

DRAFT Government Response Statement
to
Recovery Strategies for the Black Redhorse and Silver Shiner in Ontario

1 **Black Redhorse and Silver Shiner**
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 Ontario government’s legislative
6 commitment to protecting and recovering species at risk and their habitats.

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

11 Generally, within nine months after a recovery strategy is prepared, the ESA requires
12 the government to publish a statement summarizing the government’s intended actions
13 and 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 considers (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 Indigenous Knowledge where it has been shared by communities
19 and Knowledge Holders, as appropriate, and may be adapted if new information
20 becomes available. In implementing the actions in the response statement, the ESA
21 allows the government to determine what is feasible, taking into account social, cultural
22 and economic factors.

23 The Recovery Strategy for the Black Redhorse (*Moxostoma duquesnei*) in Ontario and
24 the Recovery Strategy for Silver Shiner (*Notropis photogenis*) in Ontario were
25 completed on July 12, 2023. Given their common threats and similar distributions the
26 recovery efforts for these two species are being addressed collectively in a single
27 government response statement.

28 Black Redhorse is a medium-sized fish that averages 40 cm in length. It is olive, gold, or
29 brassy on the back and sides, and silver or white underneath. It has a downward-facing
30 sucker mouth, and lower fins which are often pale red or orange.

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31 Silver Shiner is a relatively large minnow that can grow to about 14 cm long. It is silvery
32 overall with a dark stripe down the centre of the back, and has a long snout with two
33 black crescents between the nostrils.

34 **Protecting and Recovering Black Redhorse and Silver Shiner**

35 Black Redhorse and Silver Shiner are listed as threatened species under the ESA,
36 which protects both the animals and their habitats. The ESA prohibits harm or
37 harassment of the species and damage or destruction of its habitat without authorization
38 or complying with the requirements of a regulatory exemption.

39 Black Redhorse occurs only in eastern North America. Its range extends from
40 southwestern Ontario and New York south to northern Alabama in the east, and from
41 southeastern Minnesota south to eastern Oklahoma in the west. Its distribution is
42 particularly disjunct (geographically separated) in the western portion of its range. In
43 Canada, Black Redhorse is restricted to southwestern Ontario, which represents the
44 northern-most limit of its global distribution. It is found in tributaries of Lake Huron
45 (Sauble, Saugeen, Maitland, Bayfield, and Ausable rivers), Lake St. Clair (Thames
46 River and numerous tributaries), and Lake Erie (Grand River and some tributaries).
47 Black Redhorse has not been recorded in the Lower Thames River since 2003, which
48 could indicate a range reduction, but may also be due to a lack of recent sampling.
49 Recent collections at two sites where the species had not previously been detected (Big
50 Creek and Four Wells Lake) raise the possibility of a range expansion in the Grand
51 River watershed. Single individuals collected from Lake Simcoe and Spencer Creek
52 (Lake Ontario tributary) are thought to be the result of accidental introductions, and a
53 single individual from Gully Creek is thought to be a transient from a larger Lake Huron
54 tributary population. Black Redhorse is believed to be extirpated from Catfish Creek
55 (Lake Erie tributary).

56 Silver Shiner has a similar global distribution, ranging from southwestern New York
57 south to North Carolina in the east, and from southeastern Michigan and southwestern
58 Ontario south to northern Georgia and Alabama in the west. The Canadian range is
59 limited to southern Ontario, in the tributaries of Lake Huron (Saugeen and North
60 Saugeen rivers), Lake St. Clair (Thames River and its tributaries), Lake Erie (Grand
61 River and some tributaries) and Lake Ontario (Bronte and Sixteen Mile creeks). Silver
62 Shiner was only recently detected at single sites in the Saugeen and North Saugeen
63 rivers. Additional surveys are required to determine its status and extent within these
64 watercourses. Possible Silver Shiner records from the Hamilton area (Lake Ontario)
65 remain unverified and require confirmation through targeted surveys. Some locations –
66 including Fanshawe Lake (Thames River tributary), Laurel, Schneider, Silver, and

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67 Whitemans creeks and the Speed River (Grand River tributaries) – may be considered
68 historical as Silver Shiner has not been observed in those areas in more than 30 years.

