not used, the only lasting benefit would be the rehabilitation of the quarry. Within other jurisdictions the benefit must be in place and created before the development and effect on the habitat can occur. The uncertainties of the Overall Benefit permit leave concerns if the policy is achieving the goals of the *Endangered Species Act*, 2007.

The above makes recommendations to the OMNRF with regards to the Overall Benefit permit process; another important aspect of this research was contribution to the studies of the effectiveness of the biological offsets and research or practices in other jurisdictions.

Conformance-based studies look at the outcomes of policy decisions, whereas performance studies consider the decision-making process. In reviewing the literature there was more research conducted on conformance-based studies (e.g. Gordon et al., 2011; Laycock et al., 2011; Quetier et al., 2014; Regnery et al., 2013). This case study contributes to performance-based research on biodiversity offsets by providing a framework for future policy studies in other jurisdictions. Using normative principles will improve our understanding of the performance of biological offsets in other jurisdictions, which contributes more broadly to the effectiveness of this alternative to protecting species diversity.

In Ontario, as in other jurisdictions, it is uncertain if or when the Overall Benefit will actually happen for this species (timing). There is uncertainty if OMNRF has the ability to enforce the offsets or have adequate resources to ensure that offset agreements are implemented properly. This case study on the one hand did not or may not actually produce an Overall Benefit to the species, but it is certain a portion of their category 1 habitat will be lost. On the other hand, the process was lengthy and confusing for the proponent, which could mean developers' or municipalities' may not want to go through this process. This may lead to land owners to take preemptive measures to reduce the likely hood of endangered or threatened species on their property, much like the situation under the previous US *Endangered Species Act*, prior to the no surprises clause.

In order to make the Overall Benefit permits successful there needs to be a transparent and consistent process. The process needs to be reasonable for the property owners and developers, but also meet the goal of the *Endangered Species Act* in protecting and recovering endangered and threatened species and their habitat. Timelines need to be established for each phase of the process. In order to make the ESA and Overall Benefit

permits successful based upon the case study, the following recommendations should consider:

- Create prescribed timelines for each phase of the process;
- OMNRF must analysis each Overall Benefit and determine what is working and what is not (adaptive management);
- OMNRF must work with Municipalities and work on a regional level to protect endangered and threatened species;
- OMNRF must start a database for tracking Overall Benefit permits and locations of potential rehabilitation sites;
- OMNRF must create a database to track the locations of the Overall Benefit habitats which have been created;
- OMNRF start to collect data from previous Overall Benefit permits and work toward creating a currency of offsets; and
- OMNRF must have an understanding of what other districts are doing for Overall Benefits, so there is consistency across the province.

On this final point, it would be helpful if the provincial government would provide more details about the habitat losses and required offset activity on the Environmental Registry. It was difficult to conduct a wider analysis of the Overall Benefit program because of the limit amount of information that is publicly available. Even an Access to Information request resulted in limited information because of issues regarding third party privacy protection. Proponent information could be removed in order to outline the proposed habitat loss and subsequent avoidance, mitigation, and offset requirements. For instance, even the provincial norms for replacement ratios would be helpful.

5.2 Future Studies

Recommended future studies to gain a better understanding of the process of an Overall Benefit permit may include a larger sample of case studies to understand if the process is always similar to this particular case study. Decisions are made within the local context. Experiences in other jurisdictions (e.g. urban, rural) may be different. It would also be valuable to understand the additional costs associated with the current process and to speak with the applicants to understand their experiences. If this case study demonstrates a standard Overall Benefit permit, it would be interesting to study the amount of applications which were applied for but subsequently withdrawn from the applicant, and the reason for withdrawing the application.

This research contributes to the implementation of the *Endangered Species Act* and how this particular case study was navigated. If this is how the policy is implemented throughout the provinces, there is considerable uncertainty if an Overall Benefit is being met within a reasonable time. Also, the proponent in this case received a permit, however, it took nearly 10 years. If MNRF is to continue the Overall Benefit permit, changes will need to be made to improve the process and ensure the results.

The study conducted by Ecojustice (2012) ranked Ontario the best among the other provinces for their approach to protecting at risk species. Based on this case study if Ontario was ranked the highest, then concerns are warranted in other jurisdictions in Canada. The uncertainty surrounding the outcome of Overall Benefit permits could lead to a continuing decline and fragmentation of essential habitat. Currently, Overall Benefit permits are assessed on a case-by-case basis and no effort to track or connecting proponents in need of developing offsets, with properties suitable for habitat creation. Ontario needs to review their current policies and procedures within the implementation of the Overall Benefit if the will is to protect endangered and threatened species, along with better tracking and reporting of outcomes.

As stated in Chapter 2, biodiversity offsets appear to offer a solution to permit development to continue and at the same time protecting species at risk. However, based on the uncertainties within this case study and the literature suggest there are

uncertainties on the international level. It would appear that development is continuing to happen, and the offsets may or may not be working. There needs to be research on the performance and conformance of the biodiversity offsets to ensure they are achieving the goals and protecting and recovering species at risk.

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