Environment Canada Environnement Canada

# Consultation on Amending the List of Species under the *Species at Risk Act*

## Terrestrial Species

December 2009

Canada

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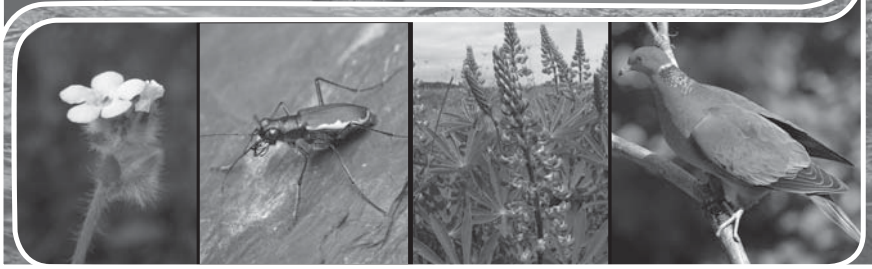
# Consultation on Amending the List of Species under the *Species at Risk Act*

## Terrestrial Species

**December 2009**



Environment Canada Environnement Canada

Canada

Please submit your comments by

**– March 1, 2010**, for species undergoing **normal** consultations
and by
**– March 1, 2011**, for species undergoing **extended** consultations.

Please email your comments to the Species at Risk Public Registry at:
sararegistry@ec.gc.ca

Comments may also be mailed to:

Director General
Canadian Wildlife Service
Environment Canada
Ottawa ON  K1A 0H3

For more information on the *Species at Risk Act*, please visit the Species at Risk Public Registry at:
www.sararegistry.gc.ca

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# ADDITION OF SPECIES TO THE *SPECIES AT RISK ACT*

## The *Species at Risk Act* and the List of Wildlife Species at Risk

The Government of Canada is committed to preventing the disappearance of wildlife species at risk from our lands. As part of its strategy for realizing that commitment, on June 5, 2003, the Government of Canada proclaimed the *Species at Risk Act* (SARA). Attached to the Act is Schedule 1, the list of the species provided for under SARA, also called the List of Wildlife Species at Risk. Endangered or Threatened species on Schedule 1 benefit from the protection of SARA's prohibitions and recovery planning. Special Concern species benefit from its management planning. Schedule 1 has grown from the original 233 to 447 wildlife species at risk.

The complete list of species currently on Schedule 1 can be viewed at:

www.sararegistry.gc.ca/species/schedules_e.cfm?id=1

Species become eligible for addition to Schedule 1 once they have been assessed as being at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The decision to add a species to Schedule 1 is made by the Governor in Council following a recommendation from the Minister of the Environment. The Governor in Council is the formal executive body that gives legal effect to Cabinet decisions that are to have the force of law.

## COSEWIC and the assessment process for identifying species at risk

COSEWIC is recognized under SARA as the authority for assessing the status of wildlife species at risk. COSEWIC comprises experts on wildlife species at risk. Its members have backgrounds in the fields of biology, ecology, genetics, Aboriginal traditional knowledge and other relevant fields. They come from various communities, including academia, Aboriginal organizations, government and non-government organizations.

COSEWIC gives priority to those species more likely to become extinct, and then commissions a status report for the evaluation of the species' status. To be accepted, status reports must be peer-reviewed and approved by a subcommittee of species specialists. In special circumstances, assessments can be done on an emergency basis. When the status report is complete, COSEWIC meets to examine it and discuss the species. COSEWIC then determines whether the species is at risk, and if so, then assesses the level of risk and assigns a conservation status.

## Terms used to define the degree of risk to a species

The conservation status defines the degree of risk to a species. The terms used under SARA are Extirpated, Endangered, Threatened and Special Concern. Extirpated species are wildlife species that no longer occur in the wild in Canada but still exist elsewhere. Endangered species are wildlife species that are likely to soon become extirpated or extinct. Threatened species are likely to become endangered if nothing is done to reverse the factors leading to their extirpation or extinction. The term Special Concern is used for wildlife species that may become threatened or endangered due to a combination of biological characteristics and threats. Once COSEWIC has assessed a species as Extirpated, Endangered, Threatened or Special Concern, it is eligible for inclusion on Schedule 1.

For more information on COSEWIC, visit:

www.cosewic.gc.ca

On August 28, 2009, COSEWIC sent to the Minister of the Environment its newest assessments of species at risk. Environment Canada is now consulting on changes to Schedule 1 to reflect these new designations for these terrestrial species. To see the list of the terrestrial species and their status, please refer to tables 1 and 2.

## Terrestrial and aquatic species eligible for Schedule 1 amendments

The Minister of Fisheries and Oceans is conducting separate consultations for the aquatic species. For more information on the consultations for aquatic

species, visit the Fisheries and Oceans Canada website at www.dfo-mpo.gc.ca/index.htm.

The Minister of the Environment is conducting the consultations for all other species at risk.

Approximately 54 percent of the recent assessments for terrestrial species at risk occur in national parks or other lands administered by Parks Canada; Parks Canada shares responsibility for these species with Environment Canada.

### Public comments solicited on the proposed amendment of Schedule 1

The conservation of wildlife is a joint legal responsibility: one that is shared among the governments of Canada. But biodiversity will not be conserved by governments that act alone. The best way to secure the survival of species at risk and their habitats is through the active participation of all those concerned. SARA recognizes this, and that all Canadians and Aboriginal Peoples have a role to play in preventing the disappearance of wildlife species from our lands. The Government of Canada is inviting and encouraging you to become involved. One way you can do so is by sharing your comments concerning the addition or reclassification of these terrestrial species.

Your comments are considered in relation to the potential impacts of listing, and they are then used to draft the Minister's proposed listing recommendations for each of these species. To ensure that your comments are considered early in the process, they should be submitted before the following deadlines.

For terrestrial species undergoing normal consultations, comments should be submitted by **March 1, 2010**.

For terrestrial species undergoing extended consultations, comments should be submitted by **March 1, 2011**.

Comments received by these deadlines will be considered in the development of the listing proposal.

Please email your comments to the SARA Public Registry at:

sararegistry@ec.gc.ca

By regular mail, please address your comments to:

Director General
Canadian Wildlife Service
Environment Canada
Ottawa ON  K1A 0H3

## The *Species at Risk Act* Listing Process and Consultation

The addition of a wildlife species at risk to Schedule 1 of SARA strengthens and enhances the federal government's capacity to provide for its protection and conservation. To be effective, the listing process must be transparent and open. The species listing process under SARA is summarized in Figure 1.

### The purpose of consultations on amendments to the List

When COSEWIC assesses a wildlife species, it does so solely on the basis of the best available information relevant to the biological status of the species. COSEWIC then submits the assessment to the Minister of the Environment, who considers it when making the listing recommendation to the Governor in Council. These consultations are to provide the Minister with a better understanding of the potential social and economic impacts of the proposed change to the List of Wildlife Species at Risk, and of the value that is placed on biodiversity.

### Legislative context of the consultations: the Minister's recommendation to the Governor in Council

The comments collected during the consultations are used to inform the Minister's recommendations to the Governor in Council for listing species at risk. The Minister must recommend one of three courses of action. These are for the Governor in Council to accept the species assessment and modify Schedule 1 accordingly; not to add the species to Schedule 1; or to refer the species assessment back to COSEWIC for its further consideration (Figure 1).

**Figure 1:** **The species listing process under SARA**

SARA separates the scientific assessment process from the listing decision. This approach ensures that scientists can provide fully independent recommendations, and that decisions affecting Canadians are made by elected officials who can be held accountable for those decisions.

COSEWIC uses the best biological information on a species deemed to be in some danger of disappearing from Canada to assess the risk status of that species. It reviews research information on population and habitat status, trends and threats; uses community and Aboriginal traditional knowledge; and applies assessment criteria based on international standards.

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COSEWIC assesses the species as Extinct, Extirpated, Endangered, Threatened, Special Concern, Data Deficient or Not at Risk.

↓

COSEWIC sends its assessment and supporting evidence (i.e. rationale and status reports) for species classified as at risk (Extirpated, Endangered, Threatened or Special Concern) to the Minister of the Environment and the Canadian Endangered Species Conservation Council once per year. The COSEWIC assessment and the reasons for it are also posted on the SARA Public Registry.

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The Minister of the Environment has 90 days in which to publish Response Statements on the Public Registry.

These statements indicate how the Minister intends to respond to each COSEWIC assessment and, to the extent possible, provide timelines for action. Certain species may require extended consultation.

→

The Minister of the Environment forwards COSEWIC assessments to the Governor in Council.

↓

The Governor in Council, within nine months of receiving the assessment, may, on the recommendation of the Minister, by Order:

a) accept the assessment and add the species to the SARA List, reclassify it or remove it accordingly;
b) decide not to add the species to the SARA List; or
c) refer the matter back to COSEWIC for further information or consideration.

If the Governor in Council does not make a decision within nine months of receiving the COSEWIC assessment, the Minister shall by order amend the List according to COSEWIC's assessment.

↓

Once a species is added to Schedule 1, it benefits from the legal protection afforded and SARA's recovery or management planning.

## The Minister of the Environment's response to the COSEWIC assessment: the response statement

After COSEWIC has completed its assessment of a species, it provides it to the Minister of the Environment. The Minister of the Environment then has 90 days to post a response on the SARA Public Registry, providing information on the scope of any consultations and the timelines for action, to the extent possible. This is known as the response statement. It identifies how long the consultations will be (whether they are "normal" or "extended") by stating when the Minister will forward the assessment to the Governor in Council. Consultations for a group of species are launched with the posting of their response statements.

## Normal and extended consultation periods

Normal consultations meet the consultation needs for the listing of most species at risk. They take about three months to complete, while extended consultations usually take fifteen months.

The extent of consultations needs to be proportional both to the expected impact of a listing decision or the time that may be required to consult appropriately. Under some circumstances, the Schedule 1 listing of a species could have significant and widespread impacts on the activities of some groups of people. It is essential that such stakeholders be informed of the pending decision and, to the extent possible, its potential consequences. They also need to be provided with the opportunity to express their opinions and share ideas on how best to approach the protection and recovery of the species. In other cases a longer period may be required to consult appropriately with groups that meet infrequently but that must be engaged on several occasions. In both these cases extended consultations are undertaken.

For both normal and extended consultations, once they are complete, the Minister of the Environment forwards the species assessments to the Governor in Council. The Governor in Council then has nine months to come to a listing decision. Thus, listing decisions for species in normal consultations are usually made about one year after the publication of their response statements. Listing decisions for species in extended consultations are usually made about two years after the response statements are published.

The consultation paths for terrestrial species in the current consultations are provided in tables 1 and 2.

## Who is consulted and how

It is most important to consult with those who would be most affected by the proposed changes. There is protection that is immediately in place when a species that is Extirpated, Endangered or Threatened is added to Schedule 1. It prohibits killing or harming the species or destroying a residence. For terrestrial species this applies to migratory birds protected by the *Migratory Birds Convention Act, 1994* (which already provides similar protection for the migratory birds and their nests). The immediate protection also applies to other terrestrial species where they are on federal land (for more details, see below, "Protection for listed Extirpated, Endangered and Threatened species"). This immediate protection does not apply to species of Special Concern. Therefore, to decide who should be consulted directly, the type of species, its proposed conservation status, and where it is found are taken into consideration. The first priority is then placed on engaging those who may be affected by the impacts of the automatic protections.

Aboriginal Peoples known to have on their lands a species at risk that is being considered for the proposed changes to Schedule 1 will be contacted. Their engagement is of particular significance, acknowledging their role in the management of the extensive traditional territories and the reserve and settlement lands.

A Wildlife Management Board is a group that has been established under a land claims agreement and is authorized by the agreement to perform functions in respect of wildlife species. Some eligible species at risk are found on lands where existing land claims agreements apply, so that the species falls under the authority of a Wildlife Management Board. In such cases, the Minister of the Environment will consult with the relevant Board.

So that it can be readily accessed by Canadians and Aboriginal Peoples, this document is distributed to known stakeholders and posted on the SARA Public Registry; however, more extensive consultations may also be done through regional or community meetings or through a more targeted approach.

In some cases other groups or Canadians at large may be impacted. Environment Canada will send notice of this consultation to identified

concerned groups and individuals who have made their interests known. These include, but are not limited to, industries, resource users, landowners and environmental non-governmental organizations.

In most cases, Environment Canada does not examine the potential impacts of recovery actions when species are being considered for listing. The reason is that recovery actions for terrestrial species are not usually automatic upon listing; in fact, usually these actions are not yet defined, so their impact cannot be fully understood. Once they are defined, efforts are made to minimize adverse social and economic impacts of listing and maximize the benefits. SARA requires recovery measures be prepared in consultation with those considered to be directly affected by them.

In addition to the public, Environment Canada consults on listing with the governments of the provinces and territories responsible for the conservation and management of these wildlife species. Environment Canada also consults with other federal departments and agencies.

### Role and impact of public consultations in the listing process

The results of the public consultations are of great significance to the process of listing species at risk. Environment Canada carefully reviews the comments it receives to gain a better understanding of the benefits and costs of changing the List.

The comments are then used to inform the Regulatory Impact Analysis Statement (RIAS). The RIAS is a report that summarizes the impact of a proposed regulatory change. It includes a description of the proposed change and an analysis of its expected impact, which is based on the results of the consultations. In developing the RIAS, the Government of Canada recognizes that Canada's natural heritage is an integral part of our national identity and history and that wildlife in all its forms has value in and of itself. The Government of Canada also recognizes that the absence of full scientific certainty is not a reason to postpone decisions to protect the environment.

A draft Order (see Glossary) is then prepared, providing notice that a decision is being taken by the Governor in Council. The draft Order proposing to list all or some of the species under consideration is then published, along with the RIAS, in the Canada Gazette, Part I, for a comment period of 30 days beyond the initial normal and extended consultation periods.

The Minister of the Environment will take into consideration comments and any additional information received following publication of the draft Order and the RIAS in the Canada Gazette, Part I. The Minister then makes a listing recommendation for each species to the Governor in Council. The Governor in Council next decides either to accept the species assessment and amend Schedule 1 accordingly; or not to add the species to Schedule 1; or to refer the species assessment back to COSEWIC for further information or consideration. The final decision is published in the Canada Gazette, Part II, and on the SARA Public Registry. If the Governor in Council has decided to list a species, it is at this point that it becomes legally included on Schedule 1.

## Significance of the Addition of a Species To Schedule 1

The protection that comes into effect following the addition of a species to Schedule 1 depends upon a number of factors. These include the species' status under SARA, the type of species and where it occurs.

### Protection for listed Extirpated, Endangered and Threatened species

Responsibility for the conservation of wildlife is shared among the governments of Canada. SARA establishes legal protection of individuals and their residences as soon as a species is listed as Threatened, Endangered or Extirpated, and if they are considered federal species or if they are found on federal land.

