Environment Canada Environnement Canada

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

Terrestrial Species

December 2012

Canada

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Please submit your comments by

March 4, 2013, for terrestrial species undergoing **normal** consultations

and by

October 4, 2013, for terrestrial species undergoing **extended** consultations.

For a description of the consultation paths these species will undergo, please see
www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=387BD042-1

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 prohibitions and recovery planning under SARA. Special Concern species benefit from its management planning. Schedule 1 has grown from the original 233 to 510 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 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-governmental 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 October 5, 2012, 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 conducts 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**.

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

Approximately 31% of the recently assessed terrestrial species at risk also 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 Aboriginal peoples and Canadians 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 that 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 consequences of whether or not a species is included on Schedule 1, 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 in time, they should be submitted before the following deadlines.

For terrestrial species undergoing normal consultations, comments should be submitted by **March 4, 2013**.

For terrestrial species undergoing extended consultations, comments should be submitted by **October 4, 2013**.

To find out which consultation paths these species will undergo (extended or normal), please see **www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=387BD042-1**.

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

Please email your comments to the Species at Risk 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.

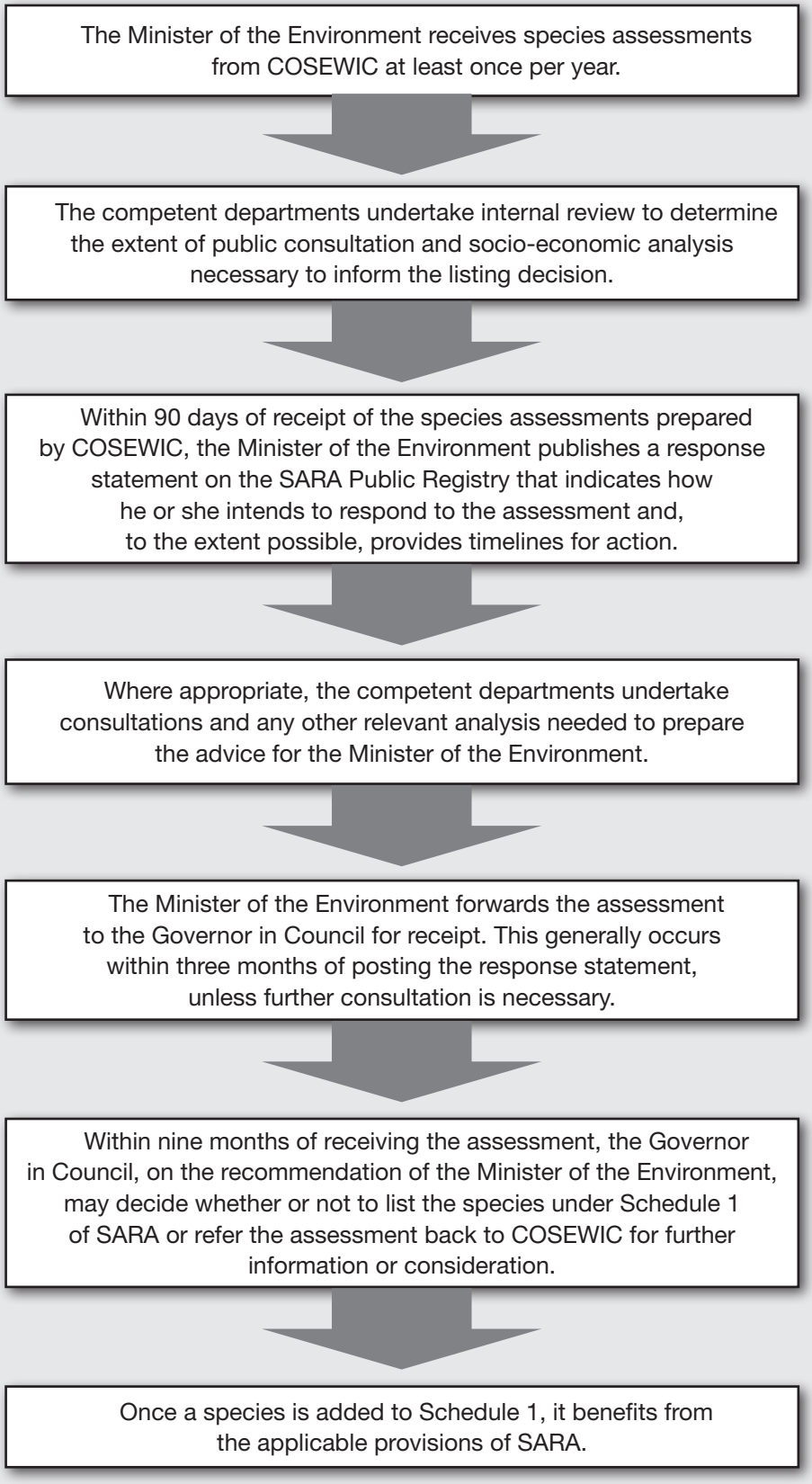
The purpose of consultations on amendments to the List

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 potential consequences of not adding a species to the List.

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

Figure 1: The species listing process under SARA



to Schedule 1, or to refer the species assessment back to COSEWIC for its further consideration (Figure 1).

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 Species at Risk 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 usually take 2 to 3 months to complete, while extended consultations take approximately 1 year.

The extent of consultations needs to be proportional to the expected impact of a listing decision and the time that may be required to consult appropriately. Under some circumstances, whether or not a species will be included on Schedule 1 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 have the opportunity to provide information on the potential consequences of the decision and to share ideas on how best to approach threats to the species. A longer period may also be required to consult appropriately with some groups. For example, consultations can take longer for groups that meet infrequently but that must be engaged on several occasions. For such reasons, extended consultations may be 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 for the government's formal receipt of the assessment. 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 (normal or extended) for the terrestrial species listed in Table 1 will be announced when the Minister publishes the response statements. These will be posted by **January 3, 2013**, on the Species at Risk Public Registry at: **www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=387BD042-1**

No consultations will be undertaken for species listed in Table 2, as no change is being proposed for these species.

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, Environment Canada considers the type of species, its conservation status, and where the species is found. Those who may be affected by the impacts of the automatic protections are contacted directly; others are encouraged to contribute through a variety of approaches.

Aboriginal peoples known to have species at risk on their lands, for which changes to Schedule 1 are being considered, 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 that give specific authority to a Wildlife Management Board. In such cases, the Minister of the Environment will consult with the relevant board.

To encourage others to contribute and make the necessary information readily available, this document is distributed to known stakeholders and posted on the Species at Risk Public Registry. More extensive consultations may also be done through regional or community meetings or through a more targeted approach.

Environment Canada also sends 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 is not in a position to 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 to maximize the benefits. SARA requires that 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 incorporates the results from the public 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.

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 Species at Risk Public Registry. If the Governor in Council decides 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, if they are considered federal species or if they are found on federal land.

Federal species include migratory birds, as defined by the *Migratory Birds Convention Act, 1994*, and aquatic species covered by the *Fisheries Act*. 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.

Migratory birds are protected by the *Migratory Birds Regulations*, under the *Migratory Birds Convention Act, 1994*, which strictly prohibits the harming of migratory birds and the disturbance or destruction of their nests and eggs.

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. It is also an offence to damage or destroy the residence of one or more individuals of an Endangered or Threatened species or an Extirpated species whose reintroduction has been recommended by a recovery strategy. 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 protections under SARA to a species at risk on non-federal lands requires that the Governor in Council make an order defining those lands. This can only occur when 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 Species at Risk Public Registry of why the permit or agreement was issued.

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

Recovery planning results in the development of recovery strategies and action plans for Extirpated,

Endangered or Threatened species. It 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.

Recovery strategies must be prepared for all Extirpated, Endangered and Threatened species. They 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.

Proposed recovery strategies for newly listed species are posted on the Species at Risk 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.

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 immediate protection under SARA 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 Species at Risk Public Registry within three years of species' 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 ELIGIBLE FOR AN AMENDMENT TO SCHEDULE 1

Status of the recently assessed species and consultation paths

In October 2012, COSEWIC submitted 19 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. Ten of these are terrestrial species. COSEWIC also reviewed the classification of species already on Schedule 1, in some cases changing their status. Five terrestrial species are now being considered for down-listing on SARA (to a lower risk status) and 4 terrestrial species are now being considered for up-listing on SARA (to a higher risk status). One species, Hooded Warbler, is being considered for removal from the List, as in its latest assessment it was found not to be at risk. In all, there are 20 terrestrial species that are eligible to be added to Schedule 1 or to have their current status on Schedule 1 changed (Table 1).

COSEWIC submitted one additional assessment where a species' assessed status changed but where a regulatory change would not take place. In 2006, COSEWIC submitted a Special Concern assessment for Ghost Antler Lichen. The Governor in Council referred this assessment back to COSEWIC for reconsideration; therefore, it was not added to the List at that time. In 2012, COSEWIC presented an assessment of not at risk. This species is not included in the consultation.

COSEWIC also submitted the reviews of species already on Schedule 1, confirming their classification. Nineteen 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**.

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 4, 2013**.

Comments for terrestrial species undergoing extended consultations must be received by **October 4, 2013**.

Most species will be undergoing normal consultations. For the final consultation paths, please see **www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=387BD042-1** after **January 3, 2013**.

