

DRAFT Government Response Statement
to the
Recovery Strategy for the Eastern Banded Tigersnail in Ontario

1 **Eastern Banded Tigersnail**

2 **Ontario Government Response Statement**

3 **Protecting and Recovering Species at Risk in Ontario**

4 Species at risk recovery is a key part of protecting Ontario's biodiversity. The
5 *Endangered Species Act, 2007* (ESA) is the Government of Ontario's legislative
6 commitment to protecting and recovering species at risk and their habitats.

7 Under the ESA, the Government of Ontario must ensure that a recovery strategy is
8 prepared for each species that is listed as endangered or threatened. A recovery
9 strategy provides science-based advice to government on what is required to achieve
10 recovery of a species.

11 Within nine months after a recovery strategy is prepared, the ESA requires the
12 government to publish a statement summarizing the government's intended actions and
13 priorities in response to the recovery strategy. The response statement is the
14 government's policy response to the scientific advice provided in the recovery strategy.
15 In addition to the strategy, the government response statement considered (where
16 available) input from Indigenous communities and organizations, stakeholders, other
17 jurisdictions, and members of the public. It reflects the best available local and scientific
18 knowledge, including Traditional Ecological Knowledge where it has been shared by
19 communities and Knowledge Holders, as appropriate and may be adapted if new
20 information becomes available. In implementing the actions in the response statement,
21 the ESA allows the government to determine what is feasible, taking into account social,
22 cultural and economic factors.

23 The [Recovery Strategy for the Eastern Banded Tigersnail \(*Anguispira kochi kochi*\) in](#)
24 [Ontario](#) was completed on July 22, 2019.

25 Eastern Banded Tigersnail is a large terrestrial snail that has distinctive dark bands
26 around its yellow-brown shell. The shell has an opening in the centre when viewed from
27 below. The shell size, thickness, colour and visibility of bands can vary.

28 **Protecting and Recovering Eastern Banded Tigersnail**

29 Eastern Banded Tigersnail is listed as an endangered species under the ESA, which
30 protects both the snail and its habitat. The ESA prohibits harm or harassment of the
31 species and damage or destruction of its habitat without authorization. Such

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32 authorization would require that conditions established by the Ontario government be
33 met.

34 Globally, the Eastern Banded Tigersnail occurs in North America, from southwestern
35 Ontario, south to Tennessee, east to Pennsylvania and West to Missouri. In Canada,
36 the species is found in Ontario on Pelee Island and Middle Island in Lake Erie. The
37 species has also been known to occur on Middle Sister Island, East Sister Island, and
38 North Harbour Island and Hen Island in Lake Erie; however, no recent observations
39 have been documented at these locations. The species is presumed to be extirpated
40 from East Sister, Middle Sister and North Harbour islands as suitable habitat no longer
41 remains. Suitable habitat remains on Hen Island; however, this location has not been
42 recently surveyed as access is limited. An unverified record of the species has also
43 been documented near Alvinston (Lambton County).

44 The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) report in
45 2017 estimates the Ontario population to be approximately 800,000 mature individuals.
46 The highest density of the species (measured in 2018) was found at the Fish Point
47 Provincial Nature Reserve on Pelee Island, which has a much higher abundance
48 compared to all other sites.

49 Eastern Banded Tigersnail is an air-breathing, egg-laying terrestrial snail that possesses
50 both male and female reproductive organs. Very little is known about the biology,
51 genetics, and habitat requirements of the Eastern Banded Tigersnail in Canada. Based
52 on related gastropods, it can be assumed that sexual maturity is reached after two to
53 three years and their lifespan is up to 10 years. Mating likely occurs multiple times per
54 year and eggs are deposited in shallow holes excavated in moist soil.

55 The species is found in moist forest environments with substantial leaf litter, decaying
56 logs, and rich soil suitable for hibernation, aestivation (dormancy) and egg-laying.
57 Information on home range size, dispersal ability and key habitat use requires further
58 investigation.

