

Proposed

Species at Risk Act
Action Plan Series

Multi-species Action Plan for Thousand Islands National Park of Canada [Proposed]



2015

3 **Recommended citation:**
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5 Parks Canada Agency. 2015. Multi-species Action Plan for Thousand Islands National
6 Park of Canada [Proposed]. *Species at Risk Act* Action Plan Series. Parks Canada
7 Agency, Ottawa. vi+ 33 pp.

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17 For copies of the action plan, or for additional information on species at risk, including
18 COSEWIC Status Reports, residence descriptions, recovery strategies, and other
19 related recovery documents, please visit the [Species At Risk Public Registry](#)¹.
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23 **Cover illustration:** Photos by Sheldon Lambert and Josh Van Wieren, Parks Canada
24 Agency

25
26 Également disponible en français sous le titre :
27 Plan d'action visant des espèces multiples dans le parc national du Canada des
28 Mille-Îles [proposition].
29

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33 ISBN: ISBN to come

34 Catalogue no.: Catalogue no. to come
35

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¹ www.registrelp.gc.ca/default_e.cfm

Recommendation and Approval Statement


The Parks Canada Agency led the development of this federal action plan, working together with the other competent minister(s) under the Species at Risk Act. The Chief Executive Officer, upon recommendation of the relevant Park Superintendent and Field Unit Superintendent, hereby approves this document indicating that the relevant Species at Risk Act requirements related to action plan development have been fulfilled in accordance with the Act.

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89 Preface

90 The federal, provincial, and territorial government signatories under the [Accord for the](#)
91 [Protection of Species at Risk \(1996\)](#)² agreed to establish complementary legislation and
92 programs that provide for effective protection of species at risk throughout Canada.
93 Under the *Species at Risk Act* (S.C. 2002, c.29) (SARA), the federal competent
94 ministers are responsible for the preparation of action plans for species listed as
95 Extirpated, Endangered, and Threatened for which recovery has been deemed feasible.
96 They are also required to report on progress five years after the publication of the final
97 document on the Species At Risk Public Registry.

98
99 Under SARA, one or more action plan(s) provides the detailed recovery planning that
100 supports the strategic directions set out in the recovery strategies for the species. The
101 plan outlines what needs to be done to achieve the population and distribution
102 objectives (previously referred to as recovery goals and objectives) identified in the
103 recovery strategies, including the measures to be taken to address the threats and
104 monitor the recovery of the species, as well as the proposed measures to protect critical
105 habitat that have been identified for the species. The action plan also includes an
106 evaluation of the socio-economic costs of the action plan and the benefits to be derived
107 from its implementation. The action plan is considered one in a series of documents that
108 are linked and should be taken into consideration together with the COSEWIC status
109 reports, management plans, recovery strategies and other action plans produced for
110 these species.

111
112 The *Multi-species Action Plan for Thousand Islands National Park of Canada* is a SARA
113 action plan (SARA s.47) for four species: American Water-willow (*Justicia americana*),
114 Butternut (*Juglans cinerea*), Deerberry (*Vaccinium stamineum*), and Pugnose Shiner
115 (*Notropis anogenus*). Measures described in this plan will also provide benefits for 30
116 other species of conservation concern that regularly occur in Thousand Islands National
117 Park. The Minister responsible for the Parks Canada Agency (the Minister of the
118 Environment) is the competent minister under SARA for the species found in Thousand
119 Islands National Park of Canada and has prepared this action plan to implement the
120 recovery strategies, as per section 47 of SARA. To the extent possible, it has been
121 prepared in cooperation with Akwesasne First Nation, Environment Canada, the
122 Department of Fisheries and Oceans and the province of Ontario as per section 48(1) of
123 SARA.

124
125 The action plans developed under Parks Canada's leadership support Canada's
126 National Conservation Plan (NCP) by identifying practical actions in the three priority
127 areas of conserving Canada's lands and waters, restoring Canada's ecosystems, and
128 connecting Canadians to nature. In addition, the ongoing work of Parks Canada
129 contributes to NCP goals of encouraging local initiatives and partnerships that lead to
130 tangible results.

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² www.ec.gc.ca/media_archive/press/2001/010919_b_e.htm

133 Success in the recovery of these species depends on the commitment and cooperation
134 of many different constituencies that will be involved in implementing the directions and
135 measures set out in this action plan and will not be achieved by the Parks Canada
136 Agency, or any other jurisdiction alone. All Canadians are invited to join in supporting
137 and implementing this action plan for the benefit of the suite of species and Canadian
138 society as a whole.

139

140 Implementation of this action plan is subject to appropriations, priorities, and budgetary
141 constraints of the participating jurisdictions and organizations.

142

Acknowledgments

143
144 Special thanks are owed to the Mohawks of Akwesasne Department of Environment,
145 especially Henry Lickers and Peggy Pyke-Thompson for their input and perspectives.
146 Thanks are also extended to partners who participated in the Action Plan Site
147 Workshop: Ontario Ministry of Natural Resources and Ontario Parks (Corina Brdar,
148 Marie-Andree Carriere, and Shaun Thompson), Algonquin to Adirondacks Collaborative
149 (Emily Conger) and the Eastern Ontario Model Forest (Erin Neave). Cooperation and
150 data from the Ontario Natural Heritage Information Centre is greatly appreciated.
151 Finally, thanks to Gabriel Blouin-Demers (University of Ottawa), Stephen Lougheed
152 (Queens University), and Pauline Quesnelle (Carleton University) for their helpful
153 insights into herpetofauna conservation.
154

155 **Executive Summary**

156 The *Multi-species Action Plan for Thousand Islands National Park of Canada* is a
157 *Species At Risk Act* action plan (SARA s.47) for four species: American Water-willow
158 (*Justicia americana*), Butternut (*Juglans cinerea*), Deerberry (*Vaccinium stamineum*),
159 and Pugnose Shiner (*Notropis anogenus*). The plan also outlines measures to monitor
160 and manage 30 other species of conservation concern that regularly occur in the park.
161 This plan applies only to lands and waters occurring within the boundaries of Thousand
162 Islands National Park of Canada.

163
164 Where it has been determined that the park can conduct management activities to help
165 recover and/or manage a species, park-specific objectives are identified in this plan and
166 represent the park's contribution to overall population and distribution objectives.
167 Species at risk, their residences, and their habitat are protected by existing national
168 park regulations and management regimes as well as by SARA. Additional measures
169 that will contribute to the survival and recovery of the species in the park are described
170 in this plan. These measures were identified based on threats and measures outlined in
171 federal and provincial status assessments and recovery documents, as well as
172 knowledge of the status and needs of each species in the park. Population monitoring
173 measures are also identified for the species for which park specific objectives have
174 been set.

175
176 No critical habitat is identified in this action plan. Measures used for protection of
177 existing critical habitat are described.

178
179 Measures proposed in this action plan will have limited socio-economic impact and
180 place no restrictions on land use outside of Thousand Islands National Park. Direct
181 costs of implementing this action plan will be borne by Parks Canada. Indirect costs are
182 expected to be minimal, while benefits will include positive impacts on park ecological
183 integrity, greater awareness and appreciation of the value of biodiversity to Canadians,
184 and opportunities for engagement of local communities and Aboriginal groups.