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
Newly Assessed Species (10)			
Extirpated (1)			
Arthropods	American Burying Beetle	*Nicrophorus americanus*	ON QC
Endangered (3)			
Vascular Plants	Yukon Draba	*Draba yukonensis*	YT
Arthropods	Okanagan Efferia	*Efferia okanagana*	BC
Amphibians	Northern Dusky Salamander (Carolinian population)	*Desmognathus fuscus*	ON
Threatened (1)			
Vascular Plants	Eastern Baccharis	*Baccharis halimifolia*	NS
Special Concern (5)			
Molluscs	Magnum Mantleslug	*Magnipelta mycophaga*	BC
Birds	Baird's Sparrow	*Ammodramus bairdii*	AB MB SK
Birds	Buff-breasted Sandpiper	*Tryngites subruficollis*	AB BC MB NT NU ON QC SK YT
Mammals	Collared Pika	*Ochotona collaris*	BC NT YT
Mammals	Grizzly Bear (Western population)	*Ursus arctos*	AB BC MB NT NU SK YT
Up-lists (4)			
From Special Concern to Endangered (1)			
Birds	Yellow-breasted Chat *virens* subspecies	*Icteria virens virens*	ON
From Special Concern to Threatened (2)			
Birds	Western Screech-Owl *kennicottii* subspecies	*Megascops kennicottii kennicottii*	BC
Mammals	Black-tailed Prairie Dog	*Cynomys ludovicianus*	SK
From Threatened to Endangered (1)			
Arthropods	Behr's Hairstreak	*Satyrium behrii*	BC
Down-lists or de-lists (6)			
From Threatened to Not at Risk (1)			
Birds	Hooded Warbler	*Setophaga citrina*	ON
From Threatened to Special Concern (3)			
Vascular Plants	Buffalograss	*Bouteloua dactyloides*	MB SK
Vascular Plants	Goldencrest	*Lophiola aurea*	NS
Vascular Plants	Hairy Prairie-clover	*Dalea villosa*	MB SK
From Endangered to Threatened (2)			
Vascular Plants	Tiny Cryptantha	*Cryptantha minima*	AB SK
Birds	Western Screech-Owl *macfarlanei* subspecies	*Megascops kennicottii macfarlanei*	BC

Table 2: Terrestrial species recently reassessed by COSEWIC (no consultations – species status confirmation)

Taxon	Species	Scientific Name	Range
Status confirmation (19)			
Extirpated (3)			
Mosses	Incurved Grizzled Moss	*Ptychomitrium incurvum*	ON
Reptiles	Pacific Gopher Snake	*Pituophis catenifer catenifer*	BC
Reptiles	Pacific Pond Turtle	*Actinemys marmorata*	BC
Endangered (11)			
Mosses	Margined Streamside Moss	*Scouleria marginata*	BC
Mosses	Silver Hair Moss	*Fabronia pusilla*	BC
Vascular Plants	Bearded Owl-clover	*Triphysaria versicolor*	BC
Vascular Plants	Bluehearts	*Buchnera americana*	ON
Vascular Plants	False Hop Sedge	*Carex lupuliformis*	ON QC
Vascular Plants	Heart-leaved Plantain	*Plantago cordata*	ON
Vascular Plants	Hoary Mountain-mint	*Pycnanthemum incanum*	ON
Vascular Plants	Large Whorled Pogonia	*Isotria verticillata*	ON
Arthropods	Island Blue	*Plebejus saepiolus insulanus*	BC
Reptiles	Blue Racer	*Coluber constrictor foxii*	ON
Birds	Yellow-breasted Chat *auricollis* subspecies (Southern mountain population)	*Icteria virens auricollis*	BC
Threatened (2)			
Mosses	Haller's Apple Moss	*Bartramia halleriana*	AB BC
Birds	Marbled Murrelet	*Brachyramphus marmoratus*	BC
Special Concern (3)			
Arthropods	Weidemeyer's Admiral	*Limenitis weidemeyerii*	AB
Amphibians	Coastal Tailed Frog	*Ascaphus truei*	BC
Mammals	Mountain Beaver	*Aplodontia rufa*	BC

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 Species at Risk Public Registry at: **www.sararegistry.gc.ca**

or contact:

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

American Burying Beetle

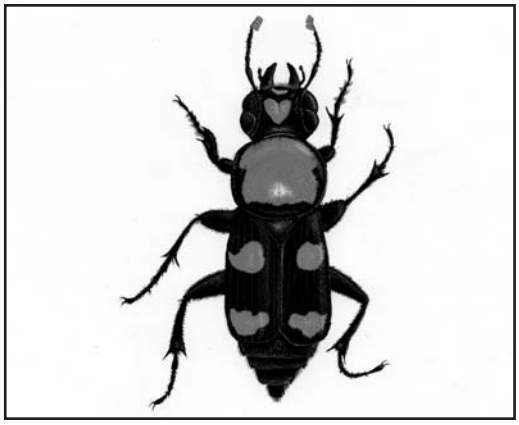


Illustration: © Joe Bullock

Scientific name
Nicrophorus americanus

Taxon
Arthropods

COSEWIC status
Extirpated

Canadian range
Ontario, Quebec

Reason for designation

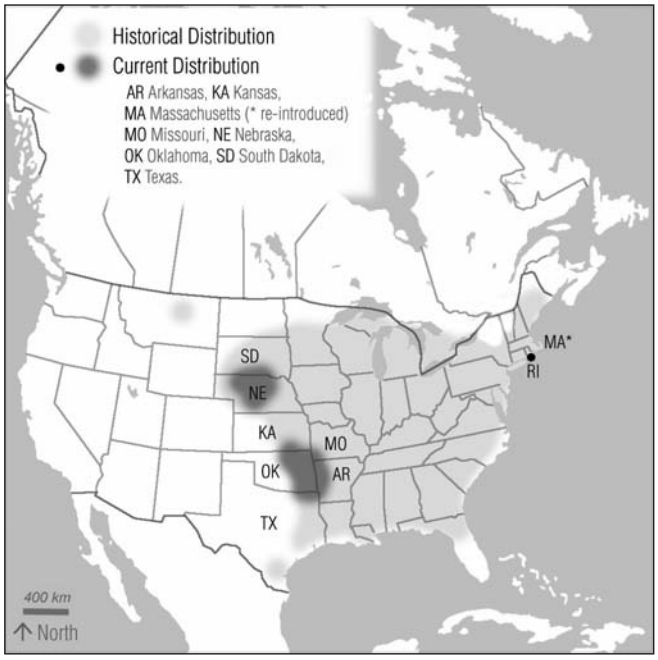
There is sufficient information to document that no individuals of the wildlife species remain alive in Canada. This includes that it: (1) is a large distinctive and conspicuous insect not seen for 39 generations; (2) has not been seen despite a tenfold increase in the number of field entomologists and an estimated 300,000 general trap nights of which at least some should have resulted in capture of this species, as well as studies of carrion-feeding beetles that did not reveal it; (3) comes to lights yet still not seen in thousands of light traps; and (4) a recent directed search in the general area where last seen 60 and 39 years ago that failed to find this species.

Species information

The American Burying Beetle is a carrion-feeding beetle of the family Silphidae. The species is distinct and there are no proposed subspecies or species forms. It is one of the most striking beetle species in Canada due to its large size and the brilliant orange markings on its otherwise black body.

Distribution

The species occurs only in North America, where its historical range extended from Nebraska and South Dakota east to the Atlantic Coast, and from southern Ontario south to Texas. In the United States it has been reported from 35 states, but it is considered extant in only 9—in all of which it is listed as endangered. In Canada, it is known definitely only from Ontario; however, all reports are historic, with the most recent collection in 1972. Reports for Nova Scotia and Quebec are considered errors, and the basis for the Manitoba report is unknown.



Former and current North American distribution of the American Burying Beetle.

Source: November 2011 COSEWIC Status Report.

It appears very unlikely that the American Burying Beetle has been present but undocumented anywhere within its range in the last quarter century. Natural re-colonizing by the species of its former range in Canada appears to be very unlikely. The species might be reintroduced from United States populations through captive breeding programs.

Habitat

The species requires well-drained humic or loamy soils without impediments to digging in order to quickly excavate the brood chamber in which to lay its eggs. In eastern North America, soils of this type occur principally in primary, undisturbed deciduous forest. Toward the west side of its range these soils are available in grassland ecotypes as well. There is, as yet, no consensus on whether the species is obligate on particular habitat types.

Biology

The species has one generation over the period of a year, with individuals existing from the summer to their death in the following year. Individuals will typically have the opportunity to reproduce only once. Following emergence from the ground, in the late summer or early fall of the year in which it was laid, the teneral begins feeding and possibly searching for reproductive opportunities. In the fall of their first year they burrow into the ground to overwinter. The adults again emerge in the spring to feed and begin their evening search for a recently deceased suitable brood carcass.

Sexton beetles (genus *Nicrophorus*) show biparental care to a unique degree for beetles. Reproduction is completely dependent upon the availability of a carcass which can be entombed in a manner suitable for feeding larvae. Vertebrate carcasses of any sort are used; however, bird chicks and rodents are probably most often employed. American Burying Beetle tends to use larger carcasses than its smaller congeners. When a suitable carcass is located the individual or pair will compete with other carrion-eating insects for possession of the carcass until a single pair remains. The carcass then may be moved as far as a metre until soil suitable for excavation is reached, then buried before the dawn.

The species is not migratory, and its movements are limited. However, it does range more widely than its smaller congeners (i.e., species of the same genus), and likely across more habitat types. Adults begin their seasonal activities when the temperature exceeds 15°C. They are crepuscular and nocturnal, and generally active from April through September.

Population sizes and trends

It is believed that the species has been extirpated in Canada and from all states coterminous with Canada. It is estimated that there are fewer than 1 000 individuals in the currently disjunct Block Island, Rhode Island, population, and the two western United States populations each contain an unknown, though certainly much larger, number of individuals.

Limiting factors and threats

There is ongoing discussion regarding the cause of the decline in the range and abundance of the American Burying Beetle. There are a number of hypotheses, many of which are unconvincing due to the apparent lack of impact on congeners of similar behaviour and requirements. It seems unlikely that any one factor is responsible for the species' decline.

Direct impacts are thought to have been: the use of artificial lighting, which may affect the species' behaviour, roadkill of wandering adults, and mortality

due to the use of insecticides. Species-specific diseases have been considered, but there is no evidence to support this mechanism as likely.

Direct predation seems likely to have played a part, given the increase in appropriate predators over the species' range, but is not thought to be the major cause of the decline either of the species or its supply of brood carcasses. The increase in predacious, free-ranging domestic dogs and cats, which likely disturb carcasses, may be a factor.

Reduction of brood carcass resources may be a major factor. This reduction is thought to have come about due to the decreased populations of species of appropriate size for brood carcasses, and increased competition with scavenging animals and the more abundant congeners. Reduction in the use of waste meat dumps and cessation of using whole fish as fertilizer will also have reduced carrion resources available to the beetles.

Habitat alteration and fragmentation is generally considered to be the primary cause for decline. Fragmentation increases the need for species' movement across unsuitable habitats and over roads. The development of dense understory in cleared forest areas increases the difficulty of burying the brood carcass, and hence the vulnerability of the beetle pair to predation.

Special significance of the species

The species offers a rich resource for behavioural study, particularly as it is a member of one of the few insect groups that exhibit parental behaviour. Having been recognized as having suffered an extraordinary and presumably anthropogenic decline, the species offers the potential for enlightenment regarding human impacts on invertebrate species, and other ecological subjects. As a representative of the invertebrate megafauna, with intriguing behaviour, the species has great potential for bringing the plight of lesser-known organisms to the public eye.