59 Threats to Eastern Banded Tigersnail are poorly understood. Climate change may be a
60 significant threat as the species has low tolerance to fluctuating environmental
61 conditions. The risk of extreme temperatures resulting in spring frost are a threat at all
62 sites. Double-crested Cormorants (*Phalacrocorax auritus*) are presumed to be the main
63 reason for the extirpation of Eastern Banded Tigersnail on Middle Sister and East Sister
64 islands and have decreased the amount of available forest habitat on Middle Island.
65 Invasive species such as Garlic Mustard (*Alliaria petiolata*), non-native earthworm (e.g.,
66 genus *Amyntas*) and other gastropod species such as Dusky Arion (*Arion subfuscus*),

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67 Grovesnail (*Cepaea nemoralis*), Orange-banded Arion (*Arion fasciatus*), and Grey
68 Fieldslug (*Deroceras reticulatum*) may also negatively affect native snail populations by
69 altering the soil composition, reducing the leaf litter layer and competing for habitat and
70 food resources. Prescribed burns occur in the species' habitat and this management
71 tool may directly and indirectly affect the survival of Eastern Banded Tigersnail by
72 modifying the litter layer and changing the soil conditions following burns. Further
73 research is required to determine the extent and severity of these threats and how they
74 can be mitigated. Other threats may include predation by Wild Turkeys (*Meleagris*
75 *gallopavo silvestris*), trail development and widening from recreational use on Pelee
76 Island, barriers to dispersal (roads and service corridors), and pollution.

77 The species is limited by its low tolerance to fluctuating temperature and humidity and
78 heavily relies on moist refuges that buffer these fluctuations. The species is also limited
79 by its low dispersal ability and is unlikely to colonize new areas as current habitat
80 patches are severely fragmented.

81 Given the limited distribution of Eastern Banded Tigersnail in Ontario and that the
82 knowledge gaps associated with the species' life history, habitat use, interspecific
83 interactions and threats are substantial, the government will focus efforts on maintaining
84 and enhancing habitat to improve connectivity and increasing our knowledge of the
85 species including its distribution, biology, habitat requirements and threats.

86 **Government's Recovery Goal**

87 The government's goal for the recovery of Eastern Banded Tigersnail is to maintain the
88 current distribution in existing locations in Ontario by filling knowledge gaps, reducing
89 threats and maintaining and enhancing habitat to improve connectivity.

90 **Actions**

91 Protecting and recovering species at risk is a shared responsibility. No single agency or
92 organization has the knowledge, authority or financial resources to protect and recover
93 all of Ontario's species at risk. Successful recovery requires inter-governmental co-
94 operation and the involvement of many individuals, organizations and communities. In
95 developing the government response statement, the government considered what
96 actions are feasible for the government to lead directly and what actions are feasible for
97 the government to support its conservation partners to undertake.

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99 **Government-led Actions**

100 To help protect and recover Eastern Banded Tigersnail, the government will directly
101 undertake the following actions:

- 102 • Continue to implement the *Ontario Invasive Species Strategic Plan (2012)* to
103 address the invasive species (e.g., garlic mustard) that threaten the Eastern
104 Banded Tigersnail.
- 105 • Continue to monitor and manage provincially protected areas with Eastern
106 Banded Tigersnail in a manner consistent with park management plans (e.g.,
107 Fish Point Provincial Park).
- 108 • Explore taking appropriate management actions in accordance with provincial
109 policy direction on cormorants to support protection and recovery for Eastern
110 Banded Tigersnail.
- 111 • Collaborate with federal partners, such as Parks Canada, Environment and
112 Climate Change Canada and Canadian Wildlife Service to implement protection
113 and recovery actions for Eastern Banded Tigersnail on federal lands.
- 114 • For populations that occur on Pelee Island, explore opportunities to work
115 collaboratively with the Township of Pelee, including the Pelee Island
116 Environmental Advisory Committee, the federal government and local partners to
117 integrate approaches to stewardship, implement recovery actions and explore
118 integrated approaches to managing species at risk.
- 119 • Educate other agencies and authorities involved in planning and environmental
120 assessment processes on the protection requirements under the ESA.
- 121 • Encourage the submission of Eastern Banded Tigersnail data to the Ontario's
122 central repository through the citizen science projects that they receive data from
123 (i.e., iNaturalist.ca) and directly through the [Natural Heritage Information Centre](#).
- 124 • Undertake communications and outreach to increase public awareness of
125 species at risk in Ontario.
- 126 • Continue to protect Eastern Banded Tigersnail and its habitat through the ESA.
- 127 • Support conservation, agency, municipal and industry partners, and Indigenous
128 communities and organizations to undertake activities to protect and recover