69 Black Redhorse is found in medium-sized rivers with clear, warm water and moderate to
70 fast flows. It is most often associated with clean, coarse bed material (gravel and
71 cobble) in wider stretches of river with stable channels and well-developed pools. Black
72 Redhorse is less tolerant of turbidity (cloudiness) and siltation than other Redhorse
73 species found in Ontario. In spring, adult Black Redhorse migrate upstream to spawn.
74 Spawning occurs most often in shallow riffles over substrates ranging from fine gravel to
75 cobble. During spawning, Black Redhorse tend to avoid higher flow rates and may
76 abandon previously used spawning shoals during increased stream flows. The species
77 may be naturally limited by its restrictive spawning habitat preferences. Upon hatching,
78 larval Black Redhorse possess a yolk-sac which provides them with nutrition until they
79 are able to begin feeding on their own. They remain at spawning sites until the yolk-sac
80 is absorbed, then disperse to nursery habitat which consists of shallow near shore
81 areas with vegetation and mud, silt and sand substrates, or shallow pools and areas
82 with slower currents. Both larval and juvenile Black Redhorse demonstrate a preference
83 for pools and backwater areas, though they have sometimes been observed in areas of
84 faster current. Aggregations of juvenile Black Redhorse in areas of groundwater influx in
85 the Grand River may suggest the importance of such areas as refuge from poor water
86 quality and temperature conditions.

87 Silver Shiner is found in medium to large streams and rivers with moderate to fast flows.
88 It is associated with alternating riffles and pools or turbulent areas below dams, and
89 demonstrates a preference for sand and gravel substrates. The species appears to
90 avoid shallow areas with a steep channel slope, demonstrating a preference for higher
91 average water depths. Silver Shiner has been found in both clear and turbid (murky)
92 waters, suggesting it may have some tolerance for higher levels of suspended solids. Its
93 thermal preferences are unknown. Spawning habitat for Silver Shiner is poorly
94 understood, though there is some evidence that spawning occurs in relatively deep
95 riffles in habitat similar to that used by other shiners (*Luxilus* species) and chubs
96 (*Nocomis* species). Spawning in Ontario is thought to occur from early May to early
97 June. There is little information available on habitat needs of larval and young-of-year
98 Silver Shiner, but they have been reported in areas with slower currents and warmer
99 waters than those preferred by adults. Similar to Black Redhorse, Silver Shiner has
100 been observed in areas influenced by groundwater seepage. Additionally, terrestrial
101 insect species have been reported as a prey source for Silver Shiner, suggesting
102 riparian (streamside) vegetation may be an important habitat feature.

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103 The primary threat to Black Redhorse and Silver Shiner is poor water quality from
104 pollution and siltation. Lands surrounding the species' habitat are primarily agricultural
105 and urban areas where practices such as removal of riparian areas, unrestricted
106 livestock access to rivers, improper use of fertilizers and pesticides, and substandard
107 septic and sewage treatment systems can contribute to sedimentation and nutrient
108 loading. These contaminants may impact reproduction, behaviour, resistance to
109 pathogens and embryo development. However, species-specific tolerances for Black
110 Redhorse and Silver Shiner are not well understood and require further study.

111 Modifications to natural systems, such as dams, represent a threat to Black Redhorse
112 and Silver Shiner as they impact flow regimes, water temperature, material cycling and
113 other important habitat characteristics. Dams, as well as improperly designed and
114 installed culverts, may also create barriers to movement that limit access to habitat and
115 restrict connectivity of populations, though further research is required to better
116 understand impacts to the two species. Similarly, threats from non-native and invasive
117 species (e.g. invasive carps, Sea Lamprey, Round Goby, dreissenid mussels) are
118 presumed but require further investigation.