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197	Table of Contents	
198		
199	Recommendation and Approval Statement.....	i
200	Preface.....	ii
201	Acknowledgments.....	iv
202	Executive Summary.....	v
203	Table of Contents.....	vi
204	1. Context.....	1
205	1.1 Scope of the Action Plan.....	2
206	2. Recovery Objectives and Measures.....	4
207	2.1 Measures to be Taken and Implementation Schedule.....	11
208	3. Critical Habitat.....	28
209	3.1 Proposed Measures to Protect Critical Habitat.....	29
210	4. Evaluation of Socio-Economic Costs and of Benefits.....	29
211	4.1. Socio-Economic Overview.....	29
212	4.2. Costs.....	29
213	4.2.1. Cost to Parks Canada.....	29
214	4.2.2. Socio-economic costs of implementation.....	29
215	4.3. Benefits.....	29
216	5. Measuring Progress.....	31
217	6. References.....	32
218	Appendix A: Effects on the Environment and Other Species.....	34
219		

220 1. Context

221 The Thousands Islands area has long been important to many First Nations. As
222 European settlement expanded into the area during the 1800s, the area became known
223 for its natural beauty and tourism potential. While some legal protection was afforded to
224 the current park area as early as 1875, it was not until 1904 that Thousand Islands
225 National Park of Canada (TINP) was established as the first Canadian national park
226 east of the Rockies (Canadian Thousand Islands Heritage Conservancy, 2004), known
227 then as St. Lawrence Islands National Park. The area was also officially designated by
228 the United Nations in 2002 as a Biosphere Reserve. The designation recognizes the
229 region as a place where people live, work and enjoy a variety of economic and
230 recreational activities based on respect for the environment. The park consists of
231 several ecologically important mainland properties and over 20 islands between
232 Kingston and Brockville, Ontario. Because of the fragmented nature of the park
233 properties, many of the stresses on the park's ecosystem originate from outside its
234 boundaries. For this reason, First Nations, local residents, conservation organizations,
235 and other groups and land users play an important role in managing, restoring, and
236 protecting the Thousand Islands ecosystem (Parks Canada Agency, 2010b).

237
238 The park is located at the meeting point of the St. Lawrence River and the Frontenac
239 Arch. The rugged nature of the Frontenac Arch resulted in less anthropogenic
240 landscape modification than most of southern Ontario and, as a result, the area remains
241 important for migrating species and local species of flora and fauna (Snetsinger, 1997).
242 The islands of the park are considered to be important "stepping stones" in the
243 connectivity corridor linking Algonquin Provincial Park in Ontario to Adirondack State
244 Park in New York (Snetsinger, 2001). Being located in a transition zone, the park, for its
245 size, is rich in biodiversity and provides habitat for many species that are at the northern
246 or southern limits of their range.

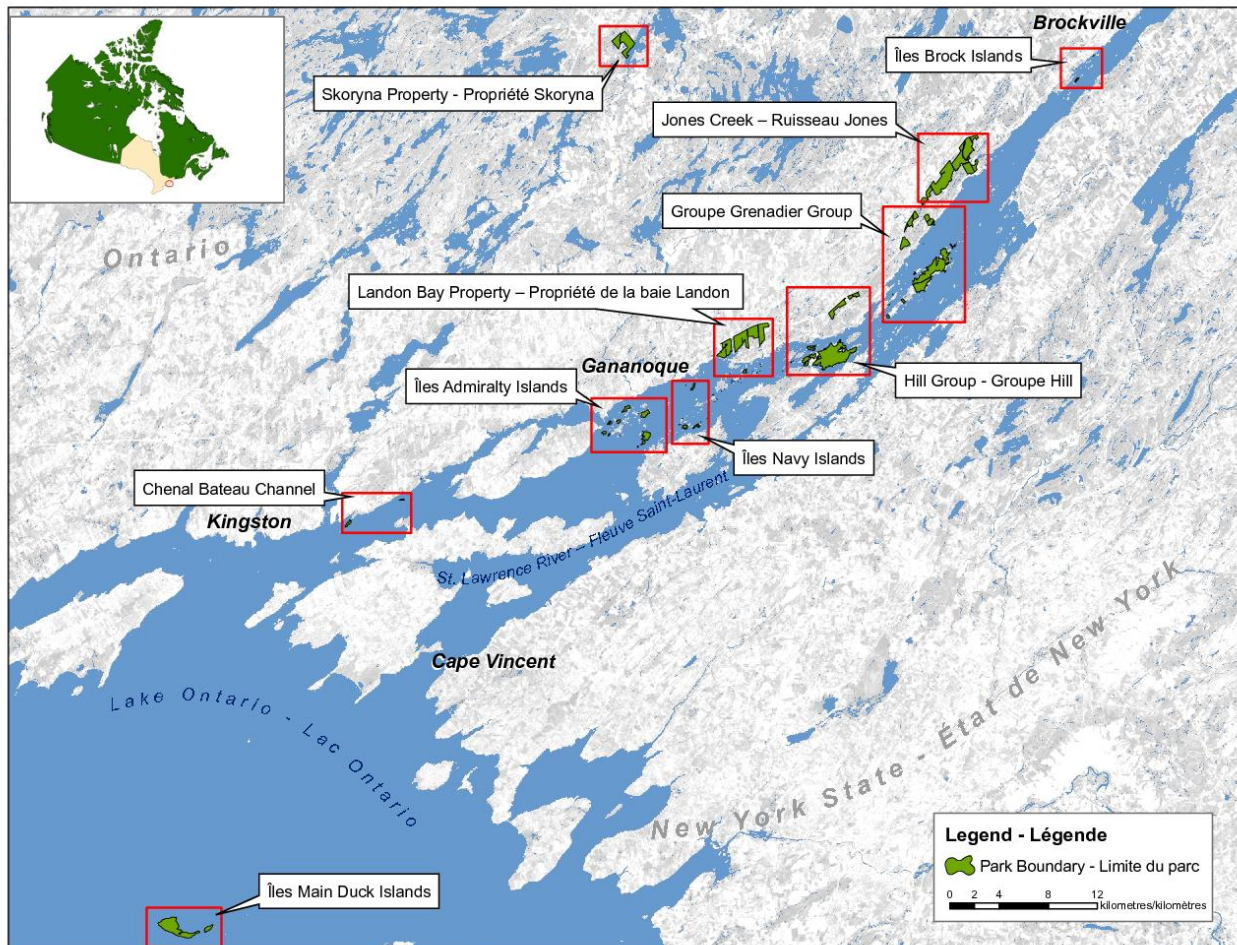
247
248 Maintenance and restoration of ecological integrity is the first priority of national parks
249 (*Canada National Parks Act* s. 8(2)). Species at risk, their residences, and their habitat
250 are therefore protected by existing national park regulations and management regimes
251 as well as by SARA.

252
253 Recovery measures for species at risk will be integrated within the framework of Parks
254 Canada's ongoing ecological integrity programs. National parks maintain
255 comprehensive, scientifically rigorous ecological integrity monitoring and restoration
256 programs that are organized according to the major ecosystems present in the park.
257 The recovery measures described in this action plan are therefore organized in the
258 same manner. Parks Canada's ecological integrity programs make contributions to the
259 recovery of species at risk by providing inventory and monitoring data, and through the
260 implementation of habitat restoration projects and other conservation measures. The
261 species-directed measures outlined in this plan will in turn contribute to maintaining and
262 improving the ecological integrity of Thousand Islands National Park by improving the
263 conservation status of native species and their habitat and maintaining biodiversity.

264

265 1.1 Scope of the Action Plan

266 The geographic scope of this action plan includes all federally owned lands and waters
 267 managed by Thousand Islands National Park of Canada (Figure 1). This multi-species
 268 action plan has been written specifically for Thousand Islands National Park because
 269 the Parks Canada Agency (PCA) is legally responsible for species at risk on PCA lands
 270 and waters, has the ability to take direct conservation action, and deals with different
 271 threats, legislation, and management priorities than areas outside the park.
 272



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Figure 1. Geographic scope for the *Multi-species Action Plan for Thousand Islands National Park of Canada*.

Species at Risk Act action plans are legally required for all SARA-listed endangered and threatened species once a final recovery strategy has been posted on the Species At Risk (SAR) Public Registry. This action plan is a SARA action plan (as per SARA s.47) for four species: American Water-willow, Butternut, Deerberry, and Pugnose Shiner.