Federal species includes migratory birds, as defined by the *Migratory Birds Convention Act*, 1994, and aquatic species. Federal land means land that belongs to the federal government and the internal waters and territorial sea of Canada. It also means land set apart for the use and benefit of a band under the Indian Act (such as reserves). In the territories, the protection for species at risk on federal lands applies

only where they are on lands under the authority of the Minister of the Environment or the Parks Canada Agency.

Protection under SARA makes it an offence to kill, harm, harass, capture or take an individual of a species listed as Extirpated, Endangered or Threatened, or to damage or destroy the residence of one or more individuals of an Endangered or Threatened species. The Act also makes it an offence to possess, collect, buy, sell or trade an individual of a species that is Extirpated, Endangered or Threatened.

Species at risk that are neither aquatic nor protected under the *Migratory Birds Convention Act*, 1994, nor on federal lands, do not receive immediate protection upon listing under SARA. Instead, in most cases, the protection of terrestrial species on non-federal lands is the responsibility of the provinces and territories where they are found. The application of SARA's protections to a species at risk on non-federal lands requires that the Governor in Council make an order defining those lands. This is done only if the Minister is of the opinion that the laws of the province or territory do not effectively protect the species. To put such an order in place, the Minister would then need to recommend the order be made to the Governor in Council. If the Governor in Council agreed to make the order, the prohibitions of SARA would then apply to the provincial or territorial lands specified by the order. The federal government would consult with the province or territory concerned before making such an order.

The Minister of the Environment or the Minister of Fisheries and Oceans may authorize exceptions to the prohibitions under SARA. These ministers can enter into agreements or issue permits only for one of three reasons: for research, for conservation activities or if the effects to the species are incidental to the activity. Research must relate to the conservation of a species and be conducted by qualified scientists. Conservation activities must benefit a listed species or be required to enhance its chances of survival. All activities, including those that incidentally affect a listed species, must also meet certain conditions. First, it must be established that all reasonable alternatives have been considered and the best solution has been adopted. It must also be established that all feasible measures will be taken to minimize the impact of the activity, and finally that the survival or recovery of the species will not be jeopardized. Having issued a permit or agreement, the Minister of the Environment or the Minister of Fisheries and Oceans must then include an explanation on the SARA Public Registry.

## Recovery strategies and action plans for Extirpated, Endangered and Threatened species

Separate consultations are required for the development of recovery strategies and action plans, which follows the addition of an Extirpated, Endangered or Threatened species to Schedule 1.

Recovery planning involves the different levels of government responsible for the management of the species, depending on what type of species it is and where it occurs. These include federal, provincial and territorial governments as well as Wildlife Management Boards. Recovery strategies and action plans are also prepared in cooperation with directly affected Aboriginal organizations. Landowners and other stakeholders directly affected by the recovery strategy are consulted.

Proposed recovery strategies for newly listed species are posted on the SARA Public Registry to provide for public review and comment. For Endangered species, proposed recovery strategies are posted within one year of their addition to Schedule 1, and for Threatened or Extirpated species within two years.

Recovery strategies include measures to mitigate the known threats to the species and its habitat and set the population and distribution objectives. Other objectives can be included, such as stewardship (to establish protection for an existing population) or education (to increase public awareness). Recovery strategies must include a statement of the time frame for the development of one or more action plans. To the extent possible, recovery strategies must also identify the critical habitat of the species. If there is not enough information available to identify critical habitat, the recovery strategy includes a schedule of studies required for its identification. This schedule outlines what must be done to obtain the necessary information and by when it needs to be done. In such cases critical habitat is identified in a subsequent action plan.

Action plans state the measures necessary to implement the recovery strategy. These include measures to address threats and achieve the population and distribution objectives. Action plans also complete the identification of the critical habitat where necessary, and to the extent possible state measures that are proposed to protect it.

## Protection for listed species of Special Concern

While SARA's immediate protection for species listed as Extirpated, Endangered and Threatened do not apply to species listed as Special Concern, any existing protections and prohibitions, such as those provided by the *Migratory Birds Convention Act*, 1994 or the *Canada National Parks Act*, continue to be in force.

## Management plans for species of Special Concern

For species of Special Concern, management plans are to be prepared and made available on the SARA Public Registry within three years of their addition to Schedule 1, allowing for public review and comment. Management plans include appropriate conservation measures for the species and for its habitat. They are prepared in cooperation with the jurisdictions responsible for the management of the species, including directly affected Wildlife Management Boards and Aboriginal organizations. Landowners, lessees and others directly affected by a management plan will also be consulted.

# THE LIST OF SPECIES PROPOSED FOR INCLUSION OR RECLASSIFICATION ON SCHEDULE 1

## Status of the recently assessed species and consultation paths

In August 2009, COSEWIC submitted 25 assessments of species at risk to the Minister of the Environment for species that are newly eligible to be added to Schedule 1 of SARA. Fourteen of these are terrestrial species. COSEWIC also reviewed the classification of species already on Schedule 1, in some cases changing their status. One terrestrial species is now being considered for down-listing on SARA (to a lower risk status) and it is part of these consultations. In all, there are 15 terrestrial species that are eligible to be added to Schedule 1 or to have their current status on Schedule 1 changed (table 1).

COSEWIC also submitted the reviews of species already on Schedule 1, confirming their classification. Eleven of these reviews were for terrestrial species. These species are not included in the consultations because there is no regulatory change being proposed (table 2).

For more information on the consultations for aquatic species, visit the Fisheries and Oceans Canada website at

www.dfo-mpo.gc.ca/index.htm.

## Providing comments

The involvement of Canadians is integral to the process, as it is to the ultimate protection of Canadian wildlife. Your comments matter and are given serious consideration. Environment Canada reviews all comments it receives by the deadlines provided below.

Comments for terrestrial species undergoing normal consultations must be received by **March 1, 2010**.

Comments for terrestrial species undergoing extended consultations must be received by **March 1, 2011**.

For more details on submitting comments, see page 3, “Public comments solicited on the proposed amendment of Schedule 1.”

**Table 1: Terrestrial species recently assessed by COSEWIC eligible for addition to Schedule 1 or reclassification**

| Taxon | Species | Scientific name | Range | Consultation path |
|---|---|---|---|---|
| **Newly Assessed Species (14)** | | | | |
| **Extirpated (1)** | | | | |
| Vascular Plants | Oregon Lupine | *Lupinus oreganus* | BC | Normal |
| **Endangered (6)** | | | | |
| Arthropods | Cobblestone Tiger Beetle | *Cicindela marginipennis* | NB | Normal |
| Arthropods | Edwards' Beach Moth | *Anarta edwardsii* | BC | Normal |
| Birds | Horned Grebe (Magdalen Islands population) | *Podiceps auritus* | QC | Normal |
| Vascular Plants | Bent Spike-rush (Southern Mountain population) | *Eleocharis geniculata* | BC | Normal |
| Vascular Plants | Bent Spike-rush (Great Lakes Plains population) | *Eleocharis geniculata* | ON | Normal |
| Vascular Plants | California Buttercup | *Ranunculus californicus* | BC | Normal |
| **Threatened (3)** | | | | |
| Birds | Whip-poor-will | *Caprimulgus vociferus* | SK, MB, ON, QC, NB, NS | Normal |
| Vascular Plants | Gray's Desert-parsley | *Lomatium grayi* | BC | Normal |
| Vascular Plants | Slender Popcornflower | *Plagiobothrys tenellus* | BC | Normal |
| **Special Concern (4)** | | | | |
| Arthropods | Pygmy Snaketail | *Ophiogomphus howei* | ON, NB | Normal |
| Birds | Band-tailed Pigeon | *Patagioenas fasciata* | BC | Normal |
| Birds | Horned Grebe (Western population) | *Podiceps auritus* | YT, NT, NU, BC, AB, SK, MB, ON | Extended |
| Reptiles | Snapping Turtle | *Chelydra serpentina* | SK, MB, ON, QC, NB, NS | Normal |
| **Down-list from Threatened to Special Concern (1)** | | | | |
| Vascular Plants | White-top Aster | *Sericocarpus rigidus* | BC | Normal |

**Table 2: Terrestrial species recently reassessed by COSEWIC (species status confirmation)**

| Taxon | Species | Scientific name | Range | Consultation path |
|---|---|---|---|---|
| **Status confirmation (11)** | | | | |
| **Extirpated (1)** | | | | |
| Mammal | Black-footed Ferret | *Mustela nigripes* | AB, SK | None; status confirmation |
| **Endangered (7)** | | | | |
| Amphibians | Northern Leopard Frog (Rocky Mountain population) | *Lithobates pipiens* | BC | None; status confirmation |
| Arthropods | Maritime Ringlet | *Coenonympha nipisiquit* | QC, NB | None; status confirmation |
| Birds | Roseate Tern | *Sterna dougallii* | QC, NB, NS | None; status confirmation |
| Vascular Plants | Deltoid Balsamroot | *Balsamorhiza deltoidea* | BC | None; status confirmation |
| Vascular Plants | Drooping Trillium | *Trillium flexipes* | ON | None; status confirmation |
| Vascular Plants | Prairie Lupine | *Lupinus lepidus* | BC | None; status confirmation |
| Vascular Plants | Water-plantain Buttercup | *Ranunculus alismifolius* | BC | None; status confirmation |
| **Threatened (2)** | | | | |
| Birds | Least Bittern | *Ixobrychus exilis* | MB, ON, QC, NB, NS | None; status confirmation |
| Vascular Plants | Mexican Mosquito-fern | *Azolla mexicana* | BC | None; status confirmation |
| **Special Concern (1)** | | | | |
| Amphibians | Northern Leopard Frog (Western Boreal/Prairie populations) | *Lithobates pipiens* | NT, AB, SK, MB | None; status confirmation |

# THE COSEWIC SUMMARIES OF TERRESTRIAL SPECIES ELIGIBLE FOR ADDITION OR RECLASSIFICATION ON SCHEDULE 1

The following section presents a brief summary of the reasons for the COSEWIC status designation of individual species, and their biology, threats, distribution and other information. For a more comprehensive explanation of the conservation status of an individual species, please refer to the COSEWIC status report for that species, also available on the SARA Public Registry at:

www.sararegistry.gc.ca/status/default_e.cfm

or contact:

COSEWIC Secretariat
c/o Canadian Wildlife Service Environment Canada
Ottawa, Ontario
K1A 0H3

## Band-tailed Pigeon

Photo: © Bruce Whittington

**Scientific name**
*Patagioenas fasciata*

**Taxon**
Birds

**COSEWIC Status**
Special Concern

**Canadian Range**
British Columbia

### Reason for Designation

This large pigeon has suffered long-term declines throughout its range in the western mountains of North America, due in part to overhunting. Harvest has been severely limited in Canada for the past 16 years. Although population surveys (e.g. Breeding Bird Survey and mineral site counts) have low precision, they do suggest a stabilization of the population in the last decade. The species is long-lived (up to 22 years) and has a slow reproductive rate; females typically lay only one or two eggs per year. Forestry may negatively affect habitat in the long term, creating dense second-growth forests with few berry-producing shrubs; the pigeons also are susceptible to disturbance at isolated mineral sources needed for their nutrition.

### Species Information

The Band-tailed Pigeon is a largish (40 cm long and 350 g) pigeon. It is dark overall, with a purple-grey head and distinctive white crescent on the hindneck. In flight the tail appears dark with a lighter grey band across the tip. The bill (with black tip), feet and legs are yellow. One subspecies occurs in Canada: *P. f. monilis Vigors 1839*. This subspecies is referred to as the Pacific Coast race.

### Distribution

The Band-tailed Pigeon breeds in western regions of the Americas from coastal British Columbia to northern Argentina. In Canada, the breeding range of the Bandtailed Pigeon is restricted to British Columbia, mainly on the south coast. Its range in British Columbia expanded northward along the coast and eastward into the Southern Interior in the 1980s,

but it has since largely disappeared from the Interior. Most of the Canadian breeding population winters in California, but a few remain for the winter in British Columbia.

## Habitat

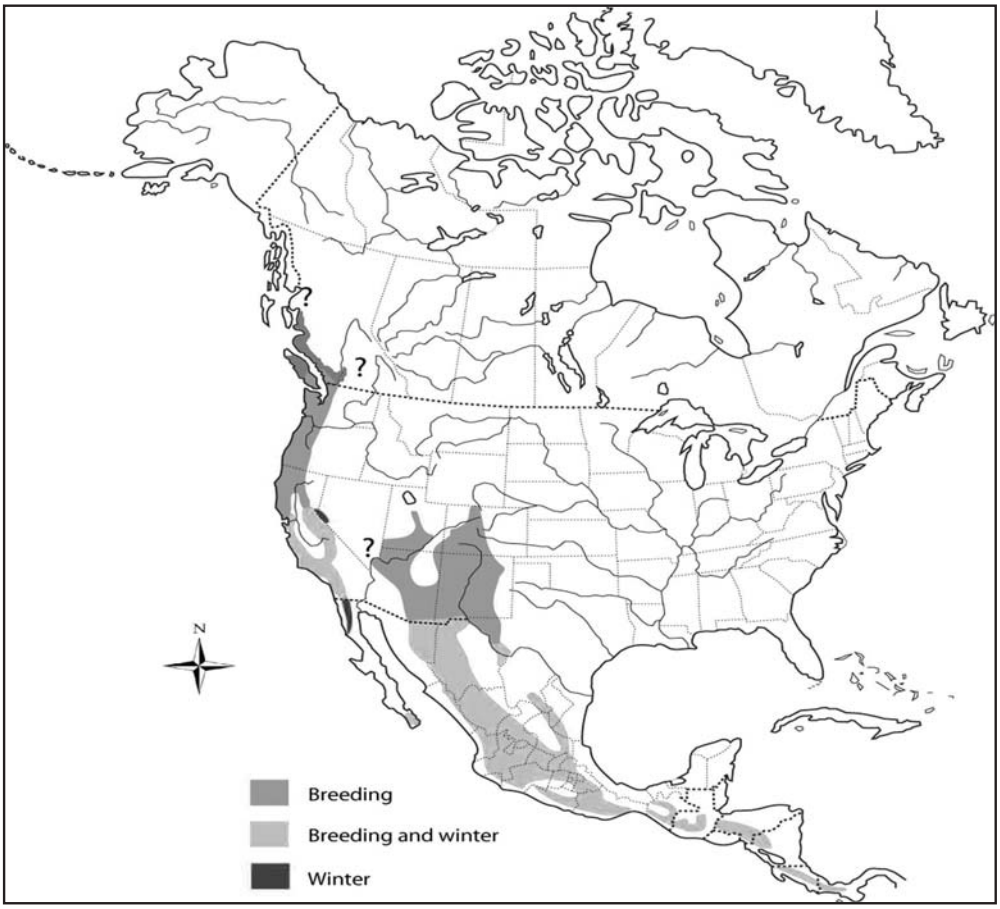
In British Columbia, the Band-tailed Pigeon breeds from near sea level to 760 m elevation in edges and openings in mature coniferous, mixed and deciduous forests, city yards and parks, wooded groves, open bushland, golf courses and orchards. In the Interior, it occurs in montane forests. Mineral sites are critical seasonal habitat as sources of sodium. Areas with flowering and berry-producing trees and shrubs provide foraging habitat.