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129 Eastern Banded Tigersnail. Support will be provided where appropriate through
130 funding, agreements, permits (including conditions) and/or advisory services.

131 • Encourage collaboration, and establish and communicate annual priority actions
132 for government support in order to reduce duplication of efforts.

133 • Conduct a review of progress toward the protection and recovery of Eastern
134 Banded Tigersnail within five years of the publication of this document.

135 **Government-supported Actions**

136 The government endorses the following actions as being necessary for the protection
137 and recovery of Eastern Banded Tigersnail. Actions identified as “high” may be given
138 priority consideration for funding under the Species at Risk Stewardship Program.
139 Where reasonable, the government will also consider the priority assigned to these
140 actions when reviewing and issuing authorizations under the ESA. Other organizations
141 are encouraged to consider these priorities when developing projects or mitigation plans
142 related to species at risk.

143 Focus Area:	Research and Monitoring
144 Objective:	Increase knowledge of Eastern Banded Tigersnail distribution in 145 Ontario, improve knowledge of species biology, their habitat and 146 site-specific threats.

147 Standardized surveys and monitoring will improve our knowledge of the distribution of
148 Eastern Banded Tigersnail. Monitoring their status, habitat conditions and site-specific
149 threats will help fill knowledge gaps and inform future recovery efforts. In addition,
150 further understanding of species biology such as dispersal ability, life history, and
151 genetics is required to support protection and management of the species and its
152 habitat. Additional research is also needed to identify the extent and severity of the
153 impact of climate change and invasive species, to help inform appropriate management
154 actions.

155 **Actions:**

- 156 1. **(High)** Develop, implement and promote a standardized survey
157 and monitoring protocol throughout the species’ known range in
158 Ontario. Identification material should be included to accurately
159 distinguish the species from other snails. Survey and monitoring
160 activities should document and monitor:
- 161 ○ species presence/absence;
 - 162 ○ species abundance;
 - 163 ○ habitat use and conditions; and,

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- 164 ○ site-specific threats.
- 165 2. **(High)** Conduct research to improve knowledge on Eastern
166 Banded Tigersnail biology, ecology, and habitat such as:
- 167 ○ habitat requirements;
- 168 ○ dispersal ability and home range size;
- 169 ○ life history and genetics;
- 170 ○ adaptive strategies (e.g., reproduction, feeding,
171 dispersal) in response to changing climatic conditions;
172 and,
- 173 ○ the interaction of Eastern Banded Tigersnail with non-
174 native terrestrial gastropods.
- 175 3. Conduct surveys in suitable habitat to determine whether there
176 are unknown populations of Eastern Banded Tigersnail.
- 177 4. Investigate the effects and severity of known and potential
178 threats to Eastern Banded Tigersnail and identify potential
179 mitigation measures as appropriate, which may include:
- 180 ○ investigating the potential effects of climate change on
181 the species and its habitat and options for mitigation
182 (e.g., refuge areas and other habitat enhancement
183 measures);
- 184 ○ examining the potential effects of Double-crested
185 Cormorants and Wild Turkeys on the species and/or their
186 habitat; and,
- 187 ○ investigating the species' response to habitat
188 management actions (e.g., prescribed burns, mechanical
189 vegetation removal).

190	Focus Area:	Habitat and Threat Management
191	Objective:	Maintain and improve the habitat for Eastern Banded Tigersnail and
192		increase the level public awareness and engagement in protecting
193		and recovering the species.