In addition, this action plan is intended to provide a comprehensive approach to the recovery and management of all species of conservation concern that occur regularly in the park. The plan also addresses SARA-listed endangered and threatened species that occur regularly in the park but do not yet have posted recovery strategies, SARA-listed species of special concern, and species that have been assessed as threatened or endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but have not been listed on SARA or are under consideration for listing (Table 1).

Table 1: Species at risk included in the action plan for Thousand Islands National Park (status as of May 1, 2015)

Species	Scientific name	COSEWIC status	SARA status
Species for which this is a SARA action plan			
American Water-willow	<i>Justicia americana</i>	Threatened	Threatened
Butternut	<i>Juglans cinerea</i>	Endangered	Endangered
Deerberry	<i>Vaccinium stamineum</i>	Threatened	Threatened
Pugnose Shiner	<i>Notropis anogenus</i>	Threatened	Endangered
Species listed under the SARA for which recovery strategies are not yet posted			
American Ginseng	<i>Panax quinquefolius</i>	Endangered	Endangered
Blanding's Turtle (Great Lakes/St. Lawrence population)	<i>Emydoidea blandingii</i>	Threatened	Threatened
Canada Warbler	<i>Cardellina canadensis</i>	Threatened	Threatened
Common Nighthawk	<i>Chordeiles minor</i>	Threatened	Threatened
Eastern Musk Turtle	<i>Sternotherus odoratus</i>	Special Concern	Endangered
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Threatened	Threatened
Gray Ratsnake (Great Lakes/St. Lawrence population)	<i>Pantherophis spiloides</i>	Threatened	Threatened
Least Bittern	<i>Ixobrychus exilis</i>	Threatened	Threatened
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered
Pale-bellied Frost Lichen	<i>Physconia subpallida</i>	Endangered	Endangered
Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population)	<i>Pseudacris triseriata</i>	Threatened	Threatened
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Threatened	Threatened
Special concern species listed under the SARA			
Bridle Shiner	<i>Notropis bifrenatus</i>	Special Concern	Special Concern
Cerulean Warbler	<i>Setophaga cerulea</i>	Endangered	Special Concern
Eastern Ribbonsnake (Great Lakes population)	<i>Thamnophis sauritus</i>	Special Concern	Special Concern
Five-lined Skink (Great Lakes/St. Lawrence population)	<i>Plestiodon fasciatus</i>	Special Concern	Special Concern
Grass Pickerel	<i>Esox americanus vermiculatus</i>	Special Concern	Special Concern
Milksnake	<i>Lampropeltis triangulum</i>	Special Concern	Special Concern
Monarch	<i>Danaus plexippus</i>	Special Concern	Special Concern
Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern	Special Concern

Peregrine Falcon (<i>anatum/tundrius</i>)	<i>Falco peregrinus anatum</i>	Special Concern	Special Concern
Rusty Blackbird	<i>Euphagus carolinus</i>	Special Concern	Special Concern
Snapping Turtle	<i>Chelydra serpentine</i>	Special Concern	Special Concern
Swamp Rose-mallow	<i>Hibiscus moscheutos</i>	Special Concern	Special Concern
Species of conservation concern not listed under the SARA at this time (may be listed in the future)			
American Eel	<i>Anguilla rostrata</i>	Threatened	Not listed
Barn Swallow	<i>Hirundo rustica</i>	Threatened	Not listed
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Not listed
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Not listed
Eastern Wood-pewee	<i>Contopus virens</i>	Special Concern	Not listed
Wood Thrush	<i>Hylocichla mustelina</i>	Threatened	Not listed

275 **2. Recovery Objectives and Measures**

276 The potential for PCA to undertake management actions at the park that will contribute
 277 to the recovery of each species was assessed. Park-specific population and distribution
 278 objectives were developed (Table 2) to identify the contribution that TINP can make
 279 towards achieving the national objectives presented in federal recovery strategies and
 280 management plans. Because they are directly linked to the park population and
 281 distribution objectives, monitoring activities are reported in Table 2 rather than in the
 282 tables of recovery measures (Tables 3 & 4). If there is little opportunity for the park to
 283 contribute to the recovery of a species, site-specific objectives and conservation actions
 284 may be limited to protection measures in place under the *Canada National Parks Act*
 285 and SARA, and population monitoring, habitat maintenance, and restoration through the
 286 existing park management regime. For many species, population and distribution
 287 objectives for TINP are not meaningful at the scale of this action plan for various
 288 reasons, including 1) threats cannot be controlled in the park or do not exist in the park
 289 (e.g., wide-spread disease, damming of St. Lawrence River, loss of overwintering
 290 habitat, hay harvesting); 2) species is only transient or does not occur on land over
 291 which the park has jurisdiction (e.g., migrates through park, breeding is not confirmed,
 292 occurs below high-water mark); 3) population within the park is a very small part of the
 293 Canadian distribution or is unknown or unconfirmed.

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297 Table 2: Species information and objectives for species at risk in Thousand Islands National Park of Canada
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Species	National objectives (from recovery strategies and management plans as of August 2014)	Population & distribution objectives for TINP	Trend in TINP over last 5 years (2008-2013)	Population monitoring ³	General information and broad park approach
Deerberry	1. Halt the decline of mature individuals and number of populations. 2. Increase the number of populations to 10 or more, if introduction or re-introduction of 'new' populations is deemed feasible (Parks Canada Agency, 2010a).	1. Halt the decline of mature individuals and number of populations. 2. Maintain and augment (where necessary) two planted populations on Thwartway and Georgina islands and plant two new additional populations, if introductions are deemed feasible.	Stable	1. Monitor annual growth and population of both native populations. 2. Monitor annual growth and population of all planted populations (existing populations on Thwartway and Georgina islands and two new populations, if introductions are deemed feasible).	Majority of Canadian population occurs in TINP. Continue to mitigate threats and introduce additional populations if feasible.

³ Where population and distribution objectives have been established for TINP, monitoring is designed to directly measure success in achieving those goals; otherwise baseline population monitoring efforts necessary for park stewardship, management and reporting are described.

Species	National objectives (from recovery strategies and management plans as of August 2014)	Population & distribution objectives for TINP	Trend in TINP over last 5 years (2008-2013)	Population monitoring ³	General information and broad park approach
Blanding's Turtle	Maintain, and where necessary and feasible, increase the distribution and abundance (Environment Canada, 2014c).	1. Maintain an adequate ⁴ amount of suitable habitat in the park. 2. Maintain current relative abundance of Blanding's turtles for the park's largest population 3. Maintain occupancy at two other known park locations.	Decreasing	1. Assess changes in the amount of habitat using satellite imagery from 1980 onwards. 2. Estimate the relative abundance of Blanding's Turtles for the largest park population once every five years. 3. Confirm continued occupancy at two other known locations by observing at least one individual at least once every five years.	Blanding's Turtles occur at three locations in the park including one wetland complex which is almost entirely within the park boundary. This wetland complex holds a regionally significant population of Blanding's Turtle.
Eastern Musk Turtle	Maintain the distribution and abundance of the Canadian population (Environment Canada, 2014d).	1. Maintain an adequate amount of suitable habitat in the park. 2. Maintain occupancy at four known park locations.	Stable	1. Assess changes in the amount of habitat using satellite imagery from 1980 onwards. 2. Confirm continued occupancy in four known locations by observing at least one individual at least once every five years.	Focus on preserving appropriate habitat and mitigating threats at locations within the park that contribute to larger ecosystem-wide ranges.
Five-lined Skink	Maintain the distribution and number of viable element occurrences (Environment Canada, 2013a).	Maintain appropriate habitat for Landon Bay population.	Unknown	After completion of a habitat suitability index to determine suitable habitat, assess habitat amount in the Landon Bay property every five years.	Skinks are not widely distributed in the park and are cryptic and difficult to count. Focus is on protecting and maintaining existing habitat.