## Biology

Band-tailed Pigeons are long-lived birds with low annual reproductive potential. Clutches usually contain one egg but some pairs may nest twice each year. Pairs nest solitarily and are dispersed across the landscape. Local breeding populations may aggregate at good foraging sites and mineral sites. Large flocks (50-200) form in late summer prior to the southward migration. Individuals are dependent on mineral sites as a source of sodium.

## Population sizes and trends

Population sizes in Canada and elsewhere are unknown. The Canadian population has been




Distribution of the Band-tailed Pigeon in North and Central America.

Source: Modified with permission from Birds of North America Online, 2009.

estimated to be 2,500-10,000 mature individuals by some, but those numbers are not based on any population census. Mark-resighting data from mineral sites suggest several tens of thousands or more is a reasonable estimate of current populations in Canada. Extrapolations from Breeding Bird Surveys suggest that there are between 43,000 and 170,000 birds in Canada, but these are not precise or robust estimates.

Once much more abundant in western North America than at present, the Band-tailed Pigeon has undergone several periods of decline, although data for significant historical (prior to 1960s) declines are all from the USA. All indicators of populations (anecdotal reports, harvest statistics, counts, BBS) suggest long-term declines from the 1960s through the early 2000s, and BBS data in particular show a significant decline of 11.2% per year over the last 3 generations (18 years). Unfortunately BBS data have low power and precision for this flocking species. The causes of historical continental declines are uncertain, but excessive harvest in the USA is thought to be a major cause. Habitat loss is likely a contributing factor in Pacific Coastal population declines. A recent survey method using counts at mineral sites is proving to be adequate for short-term population trend estimation; it is now the standard population monitoring methodology and is showing an increasing trend in the Pacific Flyway over the last 5 years.

## Limiting factors and threats

Limiting factors include low annual productivity (countered by high adult survival) and dependence on mineral sites. Threats within British Columbia include loss and degradation of breeding habitat and mineral sites through residential and industrial development, disturbance at mineral sites, chemical contamination at foraging and mineral sites, disease, and predation on nests by invasive species. Former additional threats to pigeons breeding in British Columbia but wintering elsewhere include inappropriate hunting regulations and behavioural attributes that make them vulnerable to hunters; but better regulations have removed this threat at present.

## Special significance of the species

The Band-tailed Pigeon has a long history of importance in the old (prior to 1916) market hunting days as a bird harvested for food, and in the last 100 years as a game bird for sport hunters. Currently, few hunters pursue this pigeon in Canada, but it is observed with delight by bird watchers.

## Existing protection or other designations

Many nesting areas are protected in national park reserves, provincial parks, civic parks, watershed protected areas, and other forest reserves. Critical mineral sites in Canada are mainly privately owned (especially in agricultural and inland areas) and subject to changing land use. Mineral sites on federal (estuaries, marine beaches) or provincial and municipal lands are not specifically managed for Band-tailed Pigeons. North American populations are monitored and hunting regulations are scrutinized annually by wildlife managers in Canada and the USA so as to avoid overharvest.

The Band-tailed Pigeon is on the BC Blue List, is protected in BC under the *BC Wildlife Act*, and is protected in Canada by the *Migratory Birds Convention Act, 1994*. ■

## Bent Spike-rush

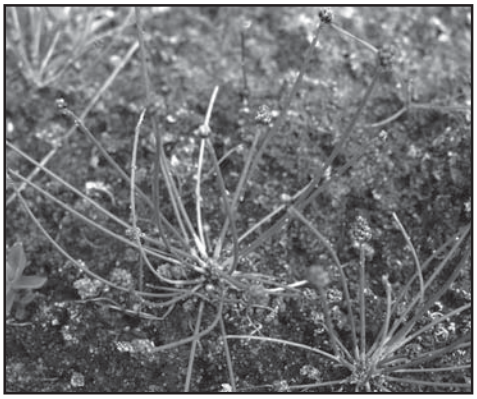


Photo: © Terry McIntosh

### Great Lakes Plains Population

**Scientific name**
*Eleocharis geniculata*

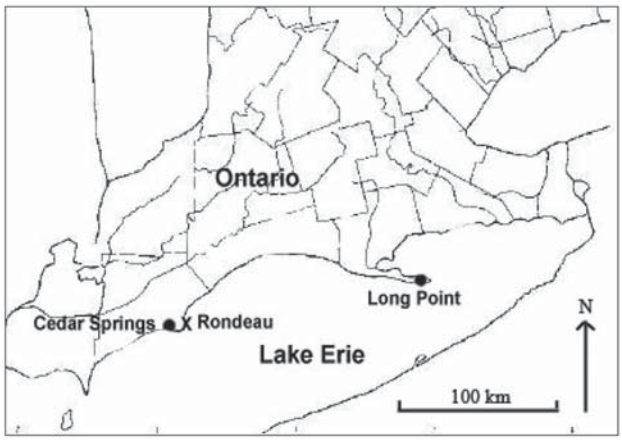
**Taxon**
Vascular plants

**COSEWIC Status**
Endangered

**Canadian Range**
Ontario

#### Reason for Designation

Only two extant Ontario populations are known for this annual species of the sedge family. The total population consists of possibly fewer than 2500 plants. They occur mainly in sandy wet habitats along ponds and in damp open meadows over an area of only about 2000 square metres. The habitat is declining due to the spread of the invasive, introduced form of Common Reed, an aggressive exotic grass.




Canadian distribution of Bent Spike-rush (Great Lakes Plains population) in Southern Ontario. Population locations are indicated with filled points.

Source: April 2009 COSEWIC Status Report.

### Southern Mountain Population

**Scientific name**
Eleocharis geniculata

**Taxon**
Vascular plants

**COSEWIC Status**
Endangered

**Canadian Range**
British Columbia

#### Reason for Designation

Only a single population of this annual species of the sedge family is known from a seasonally flooded wetland complex within a sandy spit at Osoyoos Lake, BC. Approximately 10,000 small plants are restricted


Canadian distribution of Bent Spike-rush (Southern Mountain population) in Southern British Columbia, denoted by the filled circle near Okanagan Lake.

Source: April 2009 COSEWIC Status Report.

to an area of about 1200 square metres where they are at risk from stochastic events and the potential impacts from the spread of exotic grasses.

## Great Lakes Plains and Southern Mountain Populations

### Species Information

Bent Spike-rush (*Eleocharis geniculata*) is a small, tufted annual sedge composed of numerous slender stalks (culms). Stalks are usually terminated by a single spikelet composed of bisexual flowers that produce black achenes (small dry fruitlets). Each achene is tipped with a flat and fairly wide tubercle. The black achenes separate this species from most other tufted Canadian species of *Eleocharis*. Until recently, collections of this species from Osoyoos Lake, British Columbia, had been identified as the Purple Spike-rush (*E. atropurpurea*), but research has shown this to be in error.

### Distribution

Bent Spike-rush is a pantropical species and is fairly widespread in the southern parts of North America. In Canada, it has been reported from one location in British Columbia (on Osoyoos Indian Band property on the east shore of Osoyoos Lake) and from three sites in south-western Ontario along the northern shore of Lake Erie: Long Point National Wildlife Area, Cedar Springs, and at an historical site in Rondeau Provincial Park. Two designatable units (DU) are considered in this report: the Southern Mountain DU (British Columbia) and the Great Lakes Plains DU (Ontario). The total estimated area of habitat occupied in Canada is 1200 $m^2$ in BC and 2000 $m^2$ in Ontario. The Index of Area of Occupancy based on a 2x2 km grid is 16 $km^2$ (4 km in BC and 12 km in ON).

### Habitat

In British Columbia, Bent Spike-rush has been found on soil at the edges of open ephemeral pond wetland complexes within the Bunchgrass Biogeoclimatic Zone. These ponds are flooded throughout much of the year, usually drying during the spring and summer, although sometimes they flood again in late summer. In Ontario, this species is found on wet, sandy to muddy soil in open flats on or along the edges of ephemeral ponds and wet meadows in the Deciduous Forest Region (Carolinian Zone). The Cedar Springs site appears to be an old sandpit. In British Columbia, the species' habitat appears stable, but in Ontario the habitat is threatened by extensive invasions of the exotic strain of Common Reed (*Phragmites australis*).

### Biology

Bent Spike-rush grows each year from overwintering achenes. Plants grow into early autumn and produce flowers and achenes, then wither and die during the onset of winter. Not all achenes that are produced germinate the following year. Some remain dormant, sometimes for many years, as a seedbank in the soil. Bent Spike-rush depends on a seedbank for its long-term persistence. Annual plants often have wide fluctuations in plant size and numbers, and the numbers of flowers and achenes produced from year to year. Dispersal is through movement of achenes as there is no means of asexual reproduction in this species.

### Population sizes and trends

Searches have been completed for Bent Spike-rush at many sites in British Columbia over the past few years. In Ontario, all three known sites for this species were surveyed in 2007. Three extant and one historical populations are known in Canada. In British Columbia, the estimated number of mature individuals in 2007 was >10,000. In Ontario, the estimated number of mature individuals in 2007 at Cedar Springs is 300-500 and at Long Point 1,000-2,000 plants. The range in British Columbia appears not to have changed over the short term, but has probably declined historically. The range in Ontario appears to be shrinking as available habitat is lost to invasion by Common Reed.

### Limiting factors and threats

The main natural limiting factor across the Canadian range of Bent Spike-rush is its restriction to a rather specific and geographically limited habitat. In British Columbia, trampling and soil disturbance by cattle and horses, human-related disturbances, invasive plants, especially grasses, and artificial management of the water levels of Lake Osoyoos are

threats. The greatest threat to populations in Ontario is the rapid invasion of known and potential habitat by Common Reed.

## Special significance of the species

The Canadian populations of Bent Spike-rush are the most northern occurrences for this species in North America, and, because these populations are disjunct from southern populations, the gene pools of these populations are potentially important in terms of genetic variability, environmental adaptations, and long-term persistence of the species.

## Existing protection or other designations

The BC population is protected within a fenced area by the Osoyoos Indian Band. In Ontario, the Long Point National Wildlife Area population of the Bent Spike-rush is protected under federal legislation. There is no known protection for this species at Cedar Springs. ■

## California Buttercup

Photo: © Matt Fairbarns

**Scientific name**
*Ranunculus californicus*

**Taxon**
Vacular Plants

**COSEWIC Status**
Endangered

**Canadian Range**
British Columbia

### Reason for Designation

A perennial species restricted to two small island groups adjacent to Victoria, BC. The four small confirmed populations are found within coastal meadow habitats where the extensive spread of invasive plants places the species at risk. Potential impacts on the populations include planned enlargement of communications towers at one site and unauthorized recreational visitors to the island habitats.

### Species Information

California Buttercup, Ranunculus californicus, is a low-growing, erect to flattened on the ground perennial species of buttercup with shiny lemon-yellow petals. It is readily distinguished from other buttercup species by its multiple petals (up to 16). Other similar species of buttercup, such as the western buttercup, typically have only 5 petals. California Buttercup readily hybridizes with the Western Buttercup, but can be easily distinguished by the curved beak on the fruitlets.

### Distribution

California Buttercup is found along the west coast of North America, from islands in extreme southwestern British Columbia and adjacent Washington State to Baja California where it is widespread. In British Columbia, it is found on two small island clusters that lie to the south and east of Victoria. The Extent of Occurrence is <20 $km^2$. The actual area of habitat occupied in Canada is under 2 ha although the Index of Area of Occupancy, based on a 1 km square grid, is 4 $km^2$ and 8 $km^2$ using a 2 km square grid.

### Habitat

In Canada, California Buttercup is restricted to open coastal meadows on exposed oceanic bluffs. It occurs in sites that remain open because of wind exposure alongshore, summer drought stress in thin soils and winter seepage that water logs soils, preventing taller vegetation from dominating. It is found in areas within 50 m of the coast where frequent coastal fogs occur in the autumn and winter, and the ocean buffers against deep frosts in the winter.

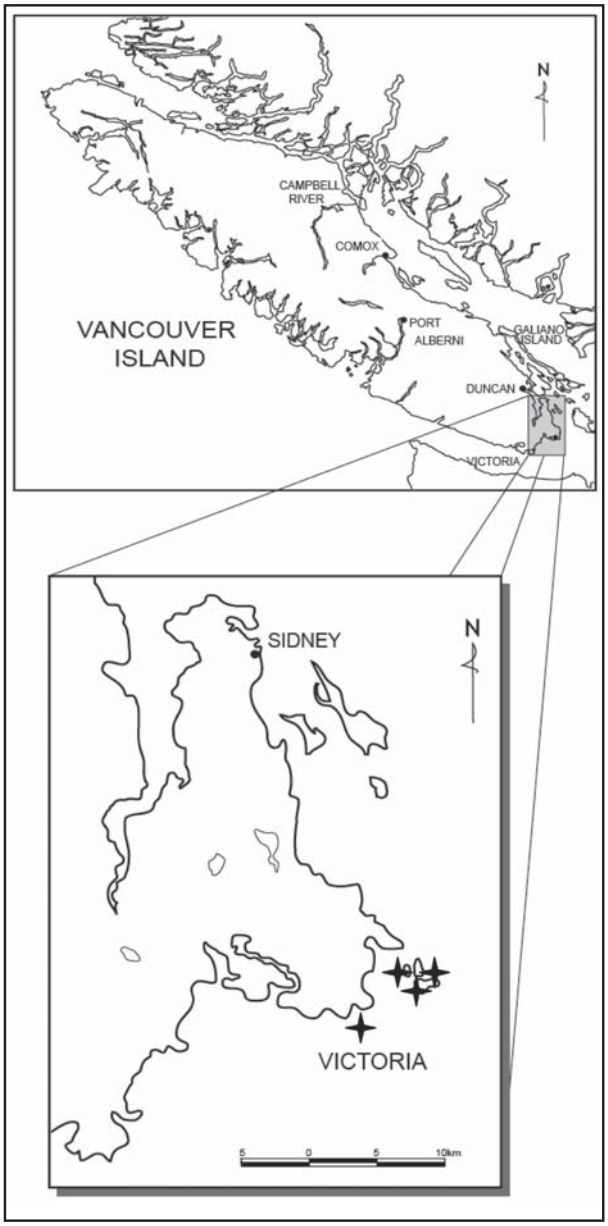
### Biology

California Buttercup is primarily a perennial species that can occasionally act as an annual. It is primarily bee-pollinated, although pollination may also be by thrips and flies. Seedling ecology and germination requirements are unknown. No specific information is known about dispersal in this species, although other buttercup species are eaten by voles, and are thought to be dispersed by adhesion (fur, feathers, clothing) and, for short distances, by wind. No damage from herbivores has been observed in the Canadian populations.

