

DRAFT Government Response Statement  
to  
Recovery Strategy for the Davis's Shieldback in Ontario

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**Davis's Shieldback**

**Ontario Government Response Statement**

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

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

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

Generally, within 9 months after a recovery strategy is prepared, the ESA requires the government to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The response statement is the government's policy response to the scientific advice provided in the recovery strategy. In addition to the strategy, the government response statement considers (where available) input from Indigenous communities and organizations, stakeholders, other jurisdictions, and members of the public. It reflects the best available local and scientific knowledge, including Indigenous Knowledge where it has been shared by communities and Knowledge Holders, as appropriate, and may be adapted if new information becomes available. In implementing the actions in the response statement, the ESA allows the government to determine what is feasible, taking into account social, cultural and economic factors.

The Recovery Strategy for the Davis's Shieldback (*Atlantiscus davisii*) in Ontario was completed on July 9, 2024.

Davis's Shieldback is a flightless katydid or bush cricket (20 to 25 mm in length that inhabits oak woodland and savannah habitats. Adults are brown and grey in colour with a sculpted shield-like plate on the top and sides of their thorax (the area between the neck and the body).
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**Protecting and Recovering Davis's Shieldback**

Davis's Shieldback is listed as a threatened species under the ESA, which protects both the species and its habitat. The ESA prohibits harm or harassment of the species and

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32 damage or destruction of its habitat without authorization or complying with the  
33 requirements of a regulatory exemption.

34 Davis's Shieldback occurs within eastern North America, ranging from southern Ontario  
35 and northern Michigan (Great Lakes region) east to Vermont, south to North Carolina,  
36 and west to Arkansas. Within Canada, Davis's Shieldback occurs in a small area north  
37 of Lake Erie in Norfolk County, Ontario. Six subpopulations currently exist (i.e., are  
38 extant) in Canada (less than 1% of their global range), including Simcoe West, Turkey  
39 Point, St. Williams Forest, Nixon East, Bill's Corners West, Pine Grove, and Backus  
40 Woods. Greater survey effort is required to determine the full extent of Davis's  
41 Shieldback in the Niagara Region and possibly in the area east of Lake Ontario.

42 The Ontario range falls within the Norfolk Sand Plain physiographic region, which is  
43 characterized by sand deposits and pine barrens, inland dunes, and oak woodlands or  
44 savannahs. Davis's Shieldback often inhabits areas near forest edges or openings in  
45 woodlands or along forest access roads and trails. It prefers habitat with dry sandy soils  
46 and leaf litter, low shrubs or saplings, and ground-level sunlight.

47 Information is lacking on the biology and natural history of the Davis's Shieldback, but  
48 some insights can be gained from the closely related Protean Shieldback (*Atlantiscus*  
49 *testaceus*) and eastern shieldback katydids (*Atlantiscus spp.*). Davis's Shieldback grows  
50 through incomplete metamorphosis, likely overwintering in the egg stage and emerging  
51 as nymphs in the spring, followed by multiple moulting events before reaching maturity  
52 in the summer. Females use their ovipositor (tubular organ on the rear of female  
53 insects) to insert eggs directly into typically sunny soil with sparse vegetation and dry  
54 leaf litter, which are likely important factors for development and early nymph stages.  
55 Davis's Shieldback is thought to have a 1-year life span, with adults being the most  
56 active in the summer and fall months. Similar species are known to be omnivorous and  
57 partially nocturnal, with minimal activity throughout the day. Most activity occurs from  
58 dusk until shortly past midnight, with nymphs staying on the ground among dry leaf litter  
59 to feed, while adults perch on elevated vegetation. Males produce a song by rubbing  
60 their wings together and are less active at night than females, who tend to roam  
61 between plants more frequently. During the day, nymphs alternate between active  
62 feeding periods and inactivity, while adults tend to hide under leaf litter, at the base of  
63 larger vegetation.

64 Although the species is thought to be declining in Ontario, information on trends in the  
65 abundance of Davis's Shieldback is currently lacking in Ontario with minimal survey  
66 effort throughout its range. In Canada, the species tends to be local and rare, with an  
67 estimated 300 to 1,310 mature individuals based on targeted surveys. In Ontario,