⁴ Based on established thresholds for Blanding's Turtles, Eastern Musk Turtle, and Least Bittern in the TINP wetland condition monitoring program (Zorn, 2012).

Species	National objectives (from recovery strategies and management plans as of August 2014)	Population & distribution objectives for TINP	Trend in TINP over last 5 years (2008-2013)	Population monitoring ³	General information and broad park approach
Gray Ratsnake	N/A	Confirm continued occupancy of all known TINP hibernacula.	Decreasing	Visit each confirmed hibernaculum on park property during one year every five years for maximum of 3 visits per hibernaculum (if snake is found on visit 1, the other two visits are unnecessary).	Five known hibernacula in the park. Snakes leave park hibernacula and often travel outside park boundary, snake hibernating adjacent to park often travel into the park and provide juvenile recruitment. Focus is on protecting existing hibernacula, finding new hibernacula and working with partners to promote connections between hibernacula in and adjacent to park boundaries.
Least Bittern	Maintain and, where possible, increase the current population size and area of occupancy in Canada (Environment Canada, 2011).	1. Maintain an adequate amount of suitable habitat in the park 2. Maintain occupancy at both known breeding locations.	Stable	1. Assess changes in the amount of habitat using satellite imagery from 1980 onwards. 2. Confirm continued occupancy in the two known locations by observing at least one individual at least once every five years.	Least Bittern nest in two wetlands in the park. Focus is on protecting and maintaining existing habitat.

Species	National objectives (from recovery strategies and management plans as of August 2014)	Population & distribution objectives for TINP	Trend in TINP over last 5 years (2008-2013)	Population monitoring ³	General information and broad park approach
Milksnake	Maintain populations throughout the known range and, where possible, fill knowledge gaps on demographics, habitat use and threats (Environment Canada, 2014a).	Maintain occupancy at all known locations.	Unknown	Confirm continued occupancy in all known locations by observing at least one individual at least once every five years.	Milksnakes are distributed throughout the park, often in developed areas.
Northern Map Turtle	Maintain and, where necessary and feasible, increase the distribution and abundance (Environment Canada, 2014b).	Maintain occupancy in Jones Creek Wetland Complex.	Unknown	Confirm continued occupancy in Jones Creek by observing at least one individual at least once every five years.	Map turtles range widely outside the park and are often found basking just on the edge of the park boundary. Focus is on protecting and maintaining existing habitat.
Snapping Turtle	N/A	Maintain occupancy at all known locations.	Unknown	Confirm continued occupancy in all seven known locations by observing at least one individual at least once every five years.	Snapping turtles have large ranges that extend outside the park and have only a small percentage of their overall population in the park. Focus is on protecting and maintaining existing habitat within the park.

Species	National objectives (from recovery strategies and management plans as of August 2014)	Population & distribution objectives for TINP	Trend in TINP over last 5 years (2008-2013)	Population monitoring ³	General information and broad park approach
Swamp Rose-mallow	Maintain current distribution and area of occupancy of extant populations (Environment Canada, 2013b).	Maintain existing plants on Main Duck Island and investigate population augmentation.	Unknown	Survey known plants at least once every five years and monitor introduced plants annually for at least the first 3 years after planting.	Swamp rose-mallow is confined to Main Duck Island with minimal threats. Focus is on protecting and maintaining existing habitat.
Pugnose Shiner	Ensure the persistence of self-sustaining populations at the 12 extant locations (Fisheries and Oceans Canada, 2012).	No objective established: no threats known in park and TINP is of limited importance to the species' national recovery.	Unknown	Record incidental observations.	TINP manages very little aquatic habitat where Pugnose are found. TINP will continue to protect the water in which it is found and maintain natural shorelines on islands adjacent to important populations.
Butternut	Ensure conditions that will allow for the restoration of viable, ecologically functioning, and broadly distributed populations within its current range in Canada (Environment Canada, 2010).	No objective established: no TINP management actions can contribute to the conservation of park populations and TINP is of limited importance to the species' national recovery.	Unknown	Record incidental observations.	Determine if any canker-resistant trees occur in the park and collect genetic material if found.

Species	National objectives (from recovery strategies and management plans as of August 2014)	Population & distribution objectives for TINP	Trend in TINP over last 5 years (2008-2013)	Population monitoring ³	General information and broad park approach
American Water-willow	Maintain (and, if possible, increase) the current number of individuals to maintain the actual number of locations (10) and prevent the decline in the quality of habitat (Parks Canada Agency, 2011).	No objective established: no threats known in park and no individuals found on TINP lands.	Unknown	Record incidental observations.	None of the individuals are currently within TINP boundaries, however large populations are found immediately adjacent to park lands. Continue to ensure park management activities do not threaten the existing populations adjacent to our lands.
Little Brown Myotis, Barn Swallow, Bobolink, Canada Warbler, Cerulean Warbler, Common Nighthawk, Eastern Meadowlark, Eastern Ribbonsnake, Eastern Wood-pewee, Golden-winged Warbler, Peregrine Falcon (<i>anatum</i>), Rusty Blackbird, Wood Thrush, Monarch, American Eel, Bridle Shiner, Grass Pickerel, Western Chorus Frog, Eastern Ribbonsnake, Eastern Whip-poor-will, American Ginseng, Pale-bellied Frost Lichen		No objective established: because no threats known in park (grass pickerel, pale-bellied frost lichen and peregrine falcon); or no TINP management actions can contribute to conservation within the park and TINP is of limited importance to the species' national recovery.	Unknown	Record incidental observations and share with partners.	Continue to contribute to drafting of recovery plans and identification of critical habitat. The park will continue to protect individuals and protect suitable habitat on park lands and support partners where feasible on recovery and protection of these species. Additionally, TINP will work with partners to conduct opportunistic surveys for under-surveyed species in the park and adjust management approaches appropriately when new populations are found.

301

302 **2.1 Measures to be Taken and Implementation Schedule**

303 Measures that are proposed to achieve the site-based population and distribution objectives, along with measures
 304 required to protect the species and to learn more about them, are listed in Tables 3 and 4.

305

306 In addition to the implementation of conservation measures that contribute to species recovery, Parks Canada has an
 307 important role in promoting awareness and appreciation of species at risk. Providing opportunities for the public to learn
 308 about and experience national parks is a central component of Parks Canada's mandate. Thus national parks afford an
 309 opportunity and are imperative for engaging the public in species at risk recovery.

310

311 Table 3: Recovery measures that will be conducted by Thousand Islands National Park.

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery measure addressed	Timeline
WETLAND COMMUNITY						
Blanding's Turtle, Eastern Musk Turtle, Least Bittern	1	Species at risk critical habitat warning sign and no motorized watercraft sign installed at mouth of important wetland shortly after critical habitat is identified	Work with partners to control motorized watercraft access at mouth of important wetland.	Signs installed by fall 2015 if critical habitat identified.	Boating mortality (Environment Canada, 2014c, 2014d & 2011)	2015

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery measure addressed	Timeline
Coastal Wetland Community ⁵	2	Remove early invasions of priority ⁶ alien invasive plants from park wetlands.	Prevent invasive species from becoming established in park wetlands.	If an early invasion is detected (through condition monitoring program, incidental sightings or reports) and is feasible to remove, progress will be determined by the number of plants removed.	Exotic and invasive species (Environment Canada, 2011; Environment Canada, 2014b, 2014c, 2014d, Fisheries and Oceans Canada, 2012).	If invasion detected, the site will be visited annually for at least three years.
Coastal Wetland Community	3	Re-survey Skoryna and Escott Rd wetlands to determine if Blanding's turtles are present.	Increase knowledge of turtle distribution in the park.	Surveys completed and data shared with the Natural Heritage Information Centre (NHIC).	Collect population, habitat and threat data to monitor turtles (Environment Canada, 2011; Environment Canada, 2014b, 2014c, 2014d, Fisheries and Oceans Canada, 2012).	2016

⁵ Species at risk considered part of the TINP coastal wetland community include Blanding's Turtle, Eastern Musk Turtle, Snapping Turtle, Northern Map Turtle, American Eel, Bridle Shiner, Grass Pickerel, Pugnose Shiner, and Least Bittern.