Existing protection or other status designations

Globally, the American Burying Beetle is listed in the IUCN Red List as Critically Endangered, based on a population reduction of ≥90% and a decline in area of occupancy and occurrence. The species was listed as an Endangered Species federally in the United States through the U.S. *Endangered Species Act* in August 1989, based on the drastic decline and extirpation of the species over nearly its entire historical range. NatureServe lists the species as globally imperiled. The species has not yet been assessed under the National General Status protocols for Canada. ■

Baird's Sparrow

Photo: © Royal Alberta Museum, Edgar T. Jones

Scientific name
Ammodramus bairdii

Taxon
Birds

COSEWIC status
Special Concern

Canadian range
Alberta, Saskatchewan, Manitoba

Reason for designation

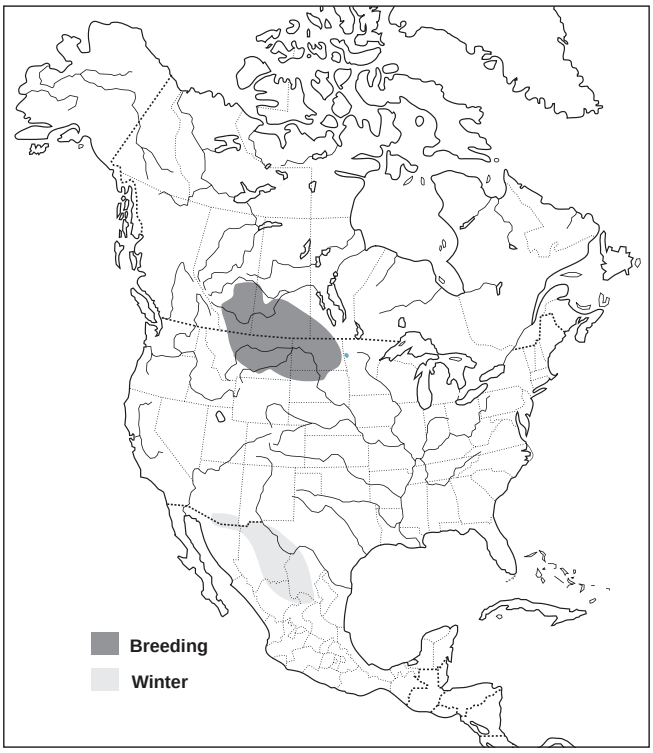
Canada supports about 60% of the breeding population of this prairie songbird. The species was common and perhaps even abundant historically. It suffered declines stemming from agricultural conversion of its native prairie habitat across the Great Plains. There is good evidence for population declines in recent decades, but the species is difficult to monitor effectively, and information on short-term population trends is relatively weak. Loss and degradation of its specialized grassland habitat, on both its breeding and wintering grounds, are believed to pose the most significant threats. Evidence of long-term population declines, coupled with ongoing threats to habitat, are the primary reasons for elevating the status of this species from Not at Risk to Special Concern.

Wildlife species description and significance

The Baird's Sparrow is a secretive grassland sparrow, distinguished from other sparrows by "moustache" marks on its yellowish-ochre face, a necklace of thin streaks across its breast, and a song that usually ends in a wiry, musical trill. As a range-restricted species of the northern prairies, it is a valuable grassland indicator for that region.

Distribution

The Baird's Sparrow breeds from southern Alberta, Saskatchewan and southwest Manitoba, south to Montana, Wyoming, and South Dakota. Canada encompasses about 45% of its breeding range, and is home to an even greater proportion of the global population. Baird's Sparrows winter from southern Arizona, New Mexico, and Texas south to north central Mexico.



Breeding and wintering distribution of Baird's Sparrow.

Source: "Birds of North America Online" **http://bna.birds.cornell.edu/bna** maintained by the Cornell Lab of Ornithology, Ithaca, NY.

Habitat

This species mainly breeds in large patches of mixed grass and fescue prairie with sparse shrubs, moderate grass heights, and some litter. These features can sometimes be met by non-native habitats, but breeding success can be poor in some of these habitats, such as tame hay and croplands. Over 75% of native grassland in the Baird's Sparrow's breeding range has been destroyed since the 1800s,

mostly converted to cropland. Habitat destruction, degradation, and fragmentation continue across the species' range.

Biology

Baird's Sparrows likely breed in their first year and live about 3 years. They nest in late May through July, raising an average of 1.5 young during each of the one or two breeding attempts they have each year. About half of nests fail, with most lost to a variety of avian and mammalian predators. Birds rarely return to the same place to breed each year, but instead settle wherever conditions are suitable for breeding.

Population sizes and trends

The global population is estimated from Breeding Bird Survey (BBS) data as 1.2 million individuals (± 50%), of which 60% breed in Canada. The BBS shows a statistically non-significant annual average rate of decline of 2.0% in the population in Canada since 1970 (95% CI: -4.5 to 0.6). However, because Baird's Sparrows appear to shift their breeding distributions in response to patterns of precipitation, using combined long-term BBS data for Canada and the U.S. is believed to represent a more appropriate source of population trend estimates. This yields a statistically significant decline of 25% (95% CI: -13 to -39) over the past decade.

Threats and limiting factors

The main threats to Baird's Sparrows are habitat destruction, degradation, and fragmentation, caused by a variety of factors, with energy extraction becoming particularly important recently. Other threats include disruption of natural processes (grazing, fire, and drought), agricultural operations, brood parasitism by cowbirds, pesticides, and climate change.

Protection, status, and ranks

The Baird's Sparrow is protected under the Canada–U.S. *Migratory Birds Convention Act* and Manitoba's *Endangered Species Act*. It is recognized as being at risk on several non-legal status rankings across its range, including the U.S. Birds of Conservation Concern and the Partners in Flight and Audubon Society Watch Lists. Various programs are in place to conserve native grassland, but less than 25% of the Canadian prairie region is still native grassland, and only 15% of native grassland across this species' range is protected. ■

Behr's Hairstreak

Photo: © Jennifer Heron

Scientific name
Satyrium behrii

Taxon
Arthropods

COSEWIC status
Endangered

Canadian range
British Columbia

Reason for designation

This small butterfly is restricted to Antelope-brush habitat in British Columbia, a habitat that has decreased considerably in extent in the past century and remains under threat due to land use change (conversion to viticulture, residential and commercial development) and the impact of fire. It rarely disperses much more than 120 m and persists in small, isolated fragments of habitat, which continue to decline in area and quality. Large annual fluctuations in population size, as documented for the largest Canadian population, increase the species' vulnerability and call into question its long-term viability.

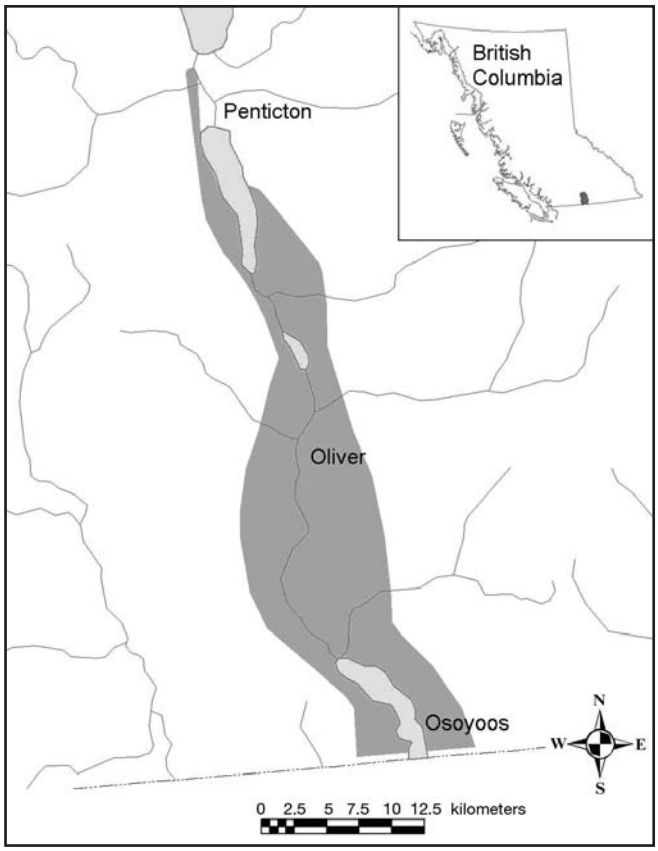
Wildlife species description and significance

Behr's Hairstreak (*Satyrium behrii*) is a small butterfly (wingspan 2.5–2.9 cm) in the family Lycaenidae. The dorsal forewing and hindwing surfaces have wide black margins that surround a rich, yellowish-orange-brown patch. There is one subspecies of Behr's Hairstreak in Canada.

The larval host plant of Behr's Hairstreak is Antelope-brush, which has special significance in Canada as a symbol used by conservation organizations for the protection of associated plant communities and grasslands within the Okanagan region. First Nations peoples within the region hold butterflies (in general) and the Antelope-brush plant significant in their cultures. Antelope-brush is also significant to the wild game management and livestock grazing industry sectors.

Distribution

The Canadian range of Behr's Hairstreak is restricted to south-central British Columbia from Penticton in the north to Osoyoos in the south. The butterfly inhabits the low elevation (280–760 m above sea level) Antelope-brush plant communities on both the east and west side of the south Okanagan Valley. The species occupies an area of less than 12 km^2.



Canadian distribution of Behr's Hairstreak.

Source: May 2012 COSEWIC Status Report with permission of Orville Dyer.

Habitat

Behr's Hairstreak is primarily recorded from the Antelope-brush/Needle-and-thread Grass plant community. Important habitat attributes include plant communities with Antelope-brush plants greater than 30 years old; sparse tree cover (particularly Ponderosa Pine, which may be required by adults for shelter during inclement weather, daytime temperature extremes, and nighttime resting); and the presence of puddling sites (mud puddles where adult butterflies obtain moisture and salt).

Photo: © Jennifer Heron

Behr's Hairstreak habitat: Antelope-brush.

Biology

Behr's Hairstreak has one generation per year; the flight period is from mid-May through late July and peaks in mid-June. Eggs are laid singly on the leaves and branches of Antelope-brush where they overwinter. The eggs hatch in early spring, and the larvae develop from late March to late May and pupate in late spring. The pupae are attached to stems of Antelope-brush and this stage lasts approximately two weeks. Behr's Hairstreak is not known to migrate. Adults appear to have limited dispersal capabilities and remain within close proximity to Antelope-brush habitat. Average dispersal distances for the butterfly, based on field studies completed in the south Okanagan Valley, are 80–120 m depending on spring weather, with a maximum-recorded dispersal of 1.2 km.

Population sizes and trends

Analyses suggest that even the largest known population is unlikely to be sustainable in the long term and extant populations are fragmented, separated by areas of unsuitable habitat that are mostly beyond the species' dispersal capacities.

Habitat trend information shows Antelope-brush plant communities have declined significantly in quantity and quality in the past 200 years. The most recent mapping (2009) shows 3217 ha of Antelope-brush/Needle-and-thread Grass plant community remaining in the south Okanagan, which is approximately one third of its historic distribution (as of 1800).

Threats and limiting factors

Behr's Hairstreak faces many threats, most of them associated with habitat conversion and associated fragmentation. The main limiting factor for Behr's Hairstreak is the availability of high quality and older age-class Antelope-brush host plants. Adult butterflies are also limited by nectar plant availability due to short proboscis (tongue) length, which cannot reach the nectar in flowers of plant species that have a deep corolla.