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declines in Davis's Shieldback are thought to be due to the ongoing degradation of oak savannah and woodland habitat. Threats are anticipated to have resulted in the extirpation of undocumented subpopulations of the species. Fire suppression results in the establishment of invasive woody plants in these fire-dependent ecological communities, reducing the available habitat for Davis's Shieldback. Prescribed burning and vegetation management has been used in some protected areas to help mitigate these threats. Coniferous trees (such as pines) were historically planted in Canada across dry sandy openings and open woodlands, contributing to habitat loss for the species. Non-native honeysuckles (*Lonicera spp.*), Black Locust (*Robinia pseudoacacia*), Scotch Pine (*Pinus sylvestris*), Common Buckthorn (*Rhamnus cathartica*), Autumn (*Elaeagnus umbellata*) and Russian Olive (*Elaeagnus angustifolia*) have also contributed to habitat loss through invasion. In addition, the spread of Spongy Moth (*Lymantria dispar*) and Oak Wilt (*Bretziella fagacearum*) have negatively impacted oak woodlands relied upon by Davis's Shieldback through defoliation. As a flightless katydid, the ability of Davis's Shieldback to move long distances or cross waterbodies is limited, while surrounding habitat is typically unsuitable for their movement (e.g., extensive agricultural areas, road networks) to more suitable habitat.

Significant knowledge gaps remain for Davis's Shieldback, including their biology, distribution, subpopulation statuses, dispersal ability, and threats. Current and historical occurrences of the species are limited to only 7 subpopulations within a small area of highly fragmented habitat. Recovery of Davis's Shieldback will require monitoring, protection, and maintenance of existing habitat to ensure the persistence of existing subpopulations and allow for natural expansion. At extant sites, efforts to expand suitable habitat and augment existing subpopulations may be necessary to ensure their continued viability at these locations. Further research is required to better understand threats to the species and appropriate mitigative actions.

#### **Government's Recovery Goal**

The government's long-term recovery goal for the Davis's Shieldback is to ensure the persistence and viability of extant subpopulations in Ontario.
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#### **Actions**

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

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developing the government response statement, the government considered what actions are feasible for the government to lead directly and what actions are feasible for the government to support its conservation partners to undertake.

**Government-led Actions**

To help protect and recover Davis's Shieldback, the government plans to undertake the following actions:

- Continue to protect Davis's Shieldback and its habitat through the ESA.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario (e.g., through Ontario Parks Discovery Program, where appropriate).
- Continue to monitor populations and mitigate threats to the species and its habitat in provincially protected areas, where feasible and appropriate, including prescribed burns at Turkey Point Provincial Park.
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of Davis's Shieldback data to Ontario's central repository through the [NHIC \(Rare species of Ontario\) project in iNaturalist](#) or directly through the [Natural Heritage Information Centre](#).
- Continue to support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Davis's Shieldback. Support will be provided where appropriate through funding, agreements, permits and/or advisory services.
- Continue to implement the [Ontario Invasive Species Strategic Plan \(2012\)](#) to address the invasive species (e.g., Spongy Moth, Common Buckthorn, Oak Wilt) that threaten Davis's Shieldback and its habitat.
- Conduct a review of progress toward the protection and recovery of Davis's Shieldback within 5 years of the publication of this document.

**Government-supported Actions**

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The government endorses the following actions as being necessary for the protection and recovery of Davis's Shieldback. Actions identified as "high" may be given priority consideration for funding under the Species at Risk Stewardship Program. Where reasonable, the government will also consider the priority assigned to these actions when reviewing and issuing authorizations under the ESA. Other organizations are encouraged to consider these priorities when developing projects or mitigation plans related to species at risk.

**Focus Area: Research and Monitoring**

**Objective:** Address knowledge gaps related to Davis's Shieldback distribution, habitat, biology and threats.

A greater understanding of the biology and life cycle of Davis's Shieldback is necessary to better focus protection and recovery actions for the species within Ontario. Standardized survey methods will improve knowledge of the species' distribution and allow for Ontario-specific population estimates and better tracking of trends. Identification of key habitat areas used by the species is essential to understanding threats and prioritizing management activities. Targeted research relating to threats across the species' range will help clarify factors driving declines and appropriate mitigating actions. This knowledge, combined with information on the status of current subpopulations, is necessary to develop quantitative recovery targets and better-informed recovery approaches.

**Actions:**

1. **(High)** Undertake research on dispersal capabilities and habitat needs of Davis's Shieldback. These efforts may include determining:
  - i. habitat and microhabitat requirements needed to carry out specific life stage processes
  - ii. minimum habitat patch size to support a subpopulation
  - iii. dispersal distance and habitat connectivity requirements to inform habitat identification, as well as creation and enhancement work
2. **(High)** Undertake research on site-specific threats to extant subpopulations of Davis's Shieldback, including the effects of specific threats and success of mitigation strategies.
3. **(High)** Develop and implement a standardized survey and monitoring protocol for Davis's Shieldback including:

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- i. presence and absence survey methods, such as the documentation of confirmed occurrences or lack thereof following surveys of suitable habitat
  - ii. methods for population size estimation
  - iii. methods for the identification of sex and life stage
  - iv. surveys to determine the full extent of Davis's Shieldback in the Niagara Region and area east of Lake Ontario
4. Undertake research to improve knowledge on the general biology, life history, and population dynamics of Davis's Shieldback, such as reproduction, diet, density dependence, and inter-species relationships.
5. Informed by research on the species' habitat needs and biology (Actions 1, 2, and 4 above), investigate the feasibility of captive breeding to augment existing subpopulations.