⁶ As determined by TINP's Integrated Vegetation Management Plan (McPherson, 2006).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery measure addressed	Timeline
Swamp Rose-mallow	4	Assess and remove any immediate alien invasive plant risks around existing Swamp Rose-mallow plants.	Reduce threat of invasive alien species to Swamp Rose-mallow.	Decrease in number of plants or percent area covered by priority invasive alien plants close to Swamp Rose-mallow.	Investigate the feasibility of employing best management practices/known methods of controlling European Common Reed and Hybrid Cattail, and implement these practices where feasible (Environment Canada, 2013a).	2019
Pugnose Shiner	5	Assist the Department of Fisheries and Oceans on signage for critical habitat in the Park and assist with DFO-led research and inventory projects.	Increase public awareness of Pugnose Shiner critical habitat and increase knowledge about populations of Pugnose Shiner.	Installations of signage related to critical habitat by 2015. Provision of field support to DFO-led research in or near the park.	2-1. Coordination with other recovery teams and relevant groups (Fisheries and Oceans Canada, 2012).	2015

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed	Timeline
FOREST COMMUNITY						
Deerberry	6	Plant and maintain two new Deerberry populations and maintain/augment two recently planted populations until they are self-sustaining.	Increase number of Deerberry populations in Canada.	(1) Number of new populations planted. (2) To ensure populations are persisting, number of stems, flowering heads and number of berries will be counted.	Enhance or augment existing populations (Parks Canada Agency, 2010a).	One new population planted in 2014-2015 and one more in 2016. Augmentation at other two planted populations is dependent on number of available seedlings and maintenance is ongoing until plants are self-seeding (usually about 2-5 years)
Deerberry	7	Remove all invasive plants within a 50-m buffer of Deerberry on West Grenadier and Endymion islands by 2018 and eventually remove all invasive plants from park property at both locations.	Remove threat of invasive species to Deerberry on West Grenadier and Endymion islands.	All patches of exotic species (including single plants or larger areas) have been GPS-mapped for both sites by 2016 and patches reduced in size by 2018.	Invasive species is a low level threat (Parks Canada Agency, 2010a).	2018
Deerberry	8	Continue to work with private landowner to identify and mitigate threats to non-park population.	Maintain partnership with single landowner of the only private population in the country to mitigate threats to Deerberry as needed.	Deerberry population on private land remains healthy and viable.	Continue to work with private landowner on stewardship of non-park population (Parks Canada Agency, 2010a).	Ongoing

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed	Timeline
Deerberry	9	Re-route trails away from Deerberry populations on West Grenadier Island and enforce closure of a portion of the trail.	Closure of the portion of West Grenadier trail that runs through Deerberry population by fall 2014.	Sign erected to close portion of trail.	Plan and effect re-routing of trails away from Deerberry populations (Parks Canada Agency, 2010a).	Re-route by 2015, enforcement ongoing.
Deerberry	10	Collaborate with agencies in the USA to obtain more information on New York populations.	List of known locations and sizes of NY populations by 2018.	Data obtained by 2018.	Collaborate with agencies in the USA to obtain more information on New York populations (Parks Canada Agency, 2010a).	2018
Five-lined Skink	11	Increase number of cover objects on Fitzsimmons Mountain.	Microhabitat restored on Fitzsimmons Mountain by Winter 2014.	An increase in number of cover objects, percent cover and number of skinks on Fitzsimmons Mountain rock barren	Maintain, and if possible, increase the amount of habitat and microhabitat available for Five-lined Skinks (Environment Canada, 2013a).	2016
Five-lined Skink	12	Monitor effects of new Landon Bay trail on Five-lined Skink.	Monitor usage and potential impacts of new trail at Landon Bay after opening in order to respond to any increased threats to the skinks.	Potential effects on skinks recorded.	Conduct threat analysis (recreation) at priority sites across the range of the population (Environment Canada, 2013a).	Two years after the Landon Bay trail opens.

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed	Timeline
CROSS-COMMUNITY						
Blanding's Turtle, Five-lined Skink, Gray Ratsnake	13	Enforce and increase awareness of poaching consequences (including sharing information with partners).	Law enforcement involved in regulating potential poaching threats, and messaging provided regarding consequences of poaching.	Enforcement officers involved when needed and messaging provided to partners and the public.	Ensure existing laws and regulations are being enforced and raise awareness to reduce collecting (Environment Canada, 2014c); Promote compliance with existing legislation (Environment Canada, 2013a).	Ongoing
ALL	14	Ensure provincial departments, conservation authorities and municipal governments are aware of SAR hotspots for consideration in official land-use plans. Provide input into development proposals that are referred by the Cataraqui Region Conservation Authority.	Share observations and sensitive habitat locations with conservation partners.	Annual updates to species at risk database with any priority observations (new area, very vulnerable species, non-park land sensitive to development) reported directly to Ontario Ministry of Natural Resources SAR biologists.	Encourage the submission of all records for all turtle species to the province (Environment Canada, 2014b, 2014c, 2014d).	Ongoing

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed	Timeline
ALL	15	Work with partners to promote the protection of key species dispersal habitats. Work in partnership with the Leeds and Grenville Stewardship Council on issues related to gray ratsnake outreach and species at risk protection.	All partners consider landscape ecology in SAR decisions.	Attend partner meetings, keep key partners involved in park species at risk planning. Provide advice on initiatives.	Promote protection of high ranking habitat parcels or networks through partners (municipalities, The Nature Conservancy of Canada, Ontario Parks, stewardship councils) and initiate acquisition, agreements, easements, etc. (Kraus et al., 2010).	Ongoing

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Table 4: Other recovery measures that will be encouraged through partnerships or when additional resources become available.