Protection, status, and ranks

Behr's Hairstreak is protected under the federal *Species at Risk Act*, *Canada Wildlife Act*, British Columbia *Park Act*, and *Ecological Reserves Act*. The butterfly is recommended for listing as Identified Wildlife under the British Columbia *Forest and Range Practices Act*, *Wildlife Act*, and *Wildlife Amendment Act*.

Behr's Hairstreak (*columbia* subspecies) has a global heritage rank of G5T4T5 (secure), national rank of N1N2 (critically imperiled/imperiled), provincial rank of S1 (imperiled) and is a priority under the British Columbia Conservation Framework. Conservation lands (private and public) protect 15% of existing Antelope-brush habitat in B.C. ■

Black-tailed Prairie Dog

Photo: © Provincial museum of Alberta, David Gummer

Scientific name
Cynomys ludovicianus

Taxon
Mammals

COSEWIC status
Threatened

Canadian range
Saskatchewan

Reason for designation

This small mammal is restricted to a relatively small population in southern Saskatchewan. The change in status from Special Concern to Threatened is based mainly on the threat of increased drought and sylvatic plague, both of which would be expected to cause significant population declines if they occur frequently. Drought events are predicted to increase in frequency due to a changing climate. Sylvatic plague was first recorded in 2010. Although the Canadian population is in a protected area, it exists within a small area and is isolated from other populations, all of which are located in the United States.

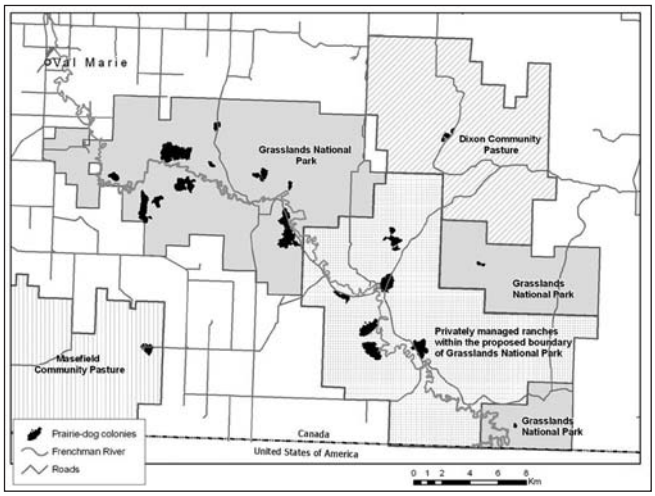
Wildlife species description and significance

The Black-tailed Prairie Dog is a diurnal, burrow-dwelling squirrel that lives in colonies. Individuals are 35–42 cm in body length, have short legs, tails with a black tip, small ears and brown to reddish-brown fur with an off-white underbelly.

Prairie dogs are an important component of native short- and mixed-grass prairie ecosystems and provide breeding habitat for two endangered species, the Mountain Plover and Burrowing Owl, as well as being an important prey for several rare and endangered species such as the reintroduced Black-footed Ferret. The Canadian population of the Black-tailed Prairie Dog is considered a distinct local population because it is at the northernmost point of the species' range and is isolated from populations in the United States.

Distribution

The Black-tailed Prairie Dog occurs in the short- and mixed-grass prairies of North America from northern Mexico to Saskatchewan, Canada. The species is extirpated from east Texas north to eastern North Dakota, and where it remains the actual area occupied is small and colonies are mainly small and isolated. In Canada, the population is located in the lower Frenchman River valley and adjacent areas in southwestern Saskatchewan. The Canadian population exists as 18 colonies in close proximity (12 km^2); interchange between colonies is likely and the population is considered a single designatable unit. A second population, near Edmonton, Alberta, derived from escaped captives, is not discussed, as per COSEWIC guidelines.



Canadian distribution of Black-tailed Prairie Dog.

Source: Tuckwell, J. and T. Everest. 2009. *Management Plan for the Black-tailed Prairie Dog (*Cynomys ludovicianus*) in Canada. Species at Risk Act* Management Plan Series. Parks Canada Agency, Ottawa. vi + 31 pp.

Habitat

The Black-tailed Prairie Dog lives in grasslands with soils that support extensive burrow systems. The spatial extent of prairie dog colonies tends to be stable in the absence of sylvatic plague outbreaks, and can occupy the same area for many years. Colonies are characterized by short vegetation and numerous mounds of soil (often 30–60 cm high) heaped around each burrow entrance.

Biology

Black-tailed Prairie Dogs are herbivorous, predominantly eating grasses. They live in family groups (coteries) composed of one male and 2–4 females, often with 1–2 yearlings also present. Coteries are aggregated into colonies. Animals older than 2 years mate in March–April, with 2–6 young born in May. Maximum recorded age is 5 yr (males) and 8 yr (females). Most dispersal is by yearling males. Canadian Black-tailed Prairie Dogs hibernate for 4 months over winter.

Population sizes and trends

The size of the Canadian Black-tailed Prairie Dog population is not known. However, the minimum population size in 2010 is estimated at 6,165–9,360 mature individuals, using visual count data and the total area occupied by colonies.

Colony boundaries have been mapped periodically since 1970, and biennially since 1992. Colonies range in size from 0.6–172 ha, and total area occupied by Black-tailed Prairie Dogs in Canada has increased from a low of 828.8 ha (8 km^2) in 1992–93 to a high of 1 235.4 ha (12 km^2) in 2009. However, because colony area is not a good measure of prairie dog density, an increase in colony extent may not indicate an increase in population size.

It is difficult to estimate either a population estimate or trend because prairie dog density can vary greatly among colonies and between years. Visual counts have been conducted at several colonies in Grasslands National Park since 1992 and indicate that Black-tailed Prairie Dog populations undergo large (i.e. 4x average) short-term fluctuations in population size. Variations in growing conditions and/or interactions with other factors, including drought, presumably contribute to these substantial fluctuations. Different indicators suggest a decline has occurred in the last 10 years or, alternatively, that any decline is not statistically significant. Also, the population data include juveniles and COSEWIC assessments are based only on adults. Overall, the population size and trend is unknown but may be stable because decreases in density within colonies appear to be offset by stable or increasing size of the total population area.

Threats and limiting factors

The Canadian population exists as a single location because two threats, epizootic sylvatic plague and drought may impact the entire population in a short period. In 2010, a single Black-tailed Prairie Dog in Canada was found dead from sylvatic plague and plague was suspected in the loss of a small (4 ha) colony more than 10 km away. In 2011, pups were recorded where the plague had been found, suggesting the plague was not an epizootic event because numerous neighbouring colonies were not extirpated. Drought limits food production and likely explains fluctuating population levels. Drought is a natural event but frequency of drought is predicted to increase.

The recent (2009) reintroduction of Black-footed Ferrets has exposed prairie dogs to a predator they have not experienced in 70 years, and the resilience of the Canadian population to both sylvatic plague and ferret predation is unclear. The impact of Black-footed Ferrets on Black-tailed Prairie Dogs is being monitored but no results were available during the writing of this report.

Most other threats are minor, mainly because activities within the protected regulation zone containing the colonies are restricted. An expansion of the population beyond the current zone would be required for the species to recover to the point of not being listed by COSEWIC, but numerous threats outside the zone suggest expansion is unlikely.

Protection, status, and ranks

The Black-tailed Prairie Dog was previously assessed by COSEWIC in November 2000 and is currently listed as Special Concern on Schedule 1 of the federal *Species at Risk Act* (SARA). A management plan was completed in 2009. Fifty-nine percent of colony area occurs within Grasslands National Park and is protected under the *Canada National Parks Act*. In Saskatchewan, the Black-tailed Prairie Dog is protected under the Saskatchewan *Wildlife Act*, which protects them from being killed, harmed, or harassed without a permit. The Saskatchewan *Wildlife Habitat Protection Act* protects their habitat on Crown land. Black-tailed Prairie Dog colonies are protected within the 2007 regulation zone boundary as critical habitat for the Black-footed Ferret and Burrowing Owl. Permits to control Black-tailed Prairie Dogs may be issued by the Saskatchewan Ministry of Environment to control Black-tailed Prairie Dogs, if their colonies expand beyond their 2007 boundary. To date, one permit has been issued annually. ■

Buffalograss

Photo: © Emmet J. Judziewicz

Male specimen

Scientific name
Bouteloua dactyloides

Taxon
Vascular plants

COSEWIC status
Special Concern

Canadian range
Saskatchewan, Manitoba

Reason for designation

This grass occurs in limited areas of remnant short-grass prairie in southern Saskatchewan and Manitoba. Threats to this species include coal strip mining, invasive alien plants and overgrowth by woody vegetation and high grass that were once controlled by bison grazing and fire. However, recent survey efforts have increased the known number of populations and it no longer qualifies as a threatened species.

Wildlife species description and significance

Buffalograss is a low-growing, stoloniferous (bearing runners), curly-leaved, perennial grass forming dense, clonal mats. The species is primarily dioecious: male (staminate) and female (pistillate) flowers are found on different plants. Male plants have slender, erect stems, mostly 6–12 cm high, bearing 1–3, 1-sided spikes that are about 1 cm long. The pistillate plants have short, often prostrate stems beneath the leaves, and bear flower clusters that remain together to form hard, globular "burs" that become the seed dispersal units. Buffalograss is an important drought-tolerant forage and turf grass in the United States.