<b>Focus Area:</b>	<b>Habitat and Threat Management</b>
<b>Objective:</b>	Maintain or improve Davis's Shieldback habitat and mitigate threats to extant subpopulations.

In Ontario, Davis's Shieldback is known to occur only in a small area in Norfolk County, north of Lake Erie. Efforts to maintain or increase habitat quality and manage local threats will support subpopulations relying on these areas. Focus should be placed on key habitat areas (i.e., dry oak woodland, savanna, and sand barren habitats). Recovery efforts that benefit multiple species at risk should be considered whenever possible. A collaborative approach involving local landowners will be essential in the ongoing management of the species.

**Actions:**

6. **(High)** At extant sites, actively manage habitat and mitigate threats to ensure the persistence and expansion of Davis's Shieldback. These efforts may include:
- i. developing site-specific habitat management goals and threat mitigation strategies
  - ii. identifying opportunities to enhance and/or expand existing habitats to ensure the continued viability of extant subpopulations
  - iii. active management of habitat (e.g., control of invasive species and woody plant encroachment) and periodic disturbance (e.g.,

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prescribed burns, mowing) to create and/or maintain habitat based on available research results

- iv. developing and implementing monitoring programs to document habitat quantity, quality, and the effectiveness of management activities and threat mitigation strategies

- 7. Identify suitable sites for habitat creation or enhancement within the known range of Davis's Shieldback, focusing on areas that will increase existing habitat patch size and connectivity for dispersal between habitat patches.

**Focus Area: Stewardship and Awareness**

**Objective:** Increase the level of public awareness and engagement in protecting recovering Davis's Shieldback.

Increasing public awareness of Davis's Shieldback and encouraging participation in stewardship and monitoring will contribute towards recovery efforts by clarifying the extent of the species' habitat within the province, including where it may occur on private lands. Improved knowledge of the species and its distribution is required to better manage threats and habitat. It is also important to improve awareness of conservation partners who may be interested in undertaking stewardship efforts or are involved in developing property management plans.

**Actions:**

- 8. Promote awareness of Davis's Shieldback among landowners and land users by sharing information regarding:
  - i. how to identify the species and report occurrences
  - ii. the importance and benefits of creating and maintaining habitat for the species
  - iii. threats currently faced by the species and actions to mitigate them
- 9. Engage landowners and land users to participate in habitat creation and monitoring efforts for Davis's Shieldback. Where appropriate, offer incentive programs and landowner support for habitat creation or management.

**Implementing Actions**

Financial support for the implementation of actions may be available through the Species at Risk Stewardship Program. Conservation partners are encouraged to

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discuss project proposals related to the actions in this response statement with Ministry of the Environment, Conservation and Parks staff. The Ontario government can also provide guidance about the requirements of the ESA, whether an authorization or regulatory exemption may be required for the project and, if so, the authorization types and/or conditional exemptions for which the activity may be eligible. Implementation of the actions may be subject to changing priorities across the multitude of species at risk, available resources and the capacity of partners to undertake recovery activities. Where appropriate, the implementation of actions for multiple species will be co-ordinated across government response statements.

### **Performance Measures**

Progress towards achieving the government's goal for the recovery of Davis's Shieldback will be measured against the following performance measures:

- The status of subpopulations in existing, recently discovered (e.g., Backus Woods), and potential suitable locations (e.g., Niagara Region and east of Lake Ontario) is updated by 2029.
- The area of occupied habitat by Davis's Shieldback at all known extant occurrences maintained or increased by 2034.
- The abundance of Davis's Shieldback at all known extant occurrences is stable or increased by 2039.

### **Reviewing Progress**

The ESA requires the Ontario government to conduct a review of progress towards protecting and recovering a species no later than the time specified in the species' government response statement, which has been identified as 5 years. The review will help identify if adjustments are needed to achieve the protection and recovery of Davis's Shieldback.

### **Acknowledgement**

We would like to thank all those who participated in the development of the Recovery Strategy and Government Response Statement for the Davis's Shieldback (*Atlantiscus davis*) in Ontario for their dedication to protecting and recovering species at risk.



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259 **For Additional Information:**

260 Visit the species at risk website at [ontario.ca/speciesatrisk](http://ontario.ca/speciesatrisk)  
261 Contact the Ministry of the Environment, Conservation and Parks  
262 1-800-565-4923  
263 TTY 1-855-515-2759  
264 [www.ontario.ca/environment](http://www.ontario.ca/environment)