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
WETLAND COMMUNITY					
All Turtles	16	Continue investigating Thousand Islands Parkway turtle mortality hot spots and mitigations. Participate in partner led road mortality mitigation projects on the Thousand Islands Parkway and Highway 401.	Clearly understand where (or if) there are priority locations to invest in road mortality mitigation.	Report produced with hotspots identified.	Identify areas with high road mortality rates and implement mitigation approaches (Environment Canada, 2014b, 2014c, 2014d).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
All Turtles	17	Public outreach to help reduce road mortality.	Reduce turtle road mortality.	Outreach delivered to all park visitors.	Identify areas with high road mortality rates. Develop, assess, and where feasible, implement appropriate mitigation approaches (e.g., eco-passages across roads) to reduce mortality in these areas (Environment Canada, 2014b, 2014c, 2014d).
All Turtles	18	Work with St. Lawrence Parks Commission to ensure Thousand Islands Parkway shoulders aren't tilled after turtle eggs are laid.	Destruction of turtle eggs due to tilling stopped.	Shoulder tilling guidelines implemented.	Develop and share, or use existing (and improve, if needed), beneficial management practices (BMPs) for the general public, landowners, land managers, and industry (Environment Canada, 2014b, 2014c, 2014d).
All Turtles	19	Work with partners to mitigate turtle by-catch mortality in commercial fishing nets.	Reduce number of turtles killed in fishing nets	Successful net mortality mitigations developed and implemented in all wetlands (and riverine environments) that TINP turtle populations use at any point in their life cycle.	Where feasible, employ techniques to reduce turtle mortality from accidental fishing bycatch (Environment Canada, 2014b, 2014c, 2014d).
All Turtles	20	Provide turtle safety messaging to boaters around Central Grenadier and Mallorytown Landing.	Promote awareness and reduce turtle mortality around docking areas.	Species at risk warning and interpretation signs installed at Central Grenadier and Mallorytown Landing and interpreters include turtles as regular messaging to visitors.	Identify areas with high rates of mortality from motorboats. Develop, assess, and, where feasible, implement appropriate mitigation approaches to reduce mortality in these areas (Environment Canada, 2014b, 2014c, 2014d).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Coastal Wetland Community	21	Assess viability of conducting hemi-marsh restoration in the Jones Creek wetland complex.	(1) Determine the viability/desirability of restoration; (2) If criteria are met, complete hemi-marsh restoration.	Completion of viability assessment and increase in amount of hemi-marsh in Jones Creek after restoration.	Investigate the feasibility and effectiveness of different techniques for maintaining and creating open wetland areas, including prescribed burns or other artificial disturbance, within the Canadian range of Swamp Rose-mallow; Implement the appropriate techniques where feasible (Environment Canada, 2013b).
Coastal Wetland Community	22	Work with partners to assess the viability of conducting hemi-marsh restoration in west portion of Thompson Bay (an important component of the Grenadier Island wetland complex)	(1) Determine the viability/desirability of restoration; (2) If criteria are met and partner support is available, complete hemi-marsh restoration.	Completion of viability assessment and increase in amount of hemi-marsh in Thompson Bay after restoration	Investigate the feasibility and effectiveness of different techniques for maintaining and creating open wetland areas, including prescribed burns or other artificial disturbance, within the Canadian range of Swamp Rose-mallow; Implement the appropriate techniques where feasible (Environment Canada, 2013b).
Eastern Musk Turtle	23	Complete Eastern Musk Turtle inventory around TINP lands in Mallorytown Landing.	Distribution of musk turtles known in Mallorytown Landing.	Data collected and sent to the NHIC.	Collect population, habitat and threat data to monitor turtles (Environment Canada, 2014d).
Least Bittern	24	Survey Skoryna property wetland and re-survey park wetlands to determine/confirm Least Bittern status	Least Bittern distribution in the park determined.	Skoryna survey completed and other priority park wetlands re-surveyed for Least Bittern.	Conduct surveys and habitat assessments at priority sites as per Least Bittern recovery strategy (Environment Canada, 2011).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Swamp Rose-mallow	25	Complete full Swamp Rose-mallow inventory of south and southwest shorelines of Main Duck Island.	Swamp Rose-mallow distribution known for Main Duck Island.	Data collected and sent to the NHIC.	Assess and monitor the distribution and habitat, population sizes and trends of Swamp Rose-mallow (Environment Canada, 2013b).
Bridle Shiner, Pugnose Shiner and Grass Pickerel	26	Cooperate with OMNR, DFO and university partners to survey Jones Creek complex, Brooker's Creek, Adelaide Island, east Hill Island, Skoryna, Escott Rd. and Polly Creek pond for Bridle Shiner, Pugnose Shiner and Grass Pickerel.	Park distribution of species at risk fish determined.	Completion of survey at all seven wetlands and data shared with the NHIC.	Conduct targeted surveys at new, suspected, and historic locations (Beauchamp et al., 2012; Fisheries and Oceans Canada, 2012) with advice from DFO.
Coastal Wetland Community	27	Retain TINP forest and wetlands adjacent to important TINP wetlands with known Blanding's Turtle, Eastern Musk Turtle and Least Bittern observations and work with partners/landowners to promote forest/wetland retention in these adjacent areas.	Ensure suitable terrestrial habitat for wetland species at risk.	Meet thresholds for adequate habitat (Zorn, 2012) for each park management planning cycle. For adjacent lands: locations and corresponding landowners/partners identified and communicated with.	Protect areas large enough to maintain viable populations and increase connectivity (Environment Canada, 2011, 2014c, 2014d).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Blanding's Turtle	28	Create turtle-friendly eco-passage under County Road 5 near Polly Creek (initiate by getting involved in culvert planning process).	Reduce turtle road mortality.	Become involved in culvert planning process; eco-passage under County Road 5 created.	Identify areas with high road mortality rates. Develop, assess, and, where feasible, implement appropriate mitigation approaches (e.g., eco-passages across roads) to reduce mortality in these areas (Environment Canada, 2014c).
Blanding's Turtle	29	Communicate with landowners adjacent to TINP to promote stewardship and nest protection.	Landowners protect turtles and turtle habitat.	Ongoing messaging to priority landowners adjacent to TINP.	Identify areas with high rates of nest predation and employ, where feasible and with appropriate permits in place, known techniques to protect nests and reduce predation (Environment Canada, 2014c).
Swamp Rose-mallow	30	Augment Swamp Rose-mallow population to self-sustaining, genetically viable level if feasible.	Increase population to self-sustaining, genetically viable level as determined by genetic testing and life history traits.	Feasibility of population augmentation determined and population augmented	N/A
FOREST COMMUNITY					