Distribution

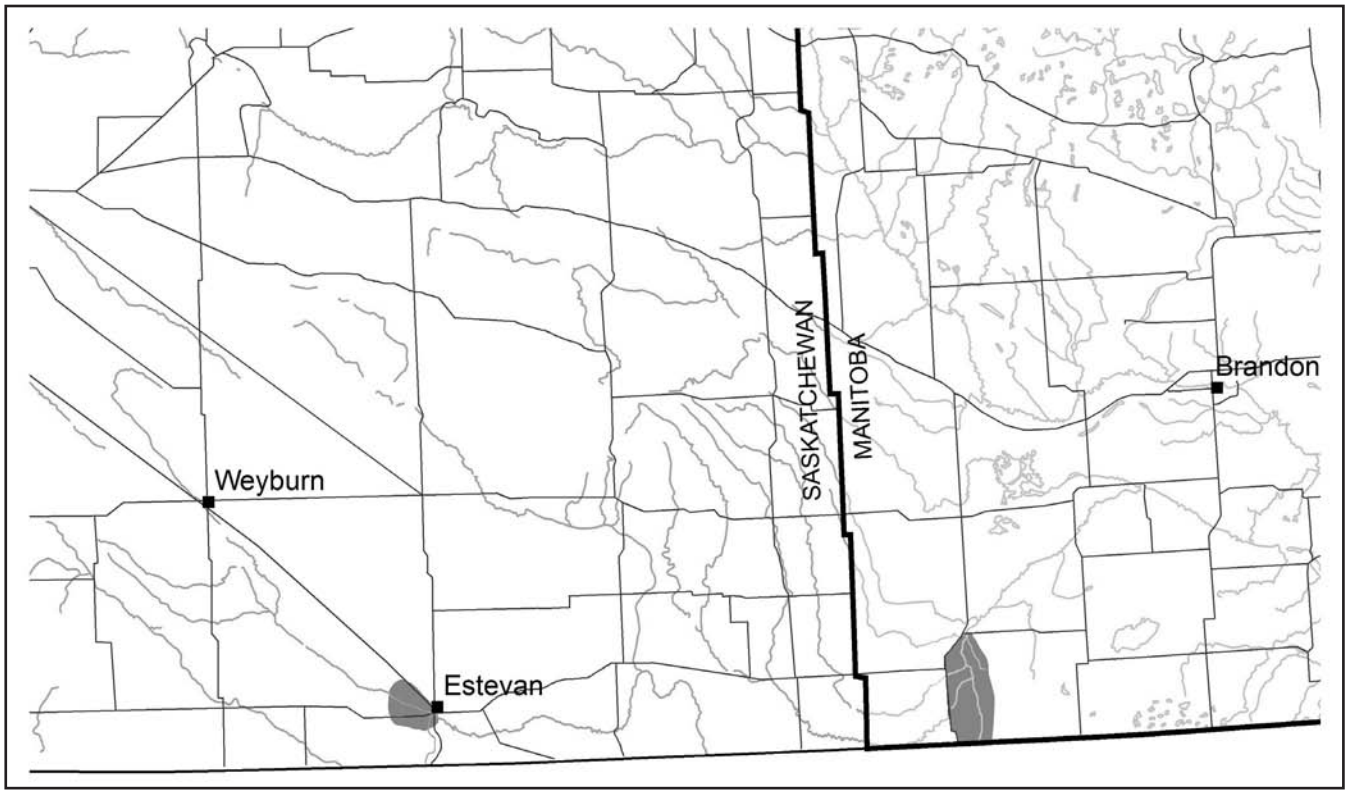
Buffalograss is widespread in North America, ranging northward from Central Mexico, over the Chihuahuan and Great Plains grasslands of the United States, just reaching into the southernmost Canadian prairie provinces. In Canada, it is a peripheral species found in southeastern Saskatchewan and southwestern Manitoba. Less than 1% of the global population is in Canada.

Habitat

In Canada, Buffalograss occurs on remnant patches of shortgrass prairie, in clay to clay-loam soils, often below shale outcrops, on dry, shallow valley bottoms and lower slopes, or on south- or west-facing mid-slope benches of the Souris and Blind river valleys. The species requires an environment with little competition from taller, more competitive grasses and herbs. Grazing and moderate trampling may help maintain suitable habitat.

Biology

Buffalograss reproduces both vegetatively, forming solid clonal mats, and sexually reproducing by seeds produced from outcrossing via wind-pollination. In Canada, Buffalograss flowers in midsummer and produces seeds from late July to August. The seed-containing burs are dispersed by herbivores and water. The life expectancy at one year is approximately 2.16 years with a maximum life span of 35 years. The seeds have relatively long viability estimated between 25–35 years.



Canadian distribution of Buffalograss.

Source: Environment Canada. 2007. *Recovery Strategy for the Buffalograss (*Buchloë dactyloides*) in Canada. Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. vi + 30 pp.

Population sizes and trends

There are two populations of Buffalograss in Canada. The population in Manitoba is south of Melita along the Blind and Souris river valleys. The population in Saskatchewan is west of Estevan along both sides of the Souris River Valley. The number of mature individuals is unknown and difficult to estimate as Buffalograss occurs in clonal patches that are too interconnected to be distinguished from each other. However, due to detailed surveys and mapping since the species was last assessed in 2001, the size of the populations in Canada is much larger than originally estimated. This discrepancy is likely not due to growth of the populations but rather insufficient initial surveying.

Threats and limiting factors

The potential threats to Buffalograss arise, not so much from low numbers of plants present, but from its occurrence over a small area of unusual habitat, together with the possibility of altered land-use in the future. Potential threats to the Buffalograss populations in Canada in order of importance include: coal strip mining, invasive alien species, disruption of natural disturbance regimes including grazing and/or fire, flooding by reservoirs and dams, cultivation, and road construction or upgrades.

Protection, status, and ranks

Buffalograss is listed as Threatened under the federal *Species at Risk Act*. In Manitoba, Buffalograss is considered Threatened and is protected under the *Endangered Species Act*. Buffalograss is not protected in Saskatchewan, except one small population in the Buffalograss Ecological Reserve. The Canadian national NatureServe rank is N1 (critically imperilled), and in Manitoba and Saskatchewan it is S1 (critically imperilled). ■

Buff-breasted Sandpiper

Photo: © Her Majesty the Queen in Right of Canada, Charles Francis

Scientific name
Tryngites subruficollis

Taxon
Birds

COSEWIC status
Special Concern

Canadian range
Yukon, Northwest Territories, Nunavut, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec

Reason for designation

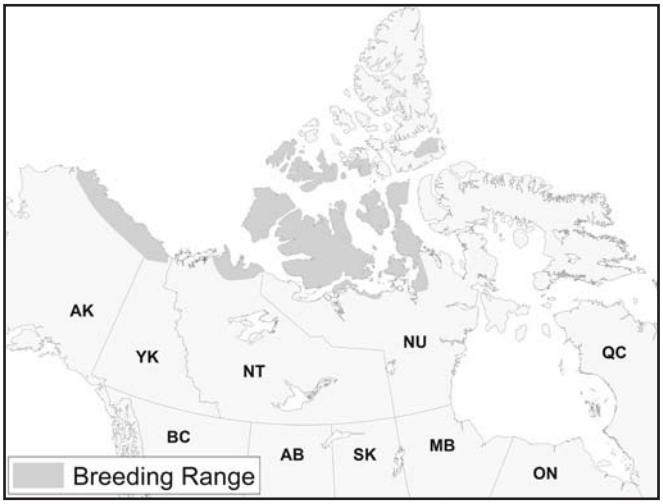
The Canadian Arctic supports about 87% of the North American breeding range of this shorebird, and about 75% of its global population. The species was once common and perhaps even abundant historically, but it suffered severe declines stemming from intensive market hunting in the late 1800s and early 1900s. By the 1920s, it was thought to be at the brink of extinction. Its population has grown since hunting was banned in North America, but numbers remain much lower than those before hunting began. There is evidence for population decline in recent decades, and many conservation organizations consider the species to be of concern throughout its range. However, this species is difficult to monitor effectively, and data necessary to estimate population trends are currently lacking. Outside the breeding period, loss and degradation of its specialized grassland habitat, both on its wintering grounds in South America and along its migration routes, are believed to pose the most significant threats.

Wildlife species description and significance

The Buff-breasted Sandpiper (*Tryngites subruficollis*) is a medium-sized shorebird with a buff-coloured face and underparts, and brown to black speckling on its wings and back. It is the only North American shorebird with a lek mating system, in which males congregate to display to females during courtship.

Distribution

The Buff-breasted Sandpiper breeds in the Arctic regions of eastern Russia, Alaska, Yukon and northcentral Canada. It winters in South America, mainly in Argentina, Brazil and Uruguay. About 87% of the species' North American range occurs in Canada, where it breeds along the mainland north coast of Yukon, Northwest Territories and Nunavut, and within the Canadian Arctic Archipelago. Adults migrate south to the wintering grounds through the North American interior, while juveniles tend to spread out to the Atlantic and Pacific coasts before heading south. Migration north to the breeding grounds is concentrated through the central parts of the United States and Canada, with a large proportion of the population passing through Alberta and Saskatchewan.



Breeding range of the Buff-breasted Sandpiper in North America.

Source: Modified from the May 2012 COSEWIC Status Report (map produced by Jennie Rausch, Environment Canada).

Habitat

The breeding grounds are exclusively within tundra habitats. On migration and during the winter, Buff-breasted Sandpipers occur primarily in grassland habitats. Prior to European settlement in North America, stop-over habitat for migrants was primarily native short-grass prairie that was grazed by bison. Most such habitat has since been cultivated. Nowadays, the birds primarily use a variety of human-altered sites for stopovers, such as crop fields, golf courses, airport runways, sod farms, and pastures grazed by domestic livestock. Buff-breasted Sandpipers winter mainly in the South American Pampas, where livestock grazing maintains their preferred short-grass habitat structure. Wintering populations also are commonly found next to coastal lagoons.

Biology

Males and females arrive simultaneously on the Arctic breeding grounds from late May through mid-June. Males perform courtship displays on territories to attract females. Females lay a single clutch of four eggs in a nest on the ground. Most birds depart for the wintering grounds by early September. The diet of Buff-breasted Sandpipers includes terrestrial insects and spiders, aquatic invertebrates and plant seeds.

Population sizes and trends

The most recent global estimate of Buff-breasted Sandpipers is 56,000 birds (range: 35 000–78 000). About 42 000 likely breed in Canada (range: 26 250–58 500), which accounts for about 75% of the species' global population. The population is believed to have once numbered in the hundreds of thousands to millions prior to precipitous declines stemming from commercial hunting in the late 1800s and early 1900s. Recent observations suggest that the species has continued to decline over the past few decades, but no long-term monitoring data exist to verify this apparent trend.

Threats and limiting factors

Habitat loss, fragmentation and degradation are likely the primary threats to Buff-breasted Sandpiper populations. In the Arctic, breeding habitat overlaps areas of mineral, coal, oil and gas development. Throughout much of the rest of the migration and winter range, native grasslands have largely disappeared, and the species has switched to using human-altered habitats. The Buff-breasted Sandpiper's regular use of croplands may expose the birds to agrochemicals, while changing agricultural practices (e.g., altered grazing regimes, switch to no-till farming) may decrease food availability and limit suitable habitat. In addition, the development of wind energy projects along the North American migratory route could have negative consequences for the species.

Climate change may impact Buff-breasted Sandpipers in several ways. Northward advancement of shrub cover will dramatically alter its tundra breeding habitat. Rising sea levels and increased rainfall could flood the birds' coastal habitat on both breeding and wintering grounds. More frequent and intense storms could increase mortality of juveniles migrating along the Atlantic coast. Climate change is also expected to cause more frequent and severe droughts in the Canadian Prairies and the U.S. Great Plains, which may negatively impact wetland and seasonal pond habitat and lead to decreased food availability during migration.