119 Significant knowledge gaps remain for Black Redhorse and Silver Shiner related to
120 habitat needs, life history, population dynamics and threats. Population demographics of
121 both species are poorly characterized in Ontario, preventing the identification of
122 quantifiable population and distribution objectives. Consistent, targeted sampling and
123 improvements in species identification are required to fill this knowledge gap. Research
124 to identify habitat needs – particularly for Silver Shiner – as well as threats and
125 thresholds of tolerance for both species, are necessary to prioritize recovery efforts and
126 refine objectives.

127 **Government's Recovery Goal**

128 The government's goal for the recovery of Black Redhorse and Silver Shiner is to
129 stabilize or increase existing populations, and to maintain or increase the species'
130 distributions within their natural ranges in Ontario.

131 **Actions**

132 Protecting and recovering species at risk is a shared responsibility. No single agency or
133 organization has the knowledge, authority or financial resources to protect and recover
134 all of Ontario's species at risk. Successful recovery requires inter-governmental co-
135 operation and the involvement of many individuals, organizations and communities. In
136 developing the government response statement, the government considered what

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137 actions are feasible for the government to lead directly and what actions are feasible for
138 the government to support its conservation partners to undertake.

139 **Government-led Actions**

140 To help protect and recover Black Redhorse and Silver Shiner, the government will
141 directly undertake the following actions:

- 142 • Continue to protect Black Redhorse and Silver Shiner and their habitat through
143 the ESA.
- 144 • Undertake communications and outreach to increase public awareness of
145 species at risk in Ontario (e.g., through the Ontario Parks Discovery Program,
146 where appropriate).
- 147 • Continue to monitor Silver Shiner populations and mitigate threats to the species
148 and its habitat (e.g. remove barriers and implement bank stabilization measures)
149 in provincially protected areas, where feasible and appropriate.
- 150 • Educate other agencies and authorities involved in planning and environmental
151 assessment processes on the protection requirements under the ESA.
- 152 • Encourage the submission of Black Redhorse and Silver Shiner data to Ontario's
153 central repository through the [NHIC \(Rare species of Ontario\) project in](#)
154 [iNaturalist](#) or directly through the [Natural Heritage Information Centre](#).
- 155 • Continue to support conservation, agency, municipal and industry partners, and
156 Indigenous communities and organizations to undertake activities to protect and
157 recover Black Redhorse and Silver Shiner. Support will be provided where
158 appropriate through funding, agreements, permits and/or advisory services.
- 159 • Work with all levels of government, communities and sectors to take action on
160 climate change, and to report on progress in reducing greenhouse gas
161 emissions.
- 162 • Continue to implement Ontario's *Invasive Species Act, 2015* to:
 - 163 ○ prevent the introduction and spread of invasive species (i.e. invasive
164 Carp) that threaten Black Redhorse by applying the prohibitions set out in
165 the Act and as prescribed through the associated Regulations.

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- 166 ○ prevent the introduction and spread of invasive species (e.g. dreissenid
167 mussels) that threaten Black Redhorse and its habitat by requiring boaters
168 to take mandatory precautions to remove aquatic organisms and drain
169 water from watercraft and watercraft equipment prior to transporting
170 overland or launching into any waterbody in Ontario.
- 171 • Continue to implement the Aquatic Invasive Species Regulations made under the
172 federal Fisheries Act, 1985 to control the spread of invasive species that threaten
173 Black Redhorse and Silver Shiner and their habitats by prohibiting the
174 transportation, possession, and release of live Round Goby in Ontario.
- 175 • Continue to implement the Ontario Invasive Species Strategic Plan (2012) to
176 address the invasive species (e.g. dreissenid mussels, Sea Lamprey, Round
177 Goby) that threaten Black Redhorse and Silver Shiner and their habitats.
- 178 • Conduct a review of progress toward the protection and recovery of Black
179 Redhorse and Silver Shiner within five years of the publication of this document.

180 **Government-supported Actions**

181 The government endorses the following actions as being necessary for the protection
182 and recovery of Black Redhorse and Silver Shiner. Actions identified as “high” may be
183 given priority consideration for funding under the Species at Risk Stewardship Program.
184 Where reasonable, the government will also consider the priority assigned to these
185 actions when reviewing and issuing authorizations under the ESA. Other organizations
186 are encouraged to consider these priorities when developing projects or mitigation plans
187 related to species at risk.