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Butternut	31	Complete canker and site condition surveys for all known park Butternut, collect seeds from potentially resistant trees and share any data about canker-resistant trees or identify sites that promote localized recruitment / canker resistance to Butternut working group.	Create seed bank of any canker-resistant trees in the park.	Percentage of trees inspected for canker.	Locate and monitor putatively resistant trees; Coordinate a seed collection program from resistant trees; Store backup seed/germplasm of resistant trees (Environment Canada, 2010).
Deerberry	32	Collaborate with the Frontenac Arch Biosphere Reserve, St. Lawrence Parks Commission, and Niagara Parks Commission to identify and protect potential habitat for species dispersal.	Ensure habitat exists to support future Deerberry populations.	Suitable habitat identified and protected on lands adjacent to the park.	Incorporate restoration of Deerberry into oak forest/savanna restoration measures being done by the Niagara Parks Commission (Parks Canada, 2010a).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Deerberry	33	Work with partners to determine conditions required for successful seedling establishment and habitat maintenance including the effect of fire, life history traits, pollination, and dispersal vectors.	Effectively manage habitat for Deerberry within the park.	Research measures identified in Deerberry restoration strategy have been initiated.	Collect and cultivate a stock of cuttings and seeds from the two regions (underway); Continue to develop and improve a habitat model for Deerberry incorporating fire history and other life history and landscape variables as they become available (Parks Canada, 2010a).
Five-lined Skink	34	Finish previously initiated Five-lined Skink habitat suitability index and complete inventory on all new suitable properties to determine distribution in the park.	Determine occupancy of suitable habitat in the park.	Habitat suitability index and park inventory completed.	Conduct surveys for Five-lined Skinks at priority sites along with studies of habitat use, typical movements and dispersal abilities in order to obtain better population-level data and to identify which element occurrences are viable (Environment Canada, 2013b).
Five-lined Skink	35	Work with researchers to identify TINP skink population dynamics, including population inventory, viability (numbers) and connections between different observations.	Learn about Five-lined Skinks in the area to determine the best ways to protect and recover populations.	(1) Inventories completed. (2) Population viability assessments developed. (3) Understanding of connections between park populations developed.	Conduct surveys for Five-lined Skinks at priority sites along with studies of habitat use, typical movements and dispersal abilities in order to obtain better population-level data and to identify which element occurrences are viable (Environment Canada, 2013b).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Five-lined Skink	36	Assess state of currently occupied habitats and determine if it is necessary to re-introduce fire/stop succession in priority habitats.	Determine if disturbance restorations are necessary for park populations.	Best management practices developed for skink habitat.	Develop and implement habitat conservation guideline (Environment Canada, 2013b).
Gray Ratsnake	37	Conduct telemetry studies on mainland properties to identify new hibernacula sites.	Identification of all hibernacula on mainland properties.	Data recorded and shared with the NHIC.	Clarify essential habitat features associated with specific life history stages (Kraus et al. 2010).
Gray Ratsnake	38	Work with partners to determine the location of and maintain/improve connectivity between adjacent hibernacula where juvenile recruitment is necessary to sustain TINP populations (Including U.S. populations - namely Wellesley Island).	With the help of partners ensure the maintenance of and connectivity with hibernacula adjacent to park properties.	Maintenance of ongoing relationship with partners to share information about populations and best management practices.	Determine how genetic connectivity among sub-populations is maintained. This includes the relative importance of different mechanisms such as juvenile dispersal, adult dispersal and multiple paternity (Kraus et al. 2010). Promote protection of high ranking habitat parcels or networks through partners (municipalities, The Nature Conservancy of Canada, Ontario Parks, Stewardship Councils) and initiate acquisition, agreements, easements, etc. (Kraus et al. 2010).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Gray Ratsnake	39	Work with partners to protect broad corridors that facilitate long- and short-term genetic linkages within the Frontenac Arch population.	Important corridors for ratsnakes are maintained for the Frontenac Arch population (either through partner acquisition, appropriate land-use planning or private owner stewardship).	Land-use planning, private owner stewardship or partner acquisitions are considering ratsnakes and helping protect corridors.	Promote protection of high ranking habitat parcels or networks through partners (municipalities, The Nature Conservancy of Canada, Ontario Parks, Stewardship Councils) and initiate acquisition, agreements, easements, etc. (Kraus et al. 2010).
Gray Ratsnake	40	Make priority property acquisitions to connect more hibernacula or work with other partners (e.g., land trusts) to protect key linkages.	Acquire lands to add to the park that could help recovery of ratsnakes.	Lands that will help with ratsnake recovery efforts are acquired when opportunities arise.	Promote protection of high ranking habitat parcels or networks through partners (municipalities, The Nature Conservancy of Canada, Thousand Islands Watershed Land Trust, Ontario Parks, Stewardship Councils) and initiate acquisition, agreements, easements, etc. (Kraus et al. 2010).
Gray Ratsnake	41	Work with partners to improve the delivery/evaluation of stewardship messaging (including translation of existing partner communication resources).	Improve effectiveness of ratsnake outreach messaging.	Stewardship messaging is improved and evaluated with park partners to provide better support to park and partner communicators.	Develop a communications plan whose target audiences include landowners, land-use planners, natural resource managers and other affected stakeholders (Kraus et al. 2010). Develop strategy for delivery of communication program to appropriate schools, Stewardship Councils, cottage associations, etc. (Kraus et al. 2010). Plan and develop stand-alone resource presentation materials for adult audiences to be used by outreach extension volunteers (Kraus et al. 2010).

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
Gray Ratsnake	42	Provide interpretation (communicate anti-persecution, snake appreciation) messaging to all Thousand Island Ecosystem school visitors to TINP.	Increase respect for snakes among local youth.	Anti-persecution/snake appreciation messaging delivered to all local school groups during visits to the park.	Develop (or improve) and distribute school education kits and lesson plans to schools within the range of Gray Ratsnake and other targeted school districts (Kraus et al. 2010).
CROSS-COMMUNITY					
American Ginseng, Cerulean Warbler, King Rail, Little Brown Myotis, Western Chorus Frog	43	Complete park inventories.	Determine park distributions of species at risk to protect individuals and habitat.	Data recorded and shared with the NHIC.	N/A
Snapping Turtle, Wood Thrush, Eastern Wood Pewee, Barn Swallow, Western Chorus Frog	44	Complete abundance surveys for newly listed <i>still common</i> species to establish a baseline for future restoration efforts.	Establish baseline for species at risk monitoring.	Abundance inventories completed for five species that are still currently common on park properties to provide key baseline information for future work.	N/A

Species	Measure #	Measure	Desired Outcome	How will progress toward the outcome be measured?	Threat or recovery action addressed
ALL	45	As opportunities arise to acquire property adjacent to TINP, focus on property that is important to SAR.	Park is expanded in areas beneficial to SAR.	Species at risk considered in land acquisitions.	Habitat loss, degradation, and modification (Environment Canada, 2010, 2011; Fisheries and Oceans Canada, 2012; Parks Canada Agency, 2011).
ALL	46	Incorporate Aboriginal Traditional Knowledge into Species at Risk recovery, planning, and action.	Incorporation of ATK into Species at Risk recovery at Thousand Islands National Park,	<ol style="list-style-type: none"> 1. Developing traditional knowledge fact sheets for SARA species that are in the Park. 2. Developing the content and format for these worksheets by holding a joint workshop. 3. Developing habitat suitability models or similar information products. 	N/A

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3. Critical Habitat

Critical habitat is “the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species” (SARA s.2(1)). As of August 2014, it is not possible to identify any additional critical habitat in the park. Critical habitat has already been identified in the park in recovery strategies for Deerberry and the Pugnose Shiner and more will be identified in the future when possible (Table 5). Where critical habitat identification is not complete, it will be identified in an upcoming or revised action plan or revised recovery strategy; refer to the schedule of studies in relevant recovery strategies for further details.

Table 5: Status of critical habitat identification in Thousand Islands National Park

Species with a final recovery strategy on the SAR Public Registry	Critical habitat identified in the recovery strategy?	Is critical habitat identification complete?	Will new critical habitat be identified in this action plan? How much currently exists in the park?
American Water-willow	Yes	Yes. Critical habitat has been identified for all extant populations.	No. It is already identified. None occurs inside the park.
Butternut	No	No. Critical habitat has not been identified for the species yet.	No. Information is not available to identify critical habitat in this action plan.
Deerberry	Yes	No. The critical habitat identified in the recovery strategy is a partial identification deemed necessary but not sufficient to meet population and distribution objectives.	No. There is no additional information to identify critical habitat at this time. The majority of the identified critical habitat occurs inside the park (>80%).
Pugnose Shiner	Yes	No. The critical habitat identified in the recovery strategy is a partial identification deemed necessary but not sufficient to meet population and distribution objectives.	No. Information is not available to identify additional critical habitat at this time. Very little critical habitat occurs in park waters (<1%).

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3.1 Proposed Measures to Protect Critical Habitat

There is no new critical habitat identified in this action plan. Critical habitat identified in other recovery documents within the Thousand Islands National Park of Canada is legally protected from destruction under section 58(1) of the SARA or through Orders made under subsections 58(4) and 58(5).

4. Evaluation of Socio-Economic Costs and of Benefits

4.1. Socio-Economic Overview

The Species at Risk Act requires the responsible federal minister to undertake “an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation.”

4.2. Costs

The total cost to implement the action plan for years 1-5 is estimated to be less than \$200,000 and will be borne by Parks Canada out of existing salaries and goods and services dollars at TINP. This figure includes incremental salary costs, materials, equipment, and contracting of professional services for measures outlined in Table 3. No major socio-economic costs to partners, stakeholders or Aboriginal groups are expected as a result of this action plan.

4.2.1. Cost to Parks Canada

Many of the proposed measures will be integrated into the operational management of Thousand Islands National Park and there will be few new costs. These costs to the government will be covered by prioritization of existing funds and salary dollars at the site and thereby will not result in additional costs to society.

4.2.2. Socio-economic costs of implementation

The action plan applies only to lands and waters in Thousand Islands National Park, and does not bring any restrictions to land use outside the park. As such, this action plan will place no direct socio-economic costs on the public. However, minor restrictions may be placed on visitor activities on park lands and waters to protect and recover species at risk.