Protection, status, and ranks

The Buff-breasted Sandpiper is protected in Canada under the federal *Migratory Birds Convention Act*. It is considered near threatened on the IUCN Red List and of high conservation concern by both the U.S. Fish and Wildlife Service and the Canadian Shorebird Conservation Plan. The U.S. Shorebird Conservation Plan designates the Buff-breasted Sandpiper as highly-imperiled. In Canada, the Buff-breasted Sandpiper is ranked nationally as sensitive to extinction or local loss of populations. On the wintering grounds, it is classified as threatened in Argentina, vulnerable in part of Brazil, near threatened in Paraguay, and a priority species for conservation in Uruguay. None of the existing protections extend to conservation of the species' habitat. ■

Collared Pika

Photo: © John Nagy

Scientific name
Ochotona collaris

Taxon
Mammals

COSEWIC status
Special Concern

Canadian range
British Columbia, Yukon, Northwest Territories

Reason for designation

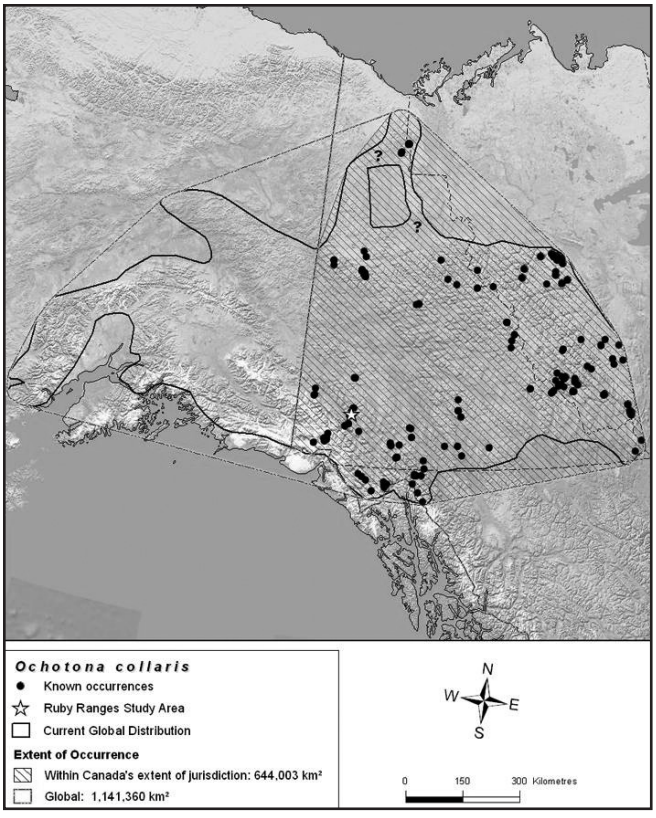
This small rabbit-relative is a Beringian relict that is restricted to talus slopes in alpine areas in northern west British Columbia, Yukon, and Northwest Territories. This region comprises over half the global range of this species, and is witnessing climate-driven shifts in habitat, temperature, and precipitation at faster rates than elsewhere in Canada. A demonstrated sensitivity to climate variability, coupled with poor dispersal ability and the naturally fragmented nature of its populations, heightens the vulnerability of this small mammal to climate change. The species is well-studied in a very limited portion of its range, but baseline information on population trends at the range level, and a clear understanding of the extent and severity of climate impacts to this species and its habitat in the coming decades is limited. However, the best available information suggests that this species may be particularly sensitive to a changing climate, including concomitant increases in precipitation variability, leading to reductions in habitat availability. The potential of negative impacts of climate change to the persistence of this species over the long term is substantial.

Wildlife species description and significance

The Collared Pika (*Ochotona collaris*) is a small (~160 g), asocial, alpine-dwelling lagomorph. It is one of two pika species in North America, along with American Pika (*O. princeps*). Collared Pikas are dull grey with pale grey patches on their napes and shoulders, which form a partial collar around the neck. They display no obvious sexual dimorphism. Pikas have been deemed 'harbingers of climate change' because of their demonstrated sensitivity to climate patterns.

Distribution

In Canada, the Collared Pika occurs primarily in the mountainous regions of Yukon Territory, extending into northern British Columbia and into Northwest Territories west of the Mackenzie River. Outside Canada, Collared Pikas occur in southern and central Alaska. There is one designatable unit for Collared Pika in Canada.



The global range of Collared Pika (i.e., estimated extent of occurrence) and locations of specimen collections and field observations from Canada (Yukon and British Columbia).

Source: November 2011 COSEWIC Status Report.

Habitat

Collared Pikas inhabit primarily alpine boulder fields (talus) that are interspersed with meadow. This talus-meadow combination offers access to forage (meadow) and shelter from predators and weather (talus). Collared Pikas are behaviorally restricted to talus patches and typically remain within 10 metres of the talus edge when foraging in meadows. Population densities are generally higher on south-facing slopes presumably because of their higher primary productivity.

Biology

Collared Pikas are generalist herbivores that collect two diets during summer. The first is consumed immediately, while the second is stored in 'haypiles' within the talus matrix for consumption during winter. Pikas defend individual territories (about 15–25 m radius) and have a promiscuous mating system. Pikas become sexually mature after their first winter and, after a 30-day gestation, produce a litter of 3–4 offspring in a nest located within the talus. Most litters are produced in mid-June. Juveniles emerge to the surface 30 days later and disperse within days. Juveniles grow to near-adult size during their first summer and must establish a territory and a haypile before winter. Adults exhibit high site fidelity once a territory is established.

Annual survival has been linked to both winter climate and the timing of spring haypile initiation. The primary predator of Collared Pikas is the Short-tailed Weasel, and occasionally Red Foxes and raptors. Pikas generally do not live longer than 4 years and generation time is just over 2 years.

Population sizes and trends

A study of Collared Pika populations in a single location in the Ruby Ranges Ecoregion of southwestern Yukon showed that the population size fluctuated considerably over time. Although there are no other empirical data available on population sizes and trends elsewhere and almost no directed surveys, Collared Pikas are believed to be otherwise widespread and may be locally abundant within the species' range.

Threats and limiting factors

Due to the remote nature of its range in Canada, direct disturbance to Collared Pika habitat and populations has been minimal and is expected to remain so in the coming decades. The greatest threat to Collared Pika populations is most likely to be from climate warming, the effects of which are already known to be occurring in this northern region that is characterized by a dry, subarctic climate. Local extirpations and upslope range retraction of American Pika has been documented in the interior Great Basin of the U.S., but the extent to which this condition is applicable to Collared Pika is unknown, given some differences in habitat and other uncertainties. The most likely risks to Collared Pika persistence are related to the direct effects of temperature, moisture or weather conditions and habitat changes. Pikas survive best under cool, dry conditions, and changes in either direction (i.e., higher temperatures, or cold wet conditions) leave them susceptible to death through exposure. Loss of suitable alpine habitat may occur through a) changes in the species composition of alpine vegetation communities, b) a direct loss of habitat due to treeline advance, or c) climate becoming physiologically intolerable. A loss of alpine habitat would increase distances between suitable patches, possibly reducing gene flow, rescue effects, and regional persistence.

Protection, status, and ranks

Currently, the Collared Pika is not listed under the Canadian *Species at Risk Act*, the United States *Endangered Species Act* or under the *Convention on International Trade in Endangered Species of Wild Fauna and Flora*. The International Union for the Conservation of Nature lists the Collared Pika as "Lower Risk/Least Concern." The NatureServe conservation status ranks are Globally Secure, Nationally Secure in both Canada and the United States, and Secure in Alaska. Under the national General Status program, they are listed as Sensitive in Northwest Territories. The draft conservation status ranks for both Yukon and British Columbia were uplisted from Secure to Sensitive between the 2005 and 2010 assessments, and they are listed nationally as Sensitive. ■

Eastern Baccharis

Photo: © Sean Blaney

Scientific name
Baccharis halimifolia

Taxon
Vascular plants

COSEWIC status
Threatened

Canadian range
Nova Scotia

Reason for designation

The species is an Atlantic Coastal Plain Flora species. A rare Canadian disjunct shrub restricted to very specific salt marsh habitat in southern Nova Scotia. Its coastal habitat is declining due to increasing shoreline development. Further climate change effects, including rising sea level and increasing and more frequent storm surges, will cause habitat loss and degradation as well as impact individuals over the next few decades.

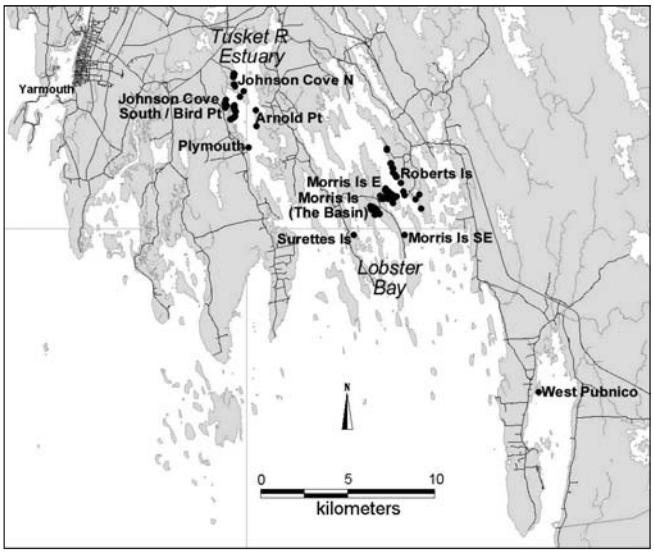
Wildlife species description and significance

Eastern Baccharis is a perennial, salt marsh shrub of the Aster family. In Canada, it is 1 to 3 metres tall and deciduous with alternate gray-green leaves. Male and female flowers occur on different plants. It blooms in late summer with inflorescences of tiny flowers that can be very numerous on larger shrubs. The brilliant white pappus (bristles) on the seeds makes female plants easy to detect in late summer and early fall.

In Canada, Eastern Baccharis is rare, localized and 400+ km disjunct from the next nearest occurrence in northern Massachusetts. Eastern Baccharis is the only native representative of its genus and subtribe in Canada. The species is used horticulturally in the United States. *Baccharis* species contain an array of chemicals used medicinally, including some with potential for cancer treatment, but formal investigation of their properties has been limited. American First Nations have used some species in the treatment of sores and wounds, and as antibacterials and emetics. Eastern Baccharis has been introduced to and has become a problematic invasive in Mediterranean Europe and Australia and it is an agricultural weed in some U.S. states.

Distribution

Eastern Baccharis is native along the Gulf of Mexico south to Veracruz, Mexico and along the United States east coast north to northern Massachusetts. Southward, it occurs inland to Oklahoma, Arkansas, Tennessee and the Piedmont east of the Appalachians, although some of this distribution represents post-European colonization. It is also native in Cuba and the Bahamas. Canadian occurrences are restricted to a 25 km stretch of coast in extreme southwestern Nova Scotia. Populations are dominated by large, mature individuals, suggesting long-term occurrence in Nova Scotia.