Investigators studying the response of coastal bluff species to temperature, light and humidity found that species in this habitat, including California Buttercup, are characterized by moderate photosynthetic abilities, and that the plants are adapted to conserve moisture during the dry summer season.

### Population sizes and trends

Records from 2003 and 2005 indicate there are four confirmed populations in British Columbia and a




Canadian distribution of California Buttercup, Southern Vancouver Island, British Columbia. Population locations are indicated with crosses.

Source: November 2008 COSEWIC Status Report

fifth reported population on private land that requires closer inspection. There are a total of between 3,000 and 3,600 individuals in the BC populations. Detailed surveys throughout the Canadian extent of occurrence have not resulted in any new populations of the species, although some sites adjacent to known populations appear to support hybrid plants.

There is no reliable long-term information on past population sizes of this species in Canada so fluctuations and trends in the size of extant populations cannot be determined. However, potential habitat has declined over the last century as a result of development of coastal meadows for residential and recreational use. Because of limitations in dispersal, colonization and development of new populations is unlikely.

## Limiting factors and threats

Limitations for the occurrence of this species in Canada include restricted availability of habitat because of direct habitat loss through past land development, and alteration of habitat resulting from grazing and the subsequent invasion of sites by alien species. Vegetation management plans for all sites are lacking, and this includes a lack of a plan for dealing with invasive species and habitat restoration.

Direct threats to our populations of California Buttercup include invasive species, land development and land use practices (Camas production), general recreational use and development in the area, and fire suppression.

## Special significance of the species

Canadian populations of *Ranunculus californicus* are of scientific interest because the species' distribution suggests that it is a relict from the Hypsithermal Interval of warm, dry climate 4,000-6,000 years b.p. This is surmised from the fact that British Columbia populations are highly disjunct from the main range in California, adding to their biogeographic and genetic importance.

## Existing protection or other designations

Neither the provincial nor federal government offers legal protection at the species level, although it is a provincially red-listed species. Such species are recognized as potentially being threatened or endangered in BC. Part or all of three populations occur in Ecological Reserves, where the plants and the habitat that sustains them, are legally protected. ■

## Cobblestone Tiger Beetle

Photo: © Henri Goulet

**Scientific name**
*Cicindela marginipennis*

**Taxon**
Arthropods

**COSEWIC Status**
Endangered

**Canadian Range**
New Brunswick

### Reason for Designation

This distinctive species of tiger beetle has a fragmented distribution with a very small extent of occurrence and area of occupancy, and is currently only found in two small regions of the St. John River system. There is evidence for decline of habitat and population in one region and the pressures on the habitat from development and recreation appear to be continuing.

### Species Information

*Cicindela marginipennis Dejean (1831)*, the Cobblestone Tiger Beetle (Cicindèle des galets) is a member of the Order *Coleoptera* (beetles), Family *Carabidae* (ground beetles), and subfamily *Cicindelinae* (tiger beetles). No subspecies are currently recognized.

Adults are 11-14 mm in length and like all tiger beetles have large mandibles used to capture their prey. Adults have a narrow continuous cream-coloured border along the elytra (hardened front wing that covers the hind flying wing) and a bright red-orange abdomen that is clearly visible during flight.

The immature stages of this species have not been described. However, all tiger beetle larvae are similar in structure. The predatory larvae usually inhabit a vertical burrow in the soil. The pronotum (part of the top of the thorax) combined with the top of the head forms a flattened disk that creates a plug for the burrow they live in, concealing the larvae and burrow entrance from prey walking on the soil surface. The larvae have large sickle-shaped mandibles that extend beyond the disk. The dorsal surface of the humped fifth abdominal segment is equipped with two pairs of large hooks that hook into the wall of the tunnel if the prey attempts to drag the larvae from its burrow.

### Distribution

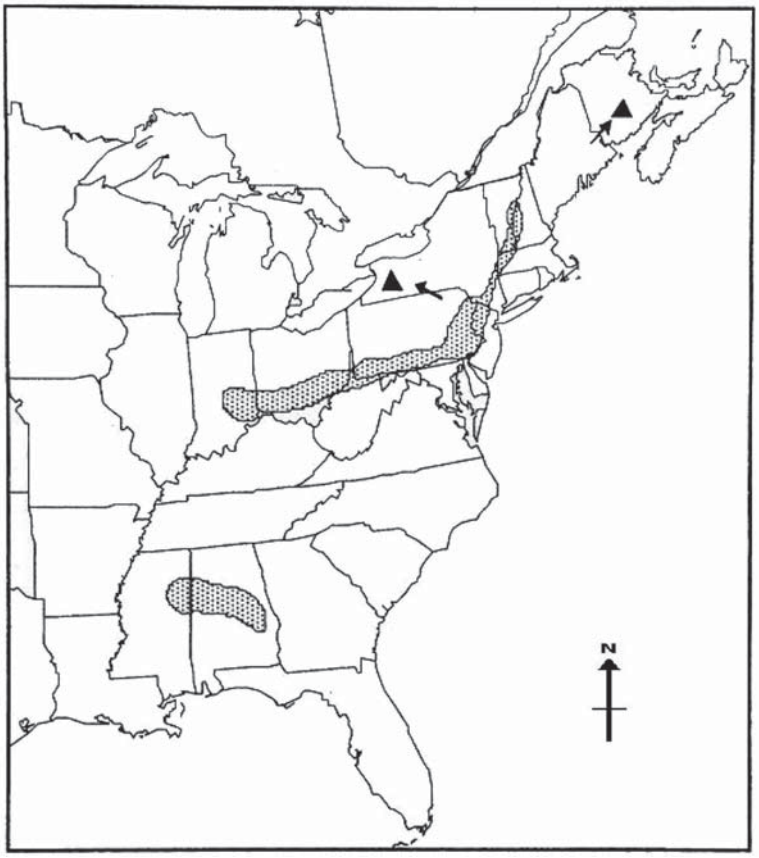
The Cobblestone Tiger Beetle occurs in several small disjunct populations associated with major river systems from Mississippi and Alabama northeastward to Ohio, Indiana, Pennsylvania, New York, and New Hampshire in the United States. In Canada, it occurs only in New Brunswick, at eight locations in two isolated areas along the Saint John River and at Grand Lake.

### Habitat

In Canada, the Cobblestone Tiger Beetle occurs only on treed islands of the Saint John River with high, infrequently flooded cobblestone beaches and similarly structured habitats on the shores of Grand Lake. The habitat where the Cobblestone Tiger Beetles live is created in part by the effects of flooding during the spring freshet and flow patterns created by the structure of the islands or beaches themselves. All occupied sites have high cobblestone beaches with sparse vegetation that are probably flooded only during the spring freshet and only rarely after very heavy summer rains. Factors (such as water level) that influence the flow patterns during the spring freshet and during the remainder of the season will have a significant impact on the structure of the habitat.

### Biology

Like other beetle species, the Cobblestone Tiger Beetle undergoes complete metamorphosis with an




Global distribution of the Cobblestone Tiger Beetle (shaded areas and triangles).

Source: Modified from November 2008 COSEWIC Status Report.

egg, larval, pupal and adult stages. No studies have been published on the life history of this species. However, the biology is undoubtedly similar to that of other species of tiger beetles. Larvae of tiger beetles pass through three larval stages or instars. The third instar larva builds a chamber in the soil and then forms a pupa from which the adult later emerges. Most species of *Cicindela* have a two year life cycle, although adults are present each year at any given locality. Tiger beetles are predators (feeding on spiders, smaller insects), both in the larval and adult stages. Adults are active during the day and will readily take flight when approached.

## Population sizes and trends

The total Canadian population probably contains about 5,000 adult individuals. Due to the recent discovery of this species, definite information on population trends is not available. A large proportion (up to 74%) of potential island habitats for this species was lost with the construction of the Mactaquac Dam in 1967.

## Limiting factors and threats

There is evidence for decline of habitat and population in one region and the pressures on the habitat from development and recreation appear to be continuing. Pollutants such as farm waste products and silt may alter the plant community making the habitats unsuitable for a ground-based insect by increasing plant cover and reducing shoreline prey. Because the larvae live in burrows among the cobblestones, beach traffic from ATVs may cause significant larval mortality as well as changes to the structure of the community and habitat itself. A recent observation at one site at Grand Lake suggests that one population may have declined due to habitat degradation by ATVs.

In Canada, the distribution of this species is highly fragmented, occurring in small populations at only a few locations in a very specialized and fragile habitat. This results in a high probability of extirpation of this insect from any given site. It is this limited distribution and small isolated populations that are the most important factors affecting the status of this species and its long-term persistence in Canada. The small population size and popularity of tiger beetles for natural history collectors makes this species susceptible to over-collecting. Reductions in distribution caused by habitat loss or loss of a population due to other factors could have a significant impact on the entire population by reducing genetic variability of the overall Canadian population and negatively influencing the ability of the species to adapt to future environmental changes such as global climate change.

## Special significance of the species

The Cobblestone Tiger Beetle occurs in only a few isolated populations throughout its range. The

Canadian populations are disjunct by 500 km from the closest populations in the United States. The Canadian populations contain a low proportion of green and cobalt blue individuals not known to occur in any other known populations of this rare species. Loss of these populations may be a significant loss in the genetic diversity for this globally rare species. Tiger Beetles have become important as a group of environmental indicators and they are the only group of beetles for which a current North American Field Guide exists. Factors that result in the loss of the habitat of the Cobblestone Tiger Beetles likely cause a concurrent loss of many other species of plants and insects that occur in this and adjacent habitats.

## Existing protection or other designations

Currently there is no legal protection for this species in Canada at either the national level or at the provincial level. This species is being considered for threatened status in the United States under the *U.S. Endangered Species Act*. ■

## Edwards' Beach Moth

Photo: © Nick Page

**Scientific name**
*Anarta edwardsii*

**Taxon**
Arthropod

**COSEWIC Status**
Endangered

**Canadian Range**
British Columbia

### Reason for Designation

In Canada, this species of noctuid moth has only been found in sparsely-vegetated sandy beach and dune habitats on the coast of Vancouver Island and two small adjacent Gulf Islands. Together, these constitute only two locations. The habitats are at risk from succession, invasive species, recreational activities and changing patterns of sand deposition resulting from increasing frequency and intensity of winter storms. It is currently known from James and Sydney Islands and Pacific Rim National Park. The chance of genetic exchange is minimal between Pacific Rim and other areas and low between the Gulf Islands. One population has not been detected in recent times, and the species could not be found at 38 other locations where there appeared to be suitable habitat.

### Species Information

Edwards' Beach Moth is a robust medium-sized (3.2 - 3.8 cm wingspan) species. The forewings are plain grey-brown with a line of black dots along the outer edge; and the hindwings are white with a broad dull black band on the outer half. Canadian populations belong to the nominate subspecies, which occurs throughout most of the species' range. Inland populations in southern California and Arizona have been described as a separate subspecies.

### Distribution

Edwards' Beach Moth occurs along coastal areas of southern Vancouver Island and the adjacent Gulf Islands of British Columbia south along the coast to southern California. It has a disjunct distribution and is apparently absent from most of coastal Washington and Oregon. It is presently known from only 2 locations in Canada. It was previously reported from two additional historic locations: Thetis Island (single specimens in 1966 and 1971) and Mill Bay on the Saanich Peninsula (one specimen in 1935).

### Habitat

This species has been captured in sparsely-vegetated sandy beach and beach dunes, including sandy beaches adjacent to saltmarshes. Substrates are generally medium-grained sand with vegetation cover ranging from 5–35%. Its larval host plant (or plants) in Canada is not known with confidence. Throughout its range, coastal populations tend to be concentrated in island complexes and inlets rather than on exposed, high-energy outer beaches.

### Biology

Adults in Canadian populations fly from mid-May through July, in a single brood. There are no observations of mating, egg-laying, larval development, or pupation in Canada. Its dispersal abilities are unknown.

### Population sizes and trends

There is no quantitative information on population sizes and trends for Edwards' Beach Moth. Recent sampling indicates it can be locally abundant in suitable habitat. Various threats are resulting in habitat loss and have likely resulted in population declines; the species was not found at one historic locality in the most recent survey. It is known from two localities and three populations. Historically, it was known from an additional two localities and an additional three populations.

## Limiting factors and threats

The limiting factors and threats to Edwards' Beach Moth in Canada are: (1) habitat specialization confines its distribution to regionally rare and spatially isolated sandy coastal habitats; (2) loss of habitat is occurring as a result of sea level rise and increased frequency and intensity of storms that impact the sandy habitat; (3) exotic Scotch Broom and Fallow Deer have invaded its remaining sites in the Gulf Islands and both are causing a reduction in abundance of native vegetation.

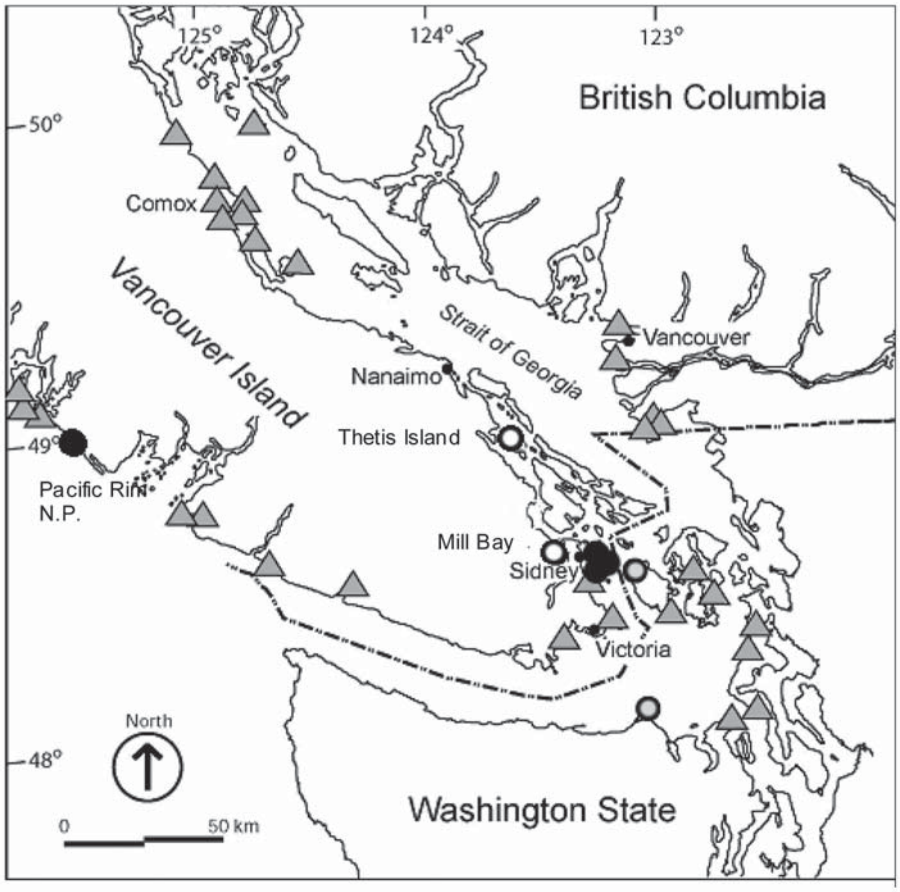
## Special significance of the species

*Anarta edwardsii* is part of a growing list of species restricted to sparsely vegetated sandy coastal ecosystems. These systems are exceptionally vulnerable to loss or degradation. The moth occurs in Canada in only two widely separated locations.