4.3. Benefits

Measures presented in this action plan for Thousand Islands National Park will contribute to meeting recovery strategy objectives for Butternut, Deerberry, Pugnose Shiner, and American Water-willow, and will also contribute to meeting management objectives for Five-lined Skink (*Plestiodon fasciatus*) and Swamp Rose-mallow (*Hibiscus moscheutos*). These measures are expected to have an overall positive impact on ecological integrity and enhance opportunities for appreciation of the park and the species by visitors and the general public. This action plan includes measures that could result in benefits to Canadians, such as positive impacts on biodiversity and

381 the value individuals place on preserving biodiversity (Federal, Provincial, Territorial
382 Governments of Canada, 2014).

383
384 The proposed measures seek a balanced approach to reducing or eliminating threats to
385 species-at-risk populations and habitats, and include protection of individuals and their
386 habitat (e.g., restrictions to human activities within areas occupied by the species,
387 combined with ongoing research and monitoring), potential species re-establishment,
388 and increasing public awareness and stewardship (e.g., signage, visitor programs, and
389 highlights in communication media).

390
391 For Butternut, this action plan will contribute to the recovery objectives of locating and
392 monitoring putatively resistant trees and collecting seeds from potentially resistant trees.
393 Specific measures in this action plan will complete canker surveys for all known
394 Butternut in the park, collect seeds from park trees, and share data with the Butternut
395 working group.

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397 For Deerberry, implementation of this action plan will contribute to the recovery
398 objectives of halting the decline of mature individuals and the number of populations
399 and of maintaining and augmenting (where necessary) two planted populations on
400 Thwartway and Georgina Island in Thousand Islands National Park (and planting two
401 new additional populations, if introductions are deemed feasible). Specific measures in
402 this action plan will enhance the available ecological knowledge of the plants' life
403 history, will reduce impacts from trampling, and will facilitate mapping, assessment and
404 protection of Deerberry habitat in and adjacent to the park.

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406 For the Pugnose Shiner, the measures in this action plan will contribute to the recovery
407 objective of conducting targeted surveys at new, suspected, and historic locations. As
408 well, TINP will be working with DFO to ensure installations of signage related to
409 Pugnose Shiner critical habitat. Specific measures in this action plan will survey
410 numerous locations within park boundaries for Pugnose Shiner.

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412 For American Water-willow, implementation of this action plan will contribute to recovery
413 approaches of engaging landowners and managers in protection of sites that neighbour
414 or harbour American Water-willow populations and enhancing current knowledge of the
415 distribution and abundance of American Water-willow (Parks Canada Agency, 2011).
416 No specific measures in this plan are directly linked to recovery strategies because
417 American Water-willow does not occur on land administered by Parks Canada.
418 However, specific measures to preserve habitat within the park will benefit adjacent
419 American Water-willow habitat and populations.

420
421 For the Five-lined Skink, this action plan will contribute to meeting the management
422 objective of maintaining the distribution and number of viable element occurrences of
423 Five-lined Skink (Great Lakes/St. Lawrence population). Specific measures in this
424 action plan will ensure the maintenance of appropriate habitat for the Landon Bay
425 population.

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427 For Swamp Rose-mallow, this action plan will contribute to meeting the management
428 objective of maintaining the current distribution and area of occupancy of extant Swamp
429 Rose-mallow populations in Canada. Specific measures in this action plan will ensure
430 the maintenance of existing plants on Main Duck Island and will potentially contribute to
431 population augmentation.

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433 Measures described in this plan will also provide benefits for other species of
434 conservation concern that regularly occur in Thousand Islands National Park. These
435 include Gray Ratsnake, Milksnake, Least Bittern, Blanding's Turtle (Great Lakes/St.
436 Lawrence population), Eastern Musk Turtle, Northern Map Turtle, and Snapping Turtle.

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438 Potential economic benefits of the recovery of the species at risk found in Thousand
439 Islands National Park cannot be easily quantified, as many of the values derived from
440 wildlife are non-market commodities that are difficult to appraise in financial terms.
441 Wildlife, in all its forms, has value in and of itself, and is valued by Canadians for
442 aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical,
443 ecological and scientific reasons. The conservation of wildlife at risk is an important
444 component of the Government of Canada's commitment to conserving biological
445 diversity, and is important to Canada's current and future economic and natural wealth.
446 Implementing this action plan is expected to have benefits for park visitors, local
447 residents and Aboriginal groups. These include opportunities to learn about and take
448 part in the recovery of culturally important species at risk, opportunities for visitors, local
449 communities, and Aboriginal groups to be involved in conservation issues in the
450 Thousand Islands ecosystem, and greater awareness of the value of conservation in the
451 region.

452
453 Parks Canada will also seek a Mohawk Council of Akwesasne Scientific Permit for this
454 Action Plan to demonstrate the shared partnership between Parks Canada and the
455 Mohawks of Akwesasne. Where possible, Thousand Islands National Park will
456 incorporate traditional knowledge in the implementation of actions that protect species
457 at risk. This also supports the goals under the Species at Risk Act "*the traditional*
458 *knowledge of the aboriginal peoples of Canada should be considered in the assessment*
459 *of which species may be at risk and in developing and implementing recovery*
460 *measures.*"

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463 **5. Measuring Progress**

464 Reporting on implementation of the action plan (under s. 55 of SARA) will be done by
465 assessing progress towards implementing the measures. Reporting on the ecological
466 impacts of the action plan will be done by assessing progress towards meeting the site-
467 based population and distribution objectives.

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554 **Appendix A: Effects on the Environment and Other Species**

555 A strategic environmental assessment (SEA) is conducted on all SARA recovery
556 planning documents, in accordance with the *Cabinet Directive on the Environmental*
557 *Assessment of Policy, Plan and Program Proposals*. The purpose of a SEA is to
558 incorporate environmental considerations into the development of public policies, plans,
559 and program proposals to support environmentally sound decision-making and to
560 evaluate whether the outcomes of a recovery planning document could affect any
561 component of the environment or achievement of any of the [Federal Sustainable](#)
562 [Development Strategy](#)'s⁷ goals and targets.

563
564 Recovery planning is intended to benefit species at risk and biodiversity in general.
565 However, it is recognized that recovery measures may also inadvertently lead to
566 environmental effects beyond the intended benefits. The planning process, which is
567 based on national guidelines, directly incorporates consideration of all environmental
568 effects, with a particular focus on possible impacts upon non-target species or habitats.
569 The results of the SEA are incorporated directly into the plan itself, and are summarized
570 below.

571
572 Overall, it is anticipated that implementation of this action plan will have a beneficial
573 impact on non-target species, ecological processes, and the environment in Thousand
574 Islands National Park. This plan puts into practice recovery goals presented in recovery
575 strategies already developed for some of the species at risk in this plan, which were
576 subject to SEAs during the development of those documents (Environment Canada,
577 2010, 2011, 2013a, 2013b; Fisheries and Oceans, 2012; Parks Canada, 2010a, 2011).
578 Further, this action plan was developed to benefit all species at risk that regularly occur
579 in Thousand Islands National Park; all of these species were considered in the planning
580 process, any potential secondary effects were considered and mitigated, and where
581 appropriate, measures were designed to benefit multiple species. The planning process
582 was also guided by priorities identified in the park's ecological integrity monitoring
583 program and the park's management plan (Parks Canada Agency, 2010b).
584 Consequently measures outlined in this plan address key management priorities aimed
585 at improving the broader ecological health of the park. Finally, this plan outlines
586 stewardship measures, educational programs, and awareness initiatives that will involve
587 park visitors, local residents, Aboriginal organizations, and the general public. This will
588 lead to greater appreciation, understanding, and action towards the conservation and
589 recovery of species at risk in general.

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⁷ www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1