Canadian distribution of Eastern Baccharis in extreme southwestern Nova Scotia, with subpopulation names.

Source: November 2011 COSEWIC Status Report.

Habitat

In the U.S., Eastern Baccharis occurs in a variety of moist or disturbed habitats. In Canada,

it is restricted to open margins of well-developed salt marshes within harbours or bays that provide protection from wind and waves. It occurs in or near the transition zone to coastal forest with predominantly graminoid vegetation and shrubs 0.5 m to 2 m in height. Climate likely limits its extent of occurrence. Oceanic currents moderate the climate of the coastal zone of southwestern Nova Scotia, especially the area around Yarmouth where Eastern Baccharis occurs, the warmest Canadian winters outside of southern British Columbia, with temperatures considerably milder than the coast of Maine at the same latitude.

Biology

In Nova Scotia, Eastern Baccharis flowers from late July through mid- or late September. Females can produce more than one million seeds. Mature achenes (fruits) are wind- and water-dispersed, aided by the attached pappus. Achenes mature in late August or September, with most having dispersed by late October. In Nova Scotia (but not in the southern U.S.), leaves are deciduous in late October and November, later than most associated shrubs.

Seedlings in Nova Scotia have been observed very infrequently, suggesting establishment from seed is uncommon. Large individuals in Nova Scotia can have trunks up to about 10 cm diameter, suggesting considerable age, and new shoots sprout from the bases of mature shrubs, suggesting that individuals could persist for decades or longer. Eastern Baccharis also spreads vegetatively via the rooting of low branches. Seed banking is likely not significant because seeds have limited dormancy, but seeds can survive a minimum of two years if buried.

Population sizes and trends

The total number of mature individuals in Canada is estimated at 2850 and is probably quite completely documented. Three populations are known, with an additional site (West Pubnico) having only one known individual. These populations are divided into 9 subpopulations, two of which support ~88% of the Canadian population.

Population trends are not documented but are likely fairly stable. Only relatively small and localized development impacts have thus far occurred, but development is active or imminent in some populations and a future threat in others.

Threats and limiting factors

Habitat loss from coastal development, primarily for cottages or residences, is the only imminent threat. Development has been extensive on Nova Scotia's Atlantic coast in the past 30 years, causing vast increases in land values. Eastern Baccharis occurs in aesthetically attractive coastal habitats and most occurrences are within a few hundred metres of good roads. Its habitat along the margin of coastal forest makes it especially prone to clearance by landowners seeking water views or access. It is, however, somewhat protected from development in many sites, including the two large subpopulations, because it occurs on islands within salt marshes for which creating road access would be expensive or against environmental regulations.

Death of individual plants from apparent saltwater inundation was observed very locally and habitat loss from sea level rise may be a future threat. Localized impacts from cattle grazing were also observed at one site.

The extreme concentration of the population (~88% of total) into two dense areas of occurrence totaling 11.5 ha means that development, sea level rise or chance events in those areas could substantially reduce the entire Canadian population. Observations suggesting limited recruitment from seed increase the significance of any threat that would remove mature individuals.

Protection, status, and ranks

Eastern Baccharis presently has no legal protection in Canada, although a provincial status report is being prepared, which could lead to legal protection under the Nova Scotia *Endangered Species Act*. No Canadian populations are within protected areas.

Eastern Baccharis is listed by NatureServe as globally secure (G5) with a national status rank of secure (N5) in the United States and critically imperilled (N1) in Canada. In Nova Scotia, it has a regional rank of critically imperilled (S1) and a National General Status rank of May Be At Risk, which equates to a "Red" rank under the Nova Scotia Department of Natural Resources provincial system. In the United States, it is considered rare only in Rhode Island where it is imperilled (S2) and Pennsylvania where it is Vulnerable (S3) and designated "Rare". ■

Goldencrest

Photo: © Mark F. Elderkin

Scientific name
Lophiola aurea

Taxon
Vascular plants

COSEWIC status
Special Concern

Canadian range
Nova Scotia

Reason for designation

In Canada, this Atlantic Coastal Plain plant is found only in Nova Scotia at a few lake shores and wetlands. The Canadian population primarily reproduces vegetatively and is genetically distinct and geographically disjunct from the nearest populations in New Jersey 800 km to the south. Revisions to the COSEWIC assessment criteria since the species' last assessment account, in part, for the change in its risk status. Recent intensive surveys have also determined that the population is larger than previously thought. However, the species is subject to ongoing threats from development and habitat alteration.

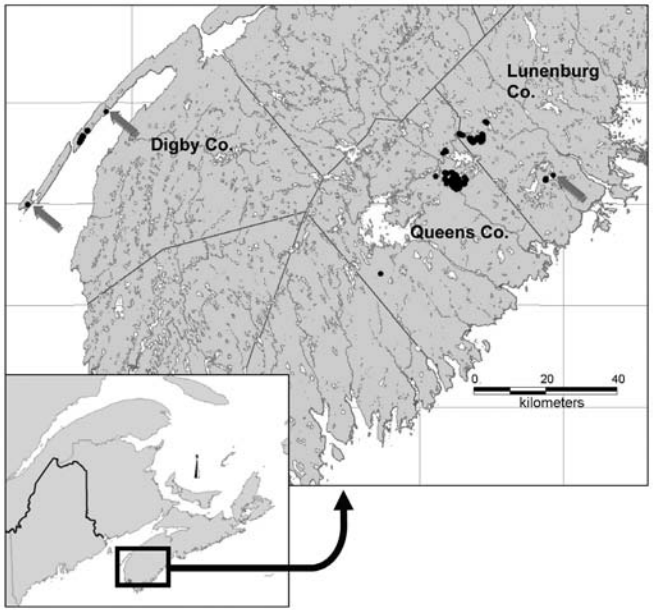
Wildlife species description and significance

Goldencrest (*Lophiola aurea*) is a perennial herb within the Bloodwort Family (Haemodoraceae). Plants arise from a rhizome with the erect, linear, blue-green leaves arranged predominantly in basal rosettes. Stems terminate in a single, densely white-woolly, branched inflorescence with yellow flowers that develop into round, many-seeded capsules.

Goldencrest is the only member of a distinctive genus and is globally uncommon with a very small range. It co-occurs in southern Nova Scotia with a large suite of other disjunct southern species of the Atlantic Coastal Plain, many of which are rare in Canada, including Redroot and Long's Bulrush. It is exceptionally disjunct among this suite of species, with Nova Scotia populations separated by 800+ km from the nearest known sites in New Jersey.

Distribution

Goldencrest is endemic to the Gulf and Atlantic Coastal Plains. In the United States, it is known from Louisiana to Georgia, North Carolina, Delaware (where it is extirpated), and New Jersey. In Canada, the nine populations (seven known extant) are restricted to two regions of southern Nova Scotia.



Canadian range of Goldencrest. Arrows indicate presumed or potentially extirpated sites.

Source: May 2012 COSEWIC Status Report.

Habitat

In Canada, Goldencrest occurs on open lakeshores and graminoid-dominated peatlands. Low nutrient, acidic conditions prevail and disturbances such as flooding, wave action and ice scour prevent dominance of more competitive species. Lakeshore substrates are generally peaty, but often with only a thin organic layer over sand, gravel and cobble or bedrock. Elsewhere, the species is found on wet acidic soils in bogs, pocosins (freshwater wetlands with deep sandy and peaty soils), wet savannahs, pine barrens and sometimes in nearby anthropogenically disturbed habitats such as roadside ditches.

Biology

Goldencrest spreads extensively through rhizome and stolon growth. In Canada, it flowers in August and September. Seed banking is not documented but is plausible given the fluctuating lakeshore habitat in which the species occurs. Seedlings have not been observed in Canada, although little effort has been made to find them. Generation time is estimated at 3–5 years based on field observations suggesting vegetatively derived rosettes likely require several years before being capable of reproducing vegetatively. Individual clones appear very long-lived, potentially on the scale of decades.

Population sizes and trends

The total Canadian population includes hundreds of thousands of rosettes, although the number of genetic individuals is certainly much lower. Populations at Ponhook Lake (including Little Ponhook Lake) and Shingle Lake include about 93% of the ~75 known locations. Populations on these lakes are almost certainly slowly declining with shoreline development. Many of the several hundred cottages and residences on their shores have been built in the last 15 years. Shoreline development currently occupies no more than about 6% of shorelines on these lakes, and has likely reduced populations by less than 6% because development does not necessarily eliminate individual occurrences.

Other extant populations are relatively unthreatened and their populations have probably been stable in the past 15 years, although major declines from historical impacts are documented at Tiddville. The population at Brier Island has not been seen since 1985 and is presumed extirpated because of habitat change. The population at Sandy Cove, last documented in 1949, may be extant, but no subsequent searches are documented.

Threats and limiting factors

Shoreline development is the most serious threat to Goldencrest populations. The threat of shoreline development has been mitigated somewhat by the creation of a provincial nature reserve.

Other potential future threats are eutrophication, invasive species and peat mining. Historical impacts that are not current threats include water level management through damming of lakes and drainage of peatlands, diatomaceous earth mining, and off-road vehicle disturbance.

Protection, status, and ranks

In 2000, Goldencrest was listed as Threatened under the federal *Species at Risk Act* and the Nova Scotia *Endangered Species Act*. It bears a NatureServe rank of Apparently Secure (G4) globally. In Nova Scotia and Canada, Goldencrest is ranked as Imperilled (S2 and N2) with a General Status rank of At Risk, or “Red” under the Nova Scotia Department of Natural Resources’ provincial ranks. In the United States, it is Apparently Secure (N4?), being known from seven states, in five of which it is rare or extirpated.

About 25% of the Ponhook Lake occurrences are on Crown land within Ponhook Lake Nature Reserve (representing ~10% of the Canadian population), granting them protection under the provincial *Special Places Protection Act*. Likewise, roughly 25% of sites on Shingle Lake are on Crown land and not available for development (representing an additional 10% of the Canadian population). ■

Grizzly Bear – Western population

Photo: © Gordon Court

Scientific name
Ursus arctos

Taxon
Mammals

COSEWIC status
Special Concern

Canadian range
Yukon, Northwest Territories, Nunavut, British Columbia, Alberta, Saskatchewan, Manitoba

Reason for designation

The global distribution of this large-bodied carnivore has declined by over 50% since the 1800s, with western Canada representing a significant core of the current North American range. A habitat generalist, its distribution and relative abundance in the absence of humans is largely driven by habitat productivity and seasonality. It is highly sensitive to human disturbance and is subject to high mortality risk in areas of human activity and where roads create access. Population estimates in much of the range are highly uncertain; the Canadian population is estimated at 26 000, but the number of mature individuals is uncertain and could be close to 10 000. While there is no evidence of a decline in the overall population during the past 20 years and increasing numbers of records indicating some range expansion in the north, a number of populations in the southern extent of its range in Alberta and southern BC are known to be declining and there are concerns about unsustainable mortality rates there and in parts of Yukon. There is strong evidence of genetic fragmentation in the southern parts of its range where some populations are increasingly isolated and subject to demographic stochasticity. Their poor condition in some parts of the range, combined with their naturally low reproductive rates and increasing pressures of resource extraction and cumulative impacts in currently intact parts of the range, heighten concern for this species if such pressures are not successfully reversed.