There is no information that suggests *A. edwardsii* has, or had, a significant social or economic role for First Nations.

## Existing protection or other status designations

*Anarta edwardsii* is not specifically protected in any jurisdiction in Canada or the United States. Moths in two areas are protected under the general protection afforded wildlife in National Parks; a third site is partially protected by a Regional Park and another by a Conservation Covenant. ■




Distribution of Edwards' Beach Moth in Canada and adjacent USA. The black circles are recent records, open circles are older records, and circles with shaded centers are recent localities in adjacent WA. The grey triangles are recently sampled coastal localities where Edwards' Beach Moth was not found.

Source: April 2009 COSEWIC Status Report.

## Gray's Desert-parsley

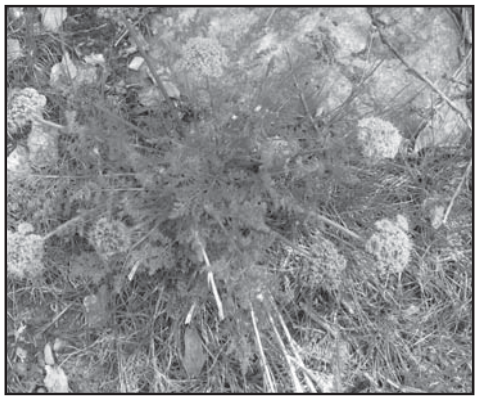


Photo: © Trent M. Draper

**Scientific name**
*Lomatium grayi*

**Taxon**
Vacular Plants

**COSEWIC Status**
Threatened

**Canadian Range**
British Columbia

### Reason for Designation

A highly restricted perennial herb with a small population found on only two sites on the Gulf Islands of British Columbia. The presence of invasive species such as Scotch Broom reduces the quality of the fragile habitat and grazing deer and sheep likely restrict the species' ability to expand beyond its limited area of occupancy.

### Species Information

Gray's Desert-parsley Lomatium grayi is one of many species in the genus Lomatium of the parsley family (Apiaceae). It is a large herbaceous perennial with a strong taproot, finely divided bluish green foliage, and parsley-type, yellow-flowered flat-topped flower clusters carried on 40 to 60 cm bare stems.

### Distribution

The species has its main distribution in the Intermountain Basins from Washington south to New Mexico. The small Canadian distribution in the southern Gulf Islands of British Columbia represents a remarkable coastal outlier west of the Cascades. The Extent of Occurrence in British Columbia is only 50 $km^2$, including ocean areas between the two locations. The actual extent of suitable habitat on Saltspring Island is five to six square kilometres at most, while the extent on Galiano Island is < 1 $km^2$. The actual area of habitat occupied on Saltspring Island is estimated at 8.5 hectares and on Galiano Island at 6 hectares. The two locations represent an Area of Occupancy, following COSEWIC criteria using a 2x2 km grid, of 8 km2 and only 2 $km^2$ when using the preferred 1x1 km grid for a species with such a restricted habitat.

### Habitat

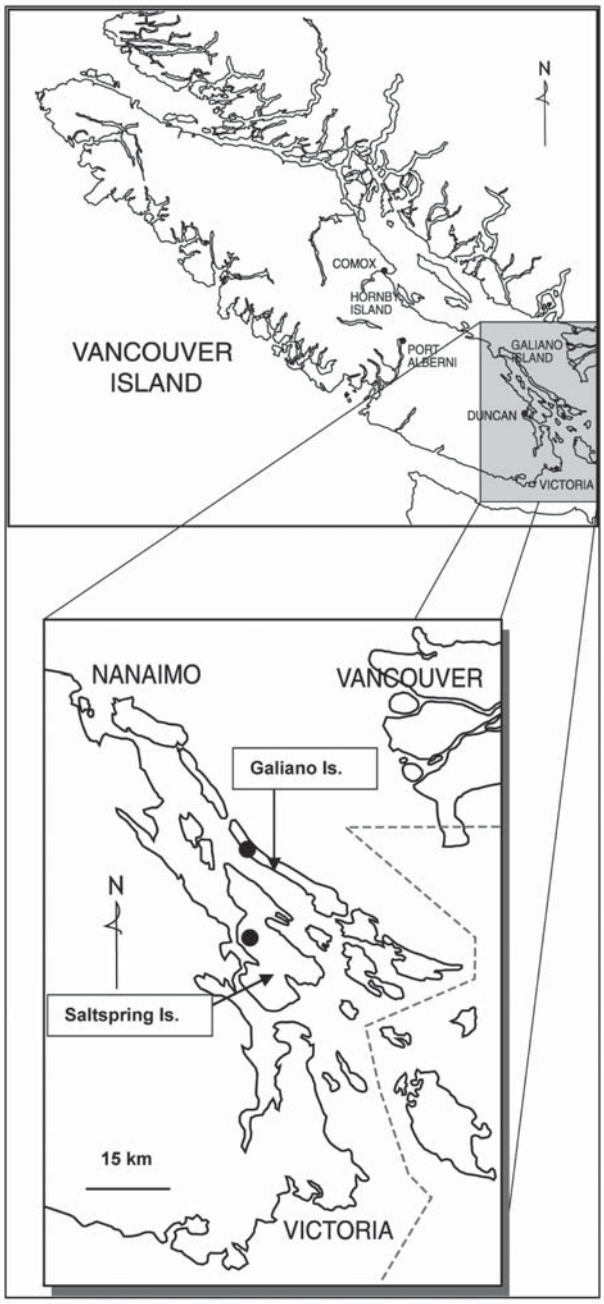
Across its range, Lomatium grayi is a plant of dry, stony sites and often of shallow soils. The two occurrences in the Gulf Islands are both on very steep or vertical, southwest-facing rock walls where the plants grow on narrow ledges, in cracks of the rock, and in small pockets of soil. Most of this habitat is open, but there are also portions where Lomatium is found under stunted trees or shrubs. Similar habitats are available elsewhere in the Gulf Islands and on southern Vancouver Island but no other occurrences are known in spite of this additional available habitat.

### Biology

Plants of the Gulf Islands populations leaf out in early April, flower in late April, and set seed and enter summer dormancy with yellowing foliage by mid-summer. Pollinators have not been identified, but are probably bees, based on studies in Utah. The mode of seed dispersal has not been reported, but in the Canadian cliff populations it may be by wind. Germination takes place in early spring and cultivated plants can reach flowering size in two or three years. U.S. studies indicate that Lomatium grayi reaches seven years of age.

### Population sizes and trends

With 240 and 1650 individuals respectively on Saltspring Island and Galiano Island, the Canadian populations are very small. The two populations are 17.5 km apart and occupy only 8.5 (Saltspring Island) and 6 (Galiano Island) hectares. Population trends are




Canadian distribution of Gray's Desert-parsley, southern Vancouver Island, British Columbia. Population locations are indicted with filled points.

Source: November 2008 COSEWIC Status Report.

unknown as intensive studies did not occur before 2002. The extreme terrain makes it unlikely that human impacts have reduced populations in historical times, other than through domestic grazing animals. Slight degradation of the biotic habitat is possible through the increase of introduced species.

## Limiting factors and threats

The exclusive occurrence on inaccessible terrain suggests that grazing by native deer and feral sheep is a major limitation for the species to spread into other open, but readily accessible habitats. The few plants found within reach of grazing animals were all young or depauperate. Cultivated plants were consumed by mice, rats and eastern cottontail rabbits. Long-distance seed dispersal across non-habitat areas is also likely to be a limiting factor. Potential threats could be the increase of invasive plants.

## Special significance of the species

*Lomatium grayi* is one of the more attractive members of this genus and may well find a place in horticulture. Like several other *Lomatium* species, it was used by some Aboriginal Peoples as a source of food and it may, like a closely related species, have antiviral and antibacterial properties. The Canadian occurrences are unique in being the most northerly and the only coastal populations. This disjunct occurrence could be connected with genetic differences.

## Existing protection or other status designations

*Lomatium grayi* receives no legal protection throughout its main distribution and is not considered to be at risk in the U.S. In British Columbia it is on the provincial Red list. But this does not convey legal protection. The Saltspring Island population (13% of the estimated total number of individuals) is protected in a Provincial Park/Ecological reserve complex. The Galiano Island population occurs on private properties. ■

# Horned Grebe

Photo: © Corel Corporation 1994

## Magdalen Islands Population

**Scientific name**
*Podiceps auritus*

**Taxon**
Birds

**COSEWIC Status**
Endangered

**Canadian Range**
Québec

### Reason for Designation

The small breeding population of this species has persisted on the Magdalen Islands for at least a century. It has recently shown declines in both population size and area of occupancy. The small size of the population (average of 15 adults) makes it particularly vulnerable to stochastic events.

## Western Population

**Scientific name**
Podiceps auritus

**Taxon**
Birds

**COSEWIC Status**
Special Concern

**Canadian Range**
Alberta, British Columbia, Manitoba, Northwest Territories, Nunavut, Ontario, Saskatchewan, and Yukon.

### Reason for Designation

Approximately 92% of the North American breeding range of this species is in Canada and is occupied by this population. It has experienced both long-term and short-term declines and there is no evidence to suggest that this trend will be reversed in the near future. Threats include degradation of wetland breeding habitat, droughts, increasing populations of nest predators (mostly in the Prairies), and oil spills on their wintering grounds in the Pacific and Atlantic Oceans.

## Magdalen Islands and Western Populations

### Species Information

The Horned Grebe (*Podiceps auritus*) is a member of the *Podiceps* genus. There are two known subspecies of the Horned Grebe: (*P. a. auritus*), which breeds in Eurasia, and (*P. a. cornutus*), which breeds in North America. The Horned Grebe is a relatively small waterbird with breeding plumage characterized by a patch of bright buff feathers behind the eye, which extends into tufts that contrast with its black head.

The present status report covers two designatable units of *P. auritus* that breed in Canada, the Western Population, which includes birds breeding from British Columbia to northwestern Ontario, and the Magdalen Islands Population, which includes a longstanding breeding population found on the Magdalen Islands in Quebec. The birds of these two populations show some genetic differences and their breeding ranges are separated by more than 2,000 km. Birds from both populations may, however, overlap on the wintering grounds on the east coast of Canada.

### Distribution

Approximately 92% of the North American breeding range of the Horned Grebe is in Canada. It breeds in British Columbia, Yukon, the Mackenzie River Valley in the Northwest Territories, the extreme southern part of Nunavut, all of the Prairies, northwestern Ontario and the Magdalen Islands (Quebec), where a small isolated population has been breeding for at least a century. In the United States, it breeds in central and southern Alaska, as well as locally in some northwestern states.

Most of the North American population winters along the coasts of the continent.

## Habitat

The Horned Grebe breeds primarily in temperate zones such as the Prairies and Parkland Canada, but can also be found in more boreal and subarctic zones. It generally breeds in freshwater and occasionally in brackish water on small semipermanent or permanent ponds, but it also uses marshes and shallow bays on lake borders. Breeding areas require open water rich in emerging vegetation, which provides nest materials, concealment and anchorage, and protection for the young.

## Biology

The Horned Grebe is generally a solitary nester, although it can nest in loose colonies if the breeding pond is sufficiently large and there are abundant food resources. The Horned Grebe is aggressive when defending its territory, rarely leaving its nest unguarded. Its diet consists primarily of aquatic insects and fish in the summer, and fish, crustaceans and polychaetes in the winter.

## Population sizes and trends

The Western Population of the Horned Grebe is estimated at between 200,000 and 500,000 individuals, with most of the birds found


Breeding and winter ranges of the Horned Grebe in North America.

Source: Birds of North America Online, 2009.

in Saskatchewan and Alberta. Long term trend analyses based on Christmas Bird Counts show a significant decline of 1.5%/year between 1966 and 2005. At this rate of decline, the population will have decreased by approximately 45% since the mid-1960s. Short-term trend analyses based on the same survey methods show a significant annual rate of decline of 1.25%/year between 1993 and 2005 (three generations). At this rate, the population will have decreased by 14% over the last three generations.

The Magdalen Islands Population in Quebec is estimated at an average of 15 adults. Since 1993, no more than 25 adults have been seen during the same breeding season and only five adults were observed in 2005. Analyses based on annual surveys on the Magdalen Islands suggest that the population has declined by approximately 22% over the last three generations.

## Limiting factors and threats

Permanent loss of wetlands to agriculture and development threaten Horned Grebe populations. Temporary loss of wetlands during droughts can also negatively impact Horned Grebe populations, as can eutrophication and degradation of nesting sites from the accumulation of fertilizers used in agriculture. The expansion of predators on the Prairies, Type E Botulism on the Great Lakes and oil spills on the wintering grounds can also threaten Horned Grebe populations.

The very small size of the Magdalen Islands Population makes it vulnerable to demographic, environmental and genetic factors.

## Special significance of the species

Horned Grebes occupy the upper trophic level and all of their life stages are tied to water. They may, therefore, be useful indicators of changes in wetland habitat. Furthermore, their striking nuptial plumage, spectacular courtship displays and approachable nature make them popular among bird watchers and ecotourists. On the Magdalen Islands, and by extension in eastern Canada, this small population is unique among the natural heritage.

## Existing protection or other status designations

Both the Northern Prairie and Parkland Waterbird Conservation Plan and the North American Waterbird Conservation Plan (NAWCP) have identified the Horned Grebe as a species of high concern. Canada's Waterbird Conservation Plan (Wings Over Water) placed the Horned Grebe population in the "Moderate concern" category. NatureServe, considers the Horned Grebe as globally abundant, widespread and secure in the United States and Canada. However, the species is ranked as vulnerable in Alberta and Washington State, imperiled in Oregon, South Dakota and Minnesota and critically imperiled in Idaho, Ontario and Quebec.