188 Focus Area:	Management and Threat Mitigation
189 Objective:	Maintain or improve the quality of Black Redhorse and Silver Shiner 190 habitat through mitigation of threats.

191 Black Redhorse and Silver Shiner occur in highly developed landscapes in southern
192 Ontario and face threats from pollution, alterations in flow, and barriers to movement,
193 which restrict availability and quality of habitat. As priorities are established based on
194 threat evaluations for each species, collaborative implementation of actions to mitigate
195 these threats on a watershed basis will ensure a cohesive approach to protection and
196 recovery of the species and their habitats in Ontario. Collaborators may include local
197 landowners, land managers, ecosystem recovery teams, Indigenous communities and
198 organizations, municipalities, aquatic professionals, and stewardship organizations.

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Actions:

1. Minimize threats in and around the species' habitats by undertaking activities and completing effectiveness monitoring for these activities, including:
 - i. **(High)** establishing or restoring riparian buffers
 - ii. **(High)** developing and implementing Environmental Farm Plans and Nutrient Management Plans
 - iii. **(High)** implementing best management practices (BMPs) to prevent or reduce siltation, altered flow regimes and contaminants
 - iv. where feasible and appropriate, removing or modifying barriers to movement (e.g. installing fish ladders) within portions of watersheds that are occupied by Black Redhorse and Silver Shiner and where suitable upstream habitat exists or could be restored

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Focus Area:	Research and Monitoring
Objective:	Fill knowledge gaps related to Black Redhorse and Silver Shiner habitat, population trends and threats.

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Regular, standardized surveys are required to refine habitat needs, determine population dynamics and formulate quantitative population and distribution objectives for Black Redhorse and Silver Shiner. In order to focus efforts where they will best support the protection and recovery of the two species, a threat evaluation is necessary to determine priorities based on likelihood and level of impact. Filling these knowledge gaps will provide a better picture of the status of Black Redhorse and Silver Shiner and ensure resources are appropriately allocated to their recovery. Where possible, these actions should be undertaken in collaboration with Indigenous communities and organizations, and other conservation partners to promote inclusion of local knowledge and resources.

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Actions:

2. **(High)** Develop and implement a standardized protocol to inventory and monitor Black Redhorse and Silver Shiner, and, where possible, coordinate efforts for other species at risk fishes and invasive species which occur in the same watersheds. Actions may include:
 - i. surveying for the species' presence/absence within current and historical distributions and other targeted areas where suitable

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- 233 habitat exists and there is reason to believe each species may be
234 present to confirm status and extent of populations
- 235 ii. monitoring changes in distribution, abundance, demographics and
236 habitat conditions where the species are known to occur
- 237 3. Evaluate threats to Black Redhorse and Silver Shiner at all life stages to
238 inform priorities for populations at the watershed scale. Actions may
239 include:
- 240 i. **(High)** identifying pollution sources and their cumulative impacts on
241 the species
- 242 ii. studying the impacts of natural systems modifications, such as those
243 caused by dams or other barriers
- 244 iii. investigating the potential impacts of climate change and severe
245 weather on the species and their habitats
- 246 iv. investigating the impacts of invasive and non-native species on Black
247 Redhorse and Silver Shiner
- 248 v. evaluating the likelihood and impacts of human disturbance (e.g.
249 incidental harvest, recreational activities)
- 250 4. Determine the life history (e.g. fecundity, spawning periodicity, survival in
251 early life) of Black Redhorse and Silver Shiner to inform population
252 models and recovery efforts.
- 253 5. Investigate the necessity and feasibility of augmenting existing
254 populations of the species.

255	Focus Area:	Awareness and Outreach
256	Objective:	Increase the level of awareness and engagement in protecting and 257 recovering Black Redhorse and Silver Shiner.