194 The Eastern Banded Tigersnail may be impacted by several threats including climate
195 change, invasive species, predation, recreational activities (e.g., trail development), and
196 pollution. As knowledge gaps are being filled on the extent and severity of these threats,
197 management efforts should be focused on maintaining or enhancing habitat and
198 minimizing threats to support the protection and recovery of this species.

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199 On Pelee Island, Eastern Banded Tigersnail is located within protected areas.
200 Conservation organizations and local partners have been actively involved in the
201 ongoing maintenance and restoration of these areas (e.g., prescribed burns) to support
202 multiple species at risk. In addition, many private landowners have undertaken efforts to
203 preserve natural habitat on the island. As prescribed burns may impact Eastern
204 Banded Tigersnail, working collaboratively on these efforts will promote the protection
205 and recovery of this species.

206 **Actions:**

- 207 5. **(High)** Work collaboratively with municipalities, conservation
208 partners, land owners and land managers to mitigate threats
209 and develop, implement and evaluate management plans to
210 maintain and/or improve the quality of Eastern Banded
211 Tigersnail habitat. Actions may include:
- 212 ○ identifying opportunities for habitat restoration and/or
213 enhancement including creating refuge areas and
214 encouraging connectivity, where there are willing
215 partners;
 - 216 ○ applying appropriate techniques informed by research to
217 remove invasive plants (e.g., garlic mustard) if posing a
218 direct threat to the species and monitoring success of
219 management actions at identified sites;
 - 220 ○ minimizing impacts from human-caused disturbances
221 (e.g., recreational trail use); and,
 - 222 ○ working with partners to minimize the impacts of
223 prescribed burns taking place in Eastern Banded
224 Tigersnail habitat.

225 Focus Area:	Stewardship and Outreach
226 Objective:	Increase the level public awareness and engagement in protecting 227 and recovering the species.

228 Increasing public awareness of this species and encouraging participation in
229 management will also contribute towards recovery efforts. Involvement of volunteers
230 including species experts, naturalists and land stewards should also be encouraged to
231 maximize efforts.

- 232 6. Engage volunteers to participate in surveys for this species to
233 determine its presence or absence using citizen science
234 programs (e.g., iNaturalist).

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- 235 7. Develop education and outreach material to promote the
236 awareness of the species at existing locations. Information
237 should include:
- 238 ○ how to identify the species;
 - 239 ○ the species' habitat requirements;
 - 240 ○ protection afforded to the species and its habitat under
241 the ESA; and,
 - 242 ○ actions that can be taken to avoid or minimize impacts to
243 the species and its habitat including preventing garbage
244 dumping and trampling.

245 **Implementing Actions**

246 Financial support for the implementation of actions may be available through the
247 Species at Risk Stewardship Program. Conservation partners are encouraged to
248 discuss project proposals related to the actions in this response statement with Ministry
249 of the Environment, Conservation and Parks staff. The Ontario government can also
250 advise if any authorizations under the ESA or other legislation may be required to
251 undertake the project.

252 Implementation of the actions may be subject to changing priorities across the multitude
253 of species at risk, available resources and the capacity of partners to undertake
254 recovery activities. Where appropriate, the implementation of actions for multiple
255 species will be co-ordinated across government response statements.

256 **Reviewing Progress**

257 The ESA requires the Ontario government to conduct a review of progress towards
258 protecting and recovering a species no later than the time specified in the species'
259 government response statement, or not later than five years after the government
260 response statement is published if no time is specified. The review will help identify if
261 adjustments are needed to achieve the protection and recovery of Eastern Banded
262 Tigersnail.
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264 **Acknowledgement**

265 We would like to thank all those who participated in the development of the Recovery
266 Strategy for the Eastern Banded Tigersnail (*Anguispira kochi kochi*) in Ontario for their
267 dedication to protecting and recovering species at risk.

268

269 **For Additional Information:**

270 Visit the species at risk website at ontario.ca/speciesatrisk

271 Contact the Ministry of the Environment, Conservation and Parks

272 1-800-565-4923

273 TTY 1-855-515-2759

274 www.ontario.ca/environment

275