The species is protected under the *Migratory Birds Convention Act*, *1994*. Given the precariousness of the Magdalen Islands population in Quebec, the Horned Grebe was designated as a threatened species under Quebec's *Act Respecting Threatened or Vulnerable Species* in 2000. However, this designation does not offer any protection to the species' breeding habitat. ■

# Oregon Lupine

Photo: © Thomas Kaye

**Scientific name**
*Lupinus oreganus*

**Taxon**
Vascular Plants

**COSEWIC Status**
Extirpated

**Canadian Range**
British Columbia

## Reason for Designation

The species has only been recorded from Oak Bay, Victoria, BC, where it was first collected in 1924. The last record of its existence in Canada is a collection made from the same area in 1929. The species has not been recorded since its last collection in the region in spite of extensive botanical surveys within southeastern Vancouver Island over the last several decades.

## Species Information

Oregon Lupine, *Lupinus oreganus*, is a long-lived perennial of the bean family (*Fabaceae*). Its aromatic flowers have a slightly reflexed, distinctly ruffled upper petal (banner), and are yellowish-cream coloured, often showing shades of blue on the lower petal (keel). The upper calyx lip is short, yet not obscured by the reflexed banner when viewed from above. The leaflets tend to a deep green with an upper surface that is often hairless. The plants are 40 to 80 cm tall, with single to multiple unbranched flowering stems and basal leaves that remain after flowering.

## Distribution

Globally, Oregon Lupine occurs in a narrow range west of the Cascades from Douglas County, Oregon to Lewis County, Washington, and into southern British Columbia. In Canada, it has only been found at one site in the vicinity of Victoria, British Columbia where it is now extirpated.

## Habitat

Oregon Lupine occupies native upland prairies and open oak woodlands. Soils are damp to somewhat dry.

## Biology

Oregon Lupine is a long-lived perennial and flowers from April to June. In its current range in the United States, plants enter dormancy in July, in response to summer drought, and are completely senescent by mid-August.

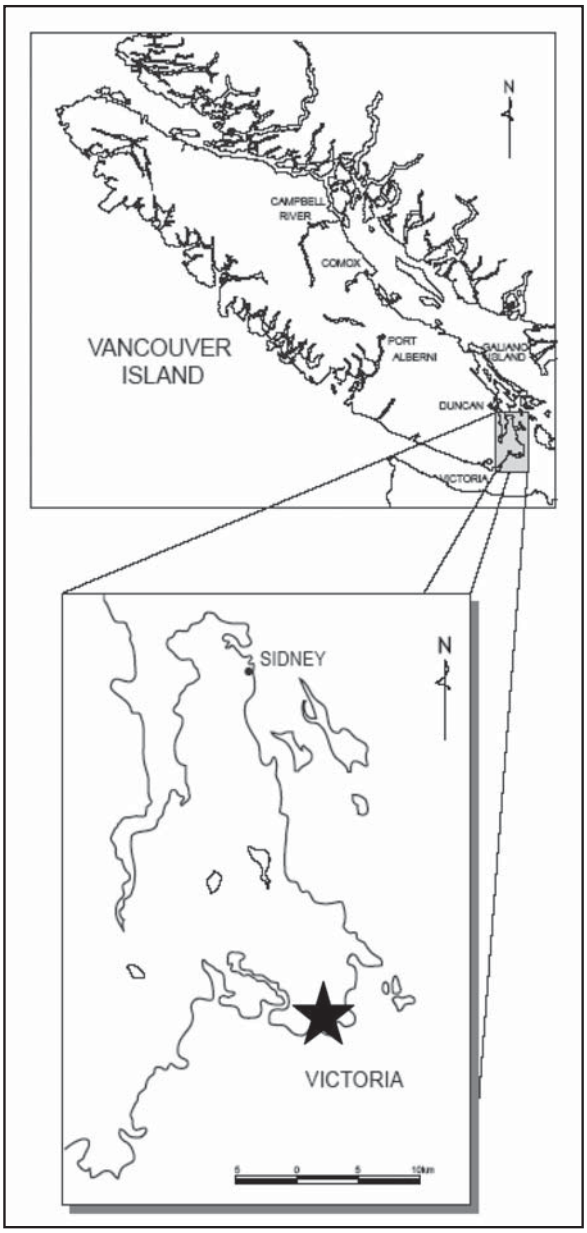
Flowers possess a pump or piston arrangement for cross-pollination by insects. Fruit and seed set is obligately dependent on insect vectors. It is unable to survive prolonged periods of shade. Clumps can be quite large, forming clones with seemingly individual plants 10 m or more apart being inter-connected by underground stems.

## Population sizes and trends

Oregon Lupine has been collected from one locality in Canada. There have been no collections since 1929; this represented the last of seven collections of this species made in Canada. Because location data for these collections are vague, it is unclear whether the historic collections constitute one or more populations.

## Limiting factors and threats

The need for a summer-dry sub-Mediterranean climate, which in Canada, only occurs on southeast Vancouver Island and some of the adjacent Gulf Islands, limited this species' occurrence in Canada. Present threats within its former habitat include habitat destruction, invasive species competition, fire suppression as well as recreational and maintenance activities.




Canadian distribution of Oregon Lupine. The star indicates the location of the single extirpated Canadian population.

Source: November 2008 COSEWIC Status Report.

## Special significance of the species

Oregon Lupine is the focus of a major restoration effort in the Willamette Valley of Oregon. It is the primary host food plant for the endangered Fender's Blue Butterfly larvae.

## Existing protection or other status designations

Oregon Lupine is not covered under the Convention on International Trade in Endangered Species. It is listed as threatened under the *Endangered Species Act* (USA) and has a world status of vulnerable in the 1997 IUCN Red Data Book. The IUCN also lists it as V, E, and Ex/E for Oregon, Washington and BC respectively. NatureServe globally ranks it as G5 (secure; the var. oreganus is relatively common in Oregon), with a US National status of N2 (imperiled), a Canadian National status of NH (historical record), and sub-national status ranks of S2 (imperiled), S1 (critically imperiled) and SX (presumed extirpated) in Oregon State, Washington State and British Columbia respectively. It is on the BC provincial red list, although British Columbia does not provide any legal protection for this species. ■

# Pygmy Snaketail

Photo: © Denis Doucet

**Scientific name**
*Ophiogomphus howei*

**Taxon**
Arthropods

**COSEWIC Status**
Special Concern

**Canadian Range**
Ontario, New Brunswick

## Reason for Designation

This globally rare species is known from few locations and has a specialized and restricted habitat with low population numbers and one significant site is threatened.

## Species Information

The Pygmy Snaketail (Ophiogomphe de Howe, *Ophiogomphus howei*) is the smallest of a group of species that are characteristic of fast moving water. Even the largest species in this group are of only medium size for North American dragonflies (*Anisoptera*). The genus is in the Clubtail family (*Gomphidae*). There are no proposed subspecies or forms.

The adult appearance is typical of the genus except in size and wing markings. Their colour is black with vivid yellow markings on the abdomen and bright green on the thorax. The wings of both sexes are strongly marked basally with a large, transparent yellow-orange field. This is unique in the Clubtails, and rare among North American *Odonata* in general.

The larvae are small and cryptic, though readily determined in later stadia by the absence of dorsal abdominal hooks. Exuviae (skins abandoned after emergence) are the most often found evidence of the species.

## Distribution

The Pygmy Snaketail is largely confined to eastern North America. It is known in a line along the Appalachian Mountains from northern New Brunswick to southeast Tennessee. There is an apparently disjunct centre of distribution of the species in Michigan, Minnesota, Wisconsin and northwestern Ontario.

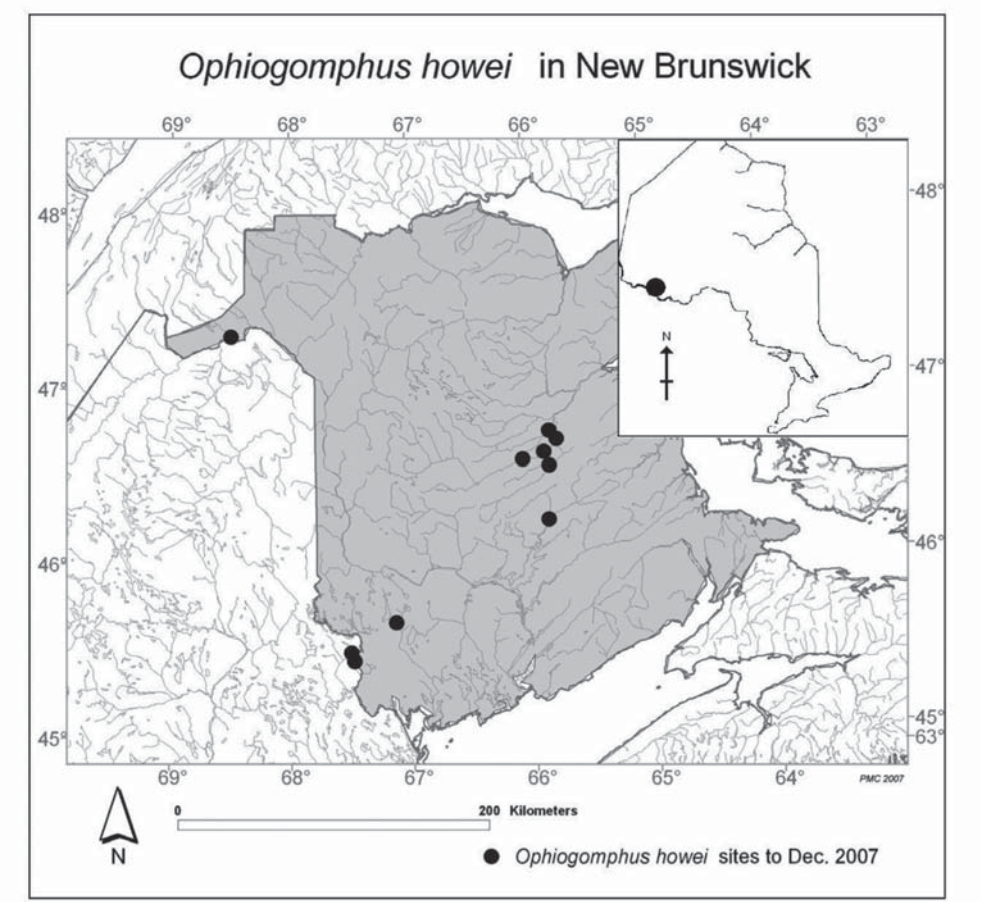
There are 12 known locales for the species in Canada. Canadian locations are in New Brunswick (11) and Ontario (1). It was first reported for Canada from the banks of the Saint John River in northern New Brunswick in 2002. The US border sites are on the St. Croix River in southwest New Brunswick. It also occurs on the Magaguadavic, Miramichi and Salmon Rivers.

## Habitat

The species has been observed laying eggs in smooth-flowing reaches of otherwise tumultuous rivers, and the larval skins from which the adults emerge are commonly found on the erosional banks. This suggests that the larvae live on or within fine sand or pea gravel substrate where the current is strong. Searches for larval skins at many seemingly appropriate waters, and at the appropriate time of the year, have generally yielded no results for the species. It is believed to be absent from these waters; suggesting that the habitat, including factors influencing larval success and emergence locale, should be more narrowly defined than we currently realize.

## Biology

As with all dragonflies, larvae and adults are predaceous, principally eating invertebrates. Larvae may also take small fish. There is no firm evidence of the length of time required for the larvae to develop to emergence; however, it is believed to take at least two years.




Canadian distribution of Pygmy Snaketail populations in New Brunswick. Inset is the location of the lone Pygmy Snaketail population in Northern Ontario. Population locations are indicated by the filled points.

Source: Modified from the November 2008 COSEWIC Status Report.

Emergence is largely associated with the synchronous emergence of other members of its genus. In 2002, emergence on the Saint John River in northern New Brunswick was on June 22, and was accompanied by emergence of several other Snaketails. In southwest New Brunswick, emergence is more likely near the beginning of the second week of June. It is likely that the adults fly for six to eight weeks following emergence, although some individuals survive for a few more weeks.

The adults are rarely encountered at water and are usually difficult to identify in flight. It is likely that they spend much of their flight in the canopy of the forest, which is the case with most Snaketails.

## Population sizes and trends

Only 102 individuals of the Pygmy Snaketail have been confirmed in Canada, 101 in New Brunswick and 1 in Ontario. Population size is unknown, but several hundreds of individuals are likely necessary to sustain a population. The data in hand is insufficient to speculate on fluctuation of population.

Given the relatively good condition of the Saint John River at Baker Brook where the Pygmy Snaketail was encountered, and the lack of recent heavy impact on rivers in the region, it is likely but unproven that the Canadian population is stable at its current level.

## Limiting factors and threats

Larvae of this species require clear, rapid, and unpolluted running waters, with the appropriate substrate believed to be fine sand or pea gravel. They usually occur in large rivers. Dam construction is a threat to the Ontario population but less of a threat to the New Bruswick populations. Water pollution due to excessive nutrient input from sewage, or sedimentation due to agricultural or forestry run-off are distinct threats to larval habitat. Pesticides and herbicides are also potentially threatening. Invasive species can alter the biota to the detriment of the Pygmy Snaketail.

## Special significance of the species

This species' presence is indicative of reasonably uncompromised running waters habitats. It is considered rare or at risk, and a protection priority, throughout its range. Organized and widespread inventory of dragonflies has occurred over the past two decades in both New Brunswick and Ontario, the only provinces in which it is recorded, with the results of this work indicating that it is very rare in both provinces.

## Existing protection or other designations

Of the 12 confirmed sites in Canada, the St. Croix River in southwest New Brunswick is protected to some extent by the St. Croix International Waterway Commission. Much of the Miramichi River is managed as a salmon fishery, which protects the habitat of this pristine river. The Saint John River and Magaguadavic River have no formal protection. ■

## Slender Popcornflower

Photo: © Keir Morse

**Scientific name**
*Plagiobothrys tenellus*

**Taxon**
Vascular Plants

**COSEWIC Status**
Threatened

**Canadian Range**
British Columbia

### Reason for Designation

An annual herb of grassy slopes and coastal bluffs within the highly reduced and fragmented Garry Oak ecosystem. About half of the known populations have been extirpated from areas heavily impacted by invasive alien plants on southeastern Vancouver Island and adjacent Gulf Islands. Only seven small populations remain. Population sizes fluctuate, likely depending on precipitation, with several comprising only a few individuals. The total population size is estimated to be fewer than 1000 individuals. Invasive plants continue to degrade the species' habitat at all sites.

### Species Information

Slender Popcornflower, Plagiobothrys tenellus, is a member of a genus of approximately 50 species in the borage family (*Boraginaceae*). Species of the genus are found mainly in North America, but also occur in South America and Australia. Three species occur in Canada. Slender Popcornflower is an annual growing from a slender taproot. The plant has a single or sometimes branched stem 5-25 cm tall. The basal leaves occur in a rosette and the stem leaves are few, alternate, and reduced upwards. The flowering stems have coiled, terminal inflorescences with small flowers. The petals are white, fused at the base and flare above into 5 lobes. The nutlets are cross-shaped and warty.