258 Black Redhorse and Silver Shiner habitat is bordered by public, private and commercial
259 lands including agricultural fields, livestock farms, residential properties and Indigenous
260 lands. Due to the nature of aquatic systems, the species are also impacted by activities
261 occurring upstream of occupied habitat. Increasing public awareness of Black Redhorse
262 and Silver Shiner, their threats and mitigation options will encourage engagement in
263 activities to protect and recover the species.

- 264 **Actions:**
- 265 6. Collaborate with Indigenous communities and organizations, landowners,
266 land managers and conservation partners to promote awareness of Black

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- 267 Redhorse and Silver Shiner and their threats among people engaged in
268 agriculture, stewardship, fishing and shoreline modification activities
269 within the species' ranges by sharing information on:
- 270 i. how to identify the species
 - 271 ii. the species' habitat requirements
 - 272 iii. protection afforded to the species and their habitat under the ESA
 - 273 iv. actions that can be taken to avoid or minimize the impacts to the
274 species and their habitats
 - 275 v. actions that can be taken to promote the species' protection and
276 recovery
- 277 7. Educate bait harvesters on the identification and biology of Black
278 Redhorse and Silver Shiner. Encourage the use of harvest techniques
279 and timing that minimizes potential impacts on the species and their
280 habitats, and the release and reporting of individuals if incidentally
281 caught.
- 282 8. Encourage participation by fisheries biologists, technicians and other
283 resource managers in fish identification courses to improve reporting on
284 species' occurrences.

285 **Implementing Actions**

286 Financial support for the implementation of actions may be available through the
287 Species at Risk Stewardship Program. Conservation partners are encouraged to
288 discuss project proposals related to the actions in this response statement with Ministry
289 of the Environment, Conservation and Parks staff. The Ontario government can also
290 provide guidance about the requirements of the ESA, whether an authorization or
291 regulatory exemption may be required for the project and, if so, the authorization types
292 and/or conditional exemptions for which the activity may be eligible. Implementation of
293 the actions may be subject to changing priorities across the multitude of species at risk,
294 available resources and the capacity of partners to undertake recovery activities. Where
295 appropriate, the implementation of actions for multiple species will be co-ordinated
296 across government response statements.

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298 **Performance Measures**

299 Progress towards achieving the government's goal for the recovery of Black Redhorse
300 will be measured against the following performance measures:

- 301 • Continued presence of Black Redhorse within its current distribution by 2028.
- 302 • Status of populations in recently discovered locations (e.g. Big Creek and Four
303 Wells Lake) and connecting watercourses determined by 2028.
- 304 • Surveys to detect Black Redhorse in new locations with suitable habitat
305 completed by 2031.
- 306 • Population trajectories at current locations determined to be stable or increasing
307 by 2031.

308 Progress towards achieving the government's goal for the recovery of Silver Shiner will
309 be measured against the following performance measures:

- 310 • Status and distribution of Silver Shiner in the Saugeen and North Saugeen
311 rivers determined by 2028.
- 312 • Continued presence of Silver Shiner within its current distribution by 2028.
- 313 • Surveys to detect Silver Shiner in new locations with suitable habitat completed
314 by 2031.
- 315 • Population trajectories at current locations determined to be stable or increasing
316 by 2031.

317 **Reviewing Progress**

318 The ESA requires the Ontario government to conduct a review of progress towards
319 protecting and recovering a species no later than the time specified in the species'
320 government response statement, which has been identified as 5 years. The review will
321 help identify if adjustments are needed to achieve the protection and recovery of Black
322 Redhorse and Silver Shiner.

323 **Acknowledgement**

324 We would like to thank all those who participated in the development of the recovery
325 strategies and Government Response Statement for the Black Redhorse (*Moxostoma*

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326 *duquesnei*) and Silver Shiner (*Notropis photogenis*) in Ontario for their dedication to
327 protecting and recovering species at risk.

328 **For Additional Information:**

329 Visit the species at risk website at ontario.ca/speciesatrisk
330 Contact the Ministry of the Environment, Conservation and Parks
331 1-800-565-4923
332 TTY 1-855-515-2759
333 www.ontario.ca/environment