### Distribution

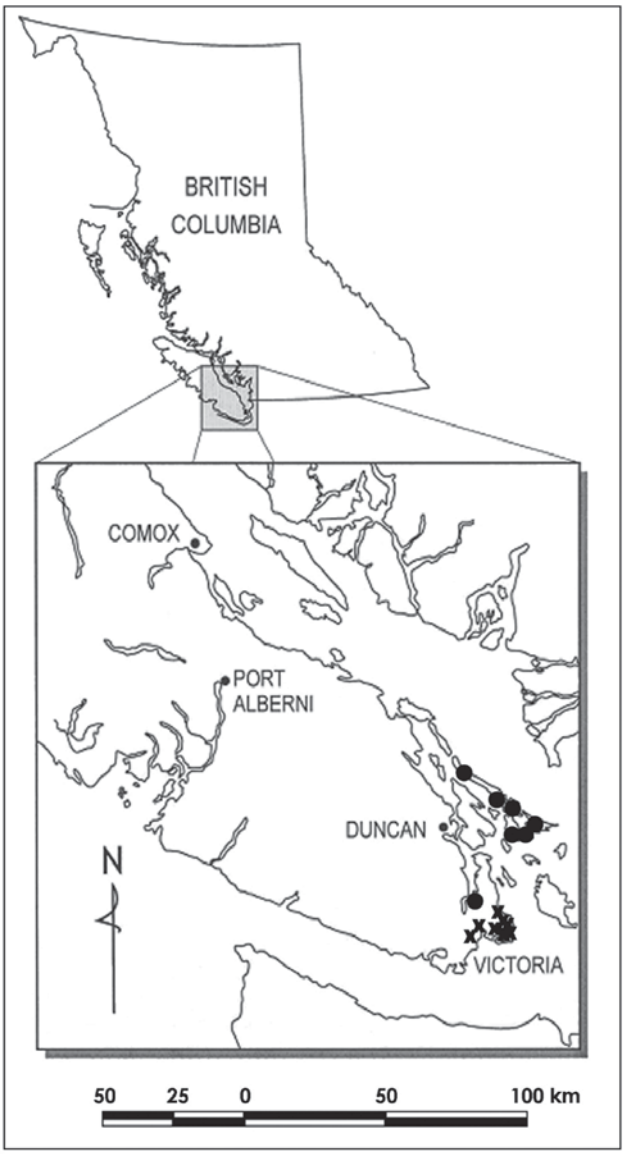
The species ranges from southwestern British Columbia, south, mostly on the east side of the Cascade Mountains, to southern California and Nevada. In British Columbia, the populations are found in the Garry Oak ecosystem in the dry Coastal Douglas-fir zone of southeastern Vancouver Island and adjacent Gulf Islands. The Canadian range currently makes up less than one percent of the species' total North American range. The Extent of Occurrence of historical and present populations is approximately 370 $km^2$, and the current Extent of Occurrence is approximately 300 $km^2$. Slender Popcornflower has been reported from thirteen locations in Canada with seven of these considered extant. The Canadian populations are separated by distances of 10-15 km, and are at least 300 km north of the species' main range. In Canada, the species occupies a small area of habitat totalling 150-350 $m^2$. Its Index of Area of Occupancy based on a 1 km square grid is 7 $km^2$ and 28 $km^2$ based on a 2x2 km square grid.

### Habitat

Slender Popcornflower populations in British Columbia are found in the Garry Oak ecosystem of southeastern Vancouver Island and adjacent Gulf Islands. This area has a Mediterranean climate, with mild, wet winters and warm dry summers. The species occurs on dry, steep, grassy, south or southwest-facing slopes and coastal bluffs, often on exposed gravelly soils or rocks. Although there are no specific data on the trends in the Canadian habitat for Slender Popcornflower, the Garry Oak ecosystem has seen a dramatic decline to less than 5% of its historical distribution and is now limited to isolated pockets.

### Biology

No research has been conducted on Slender Popcornflower. It is known that the species is an




Canadian distribution of Slender Popcornflower, showing historical (x) and extant (post-1958) populations (●).

Source: November 2008 COSEWIC Status Report

annual. Flowers are bisexual with both male and female organs. Flowering has been observed in late-April to late-May in BC, with seed production occurring in June. Birds are likely the only active, long-range dispersers. On a local basis, dispersal is probably by birds, small mammals and gravity.

## Population sizes and trends

There are presumed to be seven extant populations of Slender Popcornflower in Canada: one on southeastern Vancouver Island and the remainder on the adjacent Gulf Islands. Population sizes range from 3 to 800 plants on areas of 3 $m^2$ to 100 $m^2$. Recent population trends are unknown, even though this species has been known from the Victoria area for over a century. A historic decline is known since six of a total of 13 known populations are no longer extant. The most recent surveys of populations indicate that there are approximately 400-800 individuals in Canada. There is evidence that some populations have fluctuated greatly in size. Only one site has been inventoried over multiple years. The potential for Slender Popcornflower seeds to arrive naturally from populations in the United States to effect "rescue" is low since the species' main range is 300 km distant on the east side of the Cascade Mountains.

## Limiting factors and threats

The most obvious threat to Slender Popcornflower in British Columbia is habitat destruction through housing developments on private property. This is the likely cause of the extirpation of the historical populations known from Vancouver Island. Six of the seven extant populations occur on the Gulf Islands, which are now experiencing increasing housing development. The remaining habitat and populations may be threatened by introduced plant species. Increased development on both the Gulf Islands and on Vancouver Island has increased habitat fragmentation, reducing potential for new population establishment and transfer between populations.

## Special significance of the species

The extant populations of Slender Popcornflower are at the northern extent of the species' main geographic range, as well as being disjunct. These peripheral populations may be important for the long-term survival of the species as a whole.

## Existing protection or other status designations

Globally, Slender Popcornflower is ranked as G4G5, meaning it is considered to be either "frequent to common (greater than 100 occurrences); apparently secure but may have a restricted distribution; or there may be perceived future threats" (G4) or "frequent to common to very common; demonstrably

secure and essentially ineradicable under present conditions" (G5). The species is considered rare outside British Columbia only in Utah. Provincially, Slender Popcornflower is ranked by the British Columbia Conservation Data Centre as S2, meaning it is "imperiled because of rarity (typically six to 20 extant occurrences or very few remaining individuals) or because of some factor(s) making it very susceptible to extirpation or extinction". The species is also included on the British Columbia Ministry of Environment red list (list of potentially extirpated, endangered or threatened species in BC). At least three of the seven extant populations of Slender Popcornflower in British Columbia are afforded some protection, within regional, provincial or federal parks. The remaining 4 populations potentially occur in protected areas but because of a lack of detailed locality information and unsuccessful recent searches their occurrence in protected areas could not be established. ■

## Snapping Turtle

Photo: © Shane de Solla

**Scientific name**
*Chelydra serpentina*

**Taxon**
Reptile

**COSEWIC Status**
Special Concern

**Canadian Range**
Manitoba, New Brunswick, Nova Scotia, Ontario, Québec, Saskatchewan.

### Reason for Designation

Although this species is widespread and still somewhat abundant, its life history (late maturity, great longevity, low recruitment, lack of density-dependent responses) and its dependence on long warm summers to complete incubation successfully make it unusually susceptible to anthropogenic threats. When these threats cause even apparently minor increases in mortality of adults, populations are likely to decline as long as these mortality increases persist. There are several such threats and their impacts are additive. Aboriginal Traditional Knowledge generally supports the declining trend and population figures in the COSEWIC report.

### Species Information

Canada's largest freshwater turtle, the Snapping Turtle, *Chelydra serpentina* (Linnaeus 1758), is monotypic for North America and globally is one of three species within the genus *Chelydra* and is one of four species within the family *Chelydridae*. The keeled carapace is brown, black or olive, and the cross-shaped plastron is much reduced compared with other turtles, leaving the limbs and sides of the body exposed. The Snapping Turtle's head is large with a hooked upper jaw, the neck is relatively long, and the tail is approximately as long as the carapace. In a central Ontario population, adult males have an average carapace length of 32.3 cm and an average mass of 9.3 kg, whereas adult females average 28.5 cm carapace length with an average mass of 5.3 kg.

### Distribution

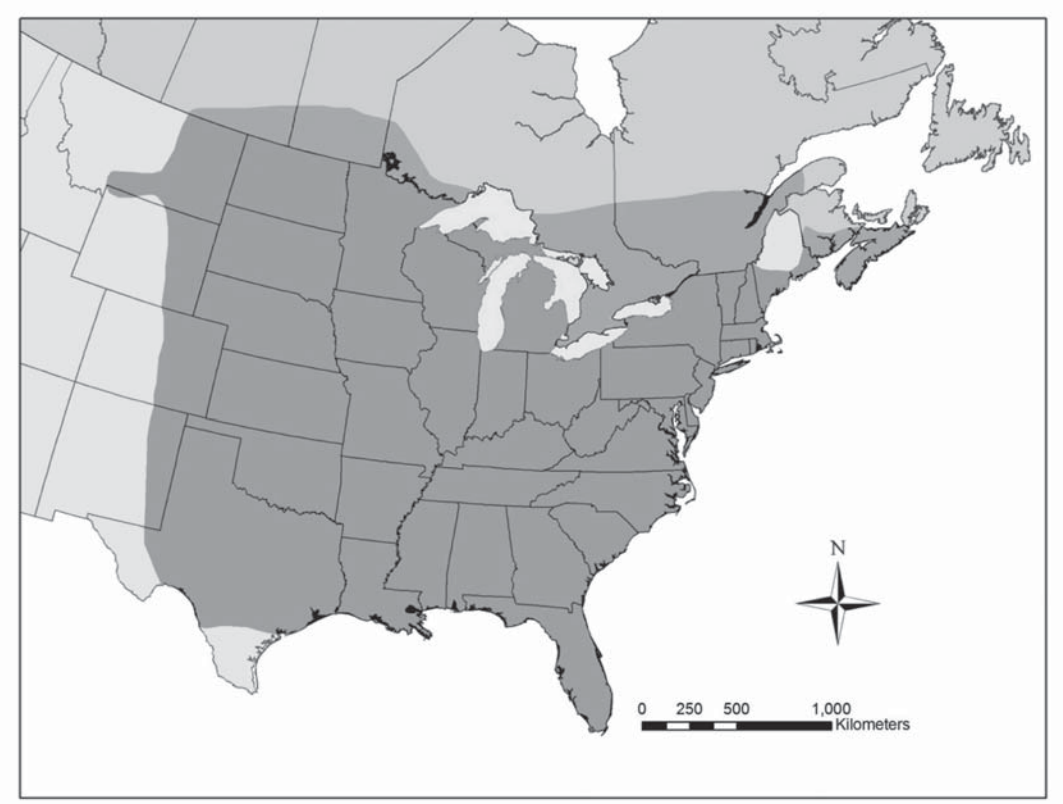
The Snapping Turtle has the greatest latitudinal distribution of any turtle in North America, ranging from southern Manitoba south to Texas, In Canada, the species is present in mainland Nova Scotia, southern New Brunswick, southern and central Quebec, southern and central Ontario, southern Manitoba and southeastern Saskatchewan. Within the Canadian range of the species, a range disjunction occurs in northwestern Ontario, north of Lake Superior. where summers are likely too cool for Snapping Turtle embryos to complete development successfully.

### Habitat

The preferred habitat for the Snapping Turtle is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several of these wetland habitats. Although individual turtles will persist in developed areas (e.g. golf course ponds, irrigation canals), it is unlikely that populations persist in such habitats. Snapping Turtles can occur in highly polluted waterways, but environmental contamination is known to limit reproductive success. Snapping Turtle habitat is diminishing in both quantity and quality in Canada with losses primarily due to conversion of wetlands to agriculture and urban development.

### Biology

Snapping Turtles have a life-history strategy characterized by high and variable mortality of embryos and hatchlings, delayed sexual maturity, extended adult longevity, and iteroparity (repeated reproductive events) with low reproductive success per reproductive event. Females, and presumably




North American distribution of the Snapping Turtle.

Source: November 2008 COSEWIC Status Report

also males, in more northern populations mature later (at 15-20 years) and at a larger size than in more southern populations (~12 years). Lifespan in the wild is poorly known, but long-term mark-recapture data from Algonquin Park suggest a maximum age of over 100 years. Nesting takes place in late May and June, with females laying approximately 40 eggs in a flask-shaped nest. In Algonquin Park, the probability of a Snapping Turtle embryo surviving to sexual maturity is less than 0.1%. Active adult Snapping Turtles have few predators other than humans, but in some localized cases, mammalian predators have developed techniques for preying upon hibernating adults.

## Population sizes and trends

Although the Snapping Turtle is one of Canada's more widespread turtle species, long-term studies of two populations in Ontario have demonstrated that even large and apparently secure populations are vulnerable to increases in adult mortality and do not recover quickly from declines. Life-history models indicate that only slight increases (0.1) in annual adult mortality rate (such as from road mortality or harvesting) will cause a population to be halved in under 20 years. The Snapping Turtle remains relatively abundant in eastern Canada, but is less often encountered in Saskatchewan and Manitoba.

## Limiting factors and threats

Snapping Turtle populations in Canada are limited primarily by their life-history strategy (slow recruitment, late maturity, long lifespan, high adult survival) and by short, cool summers which reduce hatching success. Population persistence is critically dependent on high adult survivorship; thus, most of the serious threats to Snapping Turtles in Canada are events that increase adult mortality. Legal and illegal harvesting of adults, persecution and road mortality (particularly of females traveling to nest sites) are the

most prominent causes of premature death in adult Snapping Turtles. Other long-term threats to the persistence of the Snapping Turtle in Canada include on going loss of habitat, decreased reproductive success due to environmental contamination, unnaturally high rates of nest predation by large populations of raccoons (Procyon lotor) and other mammals, boat propeller strikes, "bycatch" from both sport and commercial fishing, dredging, road grading, water drawdowns and other practices.

## Special significance of the species

The Snapping Turtle is Canada's largest terrestrial or freshwater reptile with a lifespan similar to or greater than humans and has scientific, ecological and cultural significance. Its prehistoric appearance is familiar to Canadians, many of whom have personal stories (often exaggerated) about the enormous size, jaw strength or ferocity of the species.

## Existing protection or other status designations

There is no existing legal protection for the species in Canada. The Snapping Turtle is ranked S5 (demonstrably widespread, abundant, and secure) in Nova Scotia, while in Ontario, New Brunswick and Quebec, the species is ranked S4, apparently secure. In both Manitoba and Saskatchewan the Snapping Turtle is ranked S3, due to its restricted range and relatively few populations. The Snapping Turtle is protected from hunting in Manitoba and Quebec, but may be hunted with a licence in Ontario, and Nova Scotia, and without a licence in Saskatchewan. In Ontario, under the *Fish and Wildlife Conservation Act*, Section 31 (1) a and b, If a person believes on reasonable grounds that wildlife (e.g., Snapping Turtle) is damaging or is about to damage the person's property (e.g., eat waterfowl), the person may, on the person's land capture or kill the turtle. ■

# Whip-poor-will

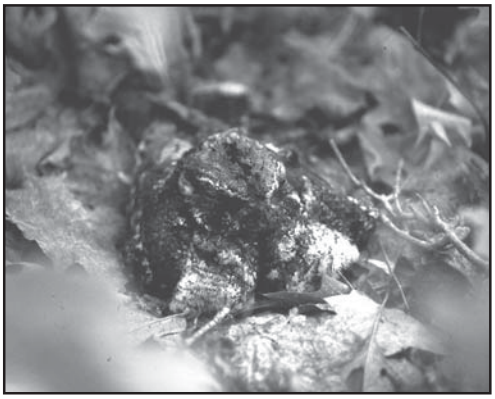


Photo: © Alex Mills

**Scientific name**
*Caprimulgus vociferus*

**Taxon**
Birds

**COSEWIC Status**
Threatened

**Canadian Range**
Manitoba, New Brunswick, Nova Scotia, Ontario, Québec, Saskatchewan.

## Reason for Designation

In Canada, this well-known, nocturnal bird has experienced both long-term and short-term population declines. Indices of abundance indicate that populations have been reduced by more than 30% over the last 10 years (i.e. 3 generations). Like other aerial foraging insectivores, habitat loss and degradation as well as changes to the insect prey base may have affected Canadian populations.

## Species Information

The Whip-poor-will is a 50-55 g crepuscular-nocturnal, insectivorous bird with cryptic plumage. Whip-poor-wills have a large gape ringed with sensory bristles for capturing flying insects. All Canadian populations belong to the one eastern North America subspecies (*C. v. vociferus*).

## Distribution

The breeding range of *C. v. vociferus* extends from east-central Saskatchewan to Nova Scotia, southward into the USA from Oklahoma to South Carolina. This breeding range is approximately 2,772,000 km$^2$, of which approximately 535,000 km$^2$ occurs in Canada. During the winter, this subspecies ranges from coastal South Carolina (rarely) through Florida and along the Gulf Coast of the USA into Mexico and northern Central America.

## Habitat

Whip-poor-will breeding habitat is dependent upon forest structure rather than composition, although common tree associations in both summer and winter are pine (*Pinus*) and oak (*Quercus*). The species avoids both wide-open spaces and closedcanopy forests. Semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances, are preferred as nesting habitat. Areas with little ground cover are also preferred. In winter, Whip-poor-wills occupy primarily mixed woods, commonly in broadleaf evergreen forests near open areas.

## Biology

Whip-poor-wills lay two eggs and both parents contribute to raising the young. Pairs can raise one or two broods per year. Breeding can occur in the first year following hatching, the longevity record is 15 years, and the survival rate for adults might be as high as 77%. These figures suggest that the average age of breeding adults in the population is four years.

## Population sizes and trends

Breeding Bird Survey (BBS) data from the 1990s have generated an estimated population size of 66,000 adult Whip-poor-wills in Canada. Long-term BBS data show a decline of 3.5%/yr between 1968 and 2007, which amounts to a population loss of 75% over this period. Based on this rate of decline, the population of Whip-poor-wills in Canada would have been reduced by 35% over the last three generations.

## Limiting factors and threats

The factors implicated in the Whip-poor-will decline are speculative. Possible causes of decline include habitat loss and degradation, automobile collisions

and changes in food supply related to pesticides and climate change.

## Special significance of the species

The Whip-poor-will is commonly evoked as a symbol of rural life. It has attained significant status in popular culture, being mentioned in countless songs, poems, books, and movies.

## Existing protection or other status designations

In Canada, the Whip-poor-will is protected under the *Migratory Birds Convention Act*, *1994*. The species is not considered threatened or endangered globally, and is rated as "least concern" by the IUCN because of its relatively large range and population size. ■


Canadian distribution of the Whip-poor-will. Map modified from NatureServe with permission, to show only breeding range in Canada. Data provided by NatureServe in collaboration with Robert Ridgely, James Zook, The Nature Conservancy–Migratory Bird Program, Conservation International–Center for Applied Biodiversity Science, World Wildlife Fund–US, and Environment Canada–Wildspace.

## White-top Aster

Photo: © Matthew Fairbarns

**Scientific name**
*Sericocarpus rigidus*

**Taxon**
Vacular Plants

**COSEWIC Status**
Special Concern

**Canadian Range**
British Columbia

### Reason for Designation

This perennial species reproduces primarily asexually and is present at 22 discrete sites that include 14 recently discovered populations. The latter were previously unrecorded, but likely always present, and include the largest populations. The total population comprises many thousands of stems with most of the plants found in parks and on federal lands. In spite of the species' occurrence mainly in protected areas, it is at risk from increasing recreational activities and the spread of invasive exotic plants.

### Species Information

White-top Aster (*Sericocarpus rigidus*) is a rhizomatous perennial herb that produces many upright, leafy stems 10 to 30 cm tall. Flower heads are produced in a terminal cluster and on short branches in mid-summer. Flowers are pale yellow and white and inconspicuous except for the protruding purple anthers.

### Distribution

White-top Aster is found from southern Vancouver Island south through the Puget Lowlands of Washington State and the Willamette Valley of Oregon. In Canada, it is found at 22 locations from Victoria to Nanaimo, including one location in Port Alberni and one location on Hornby Island. This Extent of Occurrence is estimated at 4750 $km^2$. Within this, White-top Aster has a total Index of Area of Occupancy of 70 $km^2$ (based on two-kilometre grid squares), although the individual populations actually cover a total area of only 0.0075 $km^2$.

### Habitat

In Canada, White-top Aster occurs in meadows and forest openings in the Coastal Douglas-fir Biogeoclimatic Zone and the driest parts of the Coastal Western Hemlock Zone. These habitats are known as Garry Oak and associated ecosystems and are characterized by warm, dry summers, mild, wet winters, and a distinctive flora. Less than 5% of the original extent of these ecosystems still exists in a nearnatural state.

Outside of Canada, White-top Aster is found in meadows, Puget and Willamette prairies, and openings in Garry Oak and Douglas-fir woodlands.

### Biology

The species is long-lived and reproduces primarily through vegetative growth from rhizomes. Few flower heads are produced and few of these produce viable seed. Germination and seedling establishment in the wild appears to be a rare event.

### Population sizes and trends

The 22 Canadian populations total 46,100 to 87,950 stems, including an estimated 4290 to 8270 flowering stems. Several populations contain many thousands of stems, while other populations consist of small numbers with no flowering stems. Nine historic populations are believed to have become extirpated in Canada, mostly early in the agricultural and residential development of southern Vancouver Island.

Sixteen of 22 known populations are in protected areas. Many populations appear to be declining because of a combination of threats within protected areas. Populations outside of protected areas are declining because of habitat disturbance.

## Limiting factors and threats

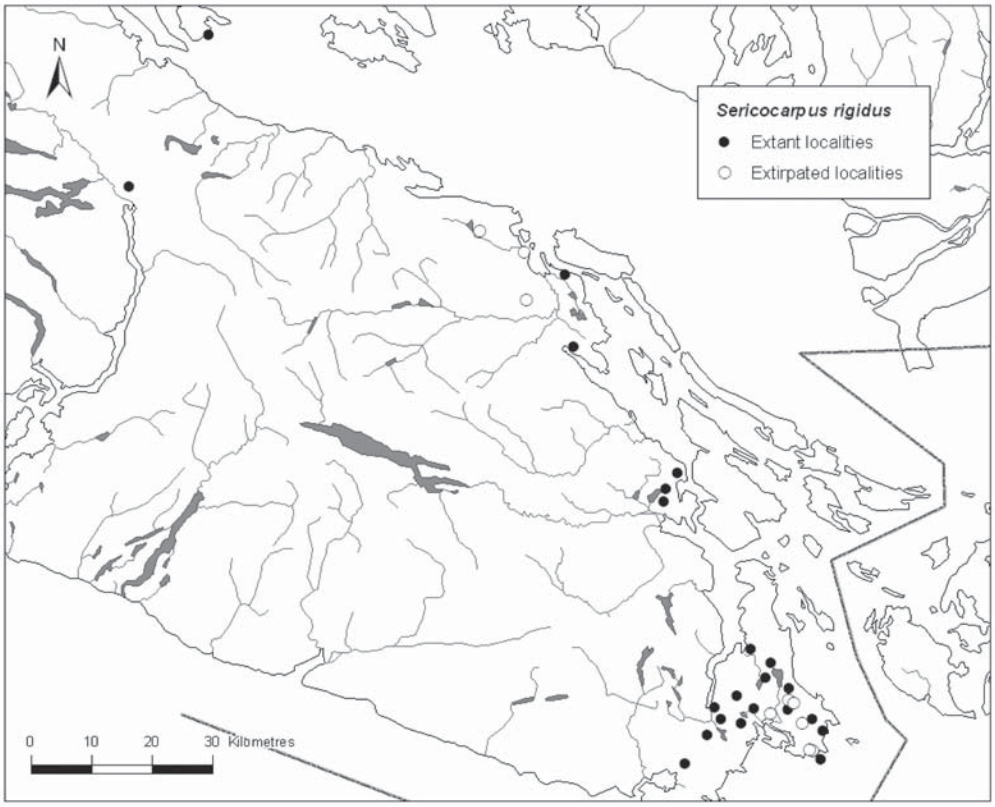
All populations of White-top Aster on private land are at risk of destruction through conversion of habitat to residential and commercial uses. Many populations located within protected areas face chronic or acute threats from trampling and resulting erosion and from competition with woody species, particularly exotic shrubs. In some areas, White-top Aster may be declining due to grazing by deer and rabbits. In the long- term, very low reproductive rates may pose a threat to this species, especially as many populations are isolated from each other.

## Special significance of the species

White-top Aster is part of a distinctive flora that is found only in a very restricted area in Canada within the Garry Oak Ecosystem. The habitats that support this species support many other rare plants and species at risk. White-top Aster is of conservation concern throughout its global range.

## Existing protection or other status designations

The majority of Canadian populations of White-top Aster are located in protected areas, where provincial laws or local bylaws prevent the deliberate destruction of native vegetation. Plants are, nevertheless, impacted by recreational activities and exotic plants. White-top Aster is also listed as Threatened (2000) on Schedule 1 of the *Species at Risk Act*, making it unlawful to destroy individuals on federal land. Two populations are located at least partly on federal lands. White-top Aster is listed as a species of concern in the United States, a sensitive species in Washington, and a threatened species in Oregon. None of these designations confer protection. ■




Canadian distribution of White-top Aster, Southern Vancouver Island, British Columbia.

Source: April 2009 COSEWIC Status Report.

# INDEXES

## Species by Common Name



## Species by Scientific Name

## Species by Province and Territory of Occurrence

# GLOSSARY

**Aquatic species:**
A wildlife species that is a fish as defined in section 2 of the Fisheries Act or a marine plant as defined in section 47 of the Act. The term includes marine mammals.

**Canada Gazette:**
The *Canada Gazette* is one of the vehicles that Canadians can use to access laws and regulations. It has been the "official newspaper" of the Government of Canada since 1841. Government departments and agencies as well as the private sector are required by law to publish certain information in the *Canada Gazette*. Notices and proposed regulations are published in *Canada Gazette*, Part I, and Official regulations are published in *Canada Gazette*, Part II. For more information, please visit:
canadagazette.gc.ca

**Canadian Endangered Species Conservation Council:**
The council is made up of federal, provincial and territorial ministers with responsibilities for wildlife species. The Council's mandate is to provide national leadership and co-ordination for the protection of species at risk.

**COSEWIC:**
The Committee on the Status of Endangered Wildlife in Canada. The Committee comprises experts on wildlife species at risk. Their backgrounds are in the fields of biology, ecology, genetics, Aboriginal traditional knowledge and other relevant fields. These experts come from various communities, including, among others, governments and academia.

**COSEWIC assessment:**
COSEWIC's assessment or re-assessment of the status of a wildlife species, based on a status report on the species that COSEWIC either has had prepared or has received with an application.

**Federal land:**
Any land owned by the federal government, the internal waters and territorial sea of Canada, and reserves and other land set apart for the use and benefit of a band under the Indian Act.

**Governor in Council:**
The Governor General of Canada acting on the advice of the Queen's Privy Council for Canada, the formal executive body which gives legal effect to those decisions of Cabinet that are to have the force of law.

**Individual:**
An individual of a wildlife species, whether living or dead, at any developmental stage and includes larvae, embryos, eggs, sperm, seeds, pollen, spores and asexual propagules.

**Order:**
Order in Council (OIC). An order issued by the Governor in Council, either on the basis of authority delegated by legislation or by virtue of the prerogative powers of the Crown.

**Response statement:**
A document in which the Minister of the Environment indicates how he or she intends to respond to the COSEWIC assessment of a wildlife species. A response statement is posted on the SARA Public Registry within 90 days of receipt of the assessment by the Minister, and provides timelines for action to the extent possible.

**RIAS:**
Regulatory Impact Analysis Statement. A description of a regulatory proposal that provides an analysis of the expected impact of each regulatory initiative and accompanies an Order in Council.

**SARA Public Registry:**
Developed as an online service, the SARA Public Registry has been accessible to the public since proclamation of the Species at Risk Act (SARA). The website gives users easy access to documents and information related to SARA at any time and location with Internet access. It can be found at:
www.sararegistry.gc.ca

**Schedule 1:**
A schedule of the *Species at Risk Act* (SARA); also known as the List of Wildlife Species at Risk, the list of the species protected under SARA.

**Up-listing:**
A revision of the status of a species on Schedule 1 to a status of higher risk. A revision of the status of

a Schedule 1 species to a lower risk status would be down-listing.

**Wildlife Management Board:**
Established under the land claims agreements in northern Quebec, Yukon, Northwest Territories, British Columbia and Nunavut, Wildlife Management Boards are the "main instruments of wildlife management" within their settlement areas. In this role, Wildlife Management Boards not only establish, modify and remove levels of total allowable harvest of a variety of wildlife species, but also participate in research activities, including annual harvest studies, and approve the designation of species at risk in their settlement areas.

**Wildlife species:**
a species, subspecies, variety or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus. To be eligible for inclusion under SARA, a wildlife species must be wild by nature and native to Canada. Non-native species that have been here for 50 years or more can be considered eligible if they came without human intervention.

www.**ec**.**gc**.**ca**

Additional information can be obtained at:

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Place Vincent Massey, 8th Floor
Gatineau, Quebec  K1A 0H3
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