Wildlife species description and significance

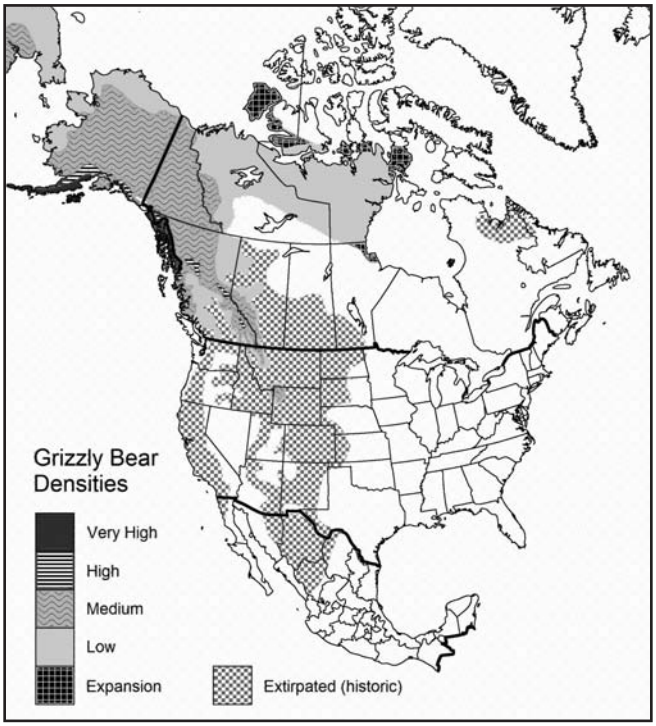
The Grizzly Bear (*Ursus arctos*) is believed to have crossed over from Asia to North America 50 000–100 000 years ago. Conspecific with extant Brown Bears in Europe and Asia, it is a large ursid, with body sizes in Canada ranging from 100–150 kg for adult females to 180–270 kg for adult males. Grizzly Bears have a heavy, dish-shaped skull with dentition indicative of both a predator and herbivore (large canines and crushing molars), a robust body with long fore-claws, and powerful digging muscles that give the species its characteristic shoulder hump. Colour ranges from blonde through shades of brown to nearly black, with the sometimes silver-tipped nature of the fur giving the species a 'grizzled' appearance.

In Western and Aboriginal cultures, the Grizzly Bear is a popular, revered, and sometimes feared animal. The species is often considered a flagship or umbrella species for conservation planning, and few mammals typify Canadian wilderness in as many minds as does the Grizzly Bear. Grizzly Bears interact directly with humans, cause real and perceived conflicts over property, and can endanger human life. Although relatively few people hunt Grizzly Bears, the species is a highly prized trophy animal. The Grizzly Bear can also be an important part of subsistence hunting by some Aboriginal people for both food and cultural purposes.

Distribution

The Grizzly Bear occurs in Canada, the United States, and in Europe and Asia. Current records of occupancy exist for approximately 48 countries. Many Eurasian populations are insular, small, and endangered.

All living Grizzly Bears in Canada comprise the continuous 'Western' population (BC, western Alberta, Yukon, Northwest Territories [NT], mainland Nunavut and parts of the southwest Canadian Arctic Archipelago, northern Saskatchewan, and northeast Manitoba). The Western population occupies an estimated area of 2.98×10^6 km^2. Observations indicate some expansion of the distribution of Grizzly Bears northwards and eastwards in Northwest Territories, Nunavut, northern Saskatchewan, and northern Manitoba, although a lack of systematic surveys tracking occupancy over time in these areas prevent quantification of such trends. The bears occupying the Prairies, previously assessed by COSEWIC as an independent population, are now considered to have formed part of the Western population. The Ungava population of Grizzly Bears, which once occupied a discrete unit in northern Quebec and Labrador at the time of European colonization, has not been recognized by COSEWIC prior to this report.



Approximate boundaries of the current and historic (i.e., 19th century) distribution of the Grizzly Bear in North America, with contours of relative density.

Source: Modified from the May 2012 COSEWIC Status Report (map produced by P. McLoughlin).

Habitat

The Grizzly Bear is a habitat generalist. Grizzly Bears occur from sea level to high-elevation alpine environments. The species occupies habitats as diverse as temperate coastal rain forests, alpine tundra, mountain slopes, and upland boreal forest, taiga, dry grasslands at the fringe of the Prairies and in central BC, and the Arctic tundra. Grizzly Bear habitat associations are strongly seasonal and typically reflect local plant development and prey concentrations. In mountainous regions, Grizzly Bears may undertake seasonal elevational migrations.

Biology

Grizzly Bears are omnivores with adaptations to digging and rooting, grazing, and hunting. In some areas they are effective predators of ungulates such as Moose, Elk, and Caribou; Pacific-coastal bears feed heavily on spawning salmon, and arctic Grizzly Bears scavenge along shorelines where they may feed on whale and seal carcasses, or even hunt seals. Grizzly Bears use refuse and livestock as food sources if they are available and accessible. Females usually have their first litters at 6 years of age; litter sizes are 1–3 cubs, and intervals between litters are commonly 3–4 years. Natural longevity is around 20–30 years. Grizzly Bears have large home ranges, averaging 1 800 km^2 for males and 700 km^2 for females; however, home range size varies widely across Canada, showing an inverse relationship with habitat productivity. Grizzly Bears den in winter and enter hibernation (dormancy) for up to 7 months, with length of hibernation related to latitude. Cubs are born in the den in January or February.

Population size and trends

Worldwide, Grizzly Bear range has decreased by about 50% since the mid-1800s; it has lost 98% of its range in the lower 48 states of the US. The species was extirpated by the late 19th–early 20th century from much of the dry interior of southern British Columbia (BC), the Prairies of Alberta, Saskatchewan, and Manitoba, and the Ungava region of Quebec and Labrador. The Western population is currently estimated to number about 26 000 animals, of which about 11 500 are mature individuals.

However, estimates of Grizzly Bear population size and trends are uncertain in Canada, and are mostly based on expert opinion or extrapolations of estimates from small study areas to include large geographic regions. BC has the largest number of Grizzly Bears, with approximately 15 000 animals. The latest estimates include 6 000–7 000 bears in Yukon, 3 500–4 000 in NT, 700 in Alberta and between 1 500 and 2 000 in Nunavut. A few Grizzly Bears now occur in tundra regions of northeast Manitoba. Historical numbers in Canada are unknown, but were certainly much higher. The overall Western population is probably stable since 1990, when the first comprehensive and Canada-wide population inventory was reported, although there have been declines in Alberta, and possibly southern BC and in some parts of Yukon. On the other hand, some expansion of Grizzly Bear range in NT, Nunavut, Saskatchewan, and Manitoba appears to be underway. Population and trend information for the Western population is not available prior to 1990.

Threats and limiting factors

In the absence of human interference, the density of Grizzly Bears is largely determined by habitat productivity (food). However, anthropogenic mortality has important influences on area of occupancy and underlies functional habitat loss throughout much of the species' range. Bears generally avoid humans and experience higher rates of mortality near anthropogenic features like roads and residential developments. Human activity is believed to lead to fragmentation and isolation of demographic units, whereby population dynamics may become determined by stochasticity in survival and reproduction irrespective of other factors, increasing chances of local extinction. Populations in BC, Yukon, NT, and Nunavut are subject to legal hunting, and all regions support and/or formally recognize the right to First Nations, Métis, and/or Inuit subsistence hunting. Bears that are killed by humans die because of legal hunting, defence of life and property, and poaching and vehicle and train collisions. Undocumented killing remains an important problem for managers. Evidence of human-caused mortality from all sources appears to be consistent with a stable population of Grizzly Bears at the scale of the Western DU; however, at local scales (in Alberta, southern BC, and parts of Yukon) recent mortality trends indicate real or suspected declines. At high densities, in addition to food, Grizzly Bears may also be limited by intraspecific predation or conflict. Effects of climate change on habitat availability for Grizzly Bears and associated effects on seasonal food supply have yet to be quantitatively studied; hypothetical mechanisms are varied and unclear, and projected net effects uncertain.

Protection, status, and ranks

The legal status of Grizzly Bears is as a "Big Game" species in the provincial and territorial wildlife legislation of British Columbia, Yukon, the Northwest Territories, and Nunavut. Grizzly Bears lack specific legal status in Manitoba, Quebec, and Newfoundland and Labrador, other than that generally afforded to wildlife. The Grizzly Bear population in Alberta was recently listed as Threatened under Alberta's *Wildlife Act* (June 2010), which resulted in a ban on licensed hunting of the species in that province. The species was assessed as Sensitive in the 2010 Wild Species General Status report, the same national conservation status as in 2005. In British Columbia, Yukon, Northwest Territories, and Nunavut, Grizzly Bears had a General Status conservation rank of Sensitive in 2010. In Alberta, the conservation status rank was May be at Risk in 2010, whereas in Saskatchewan and Manitoba it was Extirpated. The 2010 General Status conservation rank for Newfoundland and Labrador was "Not Assessed". No rank was given for Quebec. Approximately 7.1% of the range currently occupied by the Grizzly Bear in Canada is classified as 'protected' from human activity (to varying degrees) by federal, provincial, or territorial governments. ■

Hairy Prairie-clover

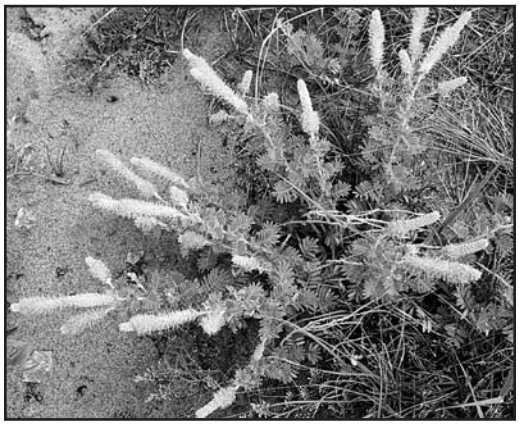


Photo: © Nature Saskatchewan, Candace Elchuk

Scientific name
Dalea villosa

Taxon
Vascular plants

COSEWIC status
Special Concern

Canadian range
Saskatchewan, Manitoba

Reason for designation

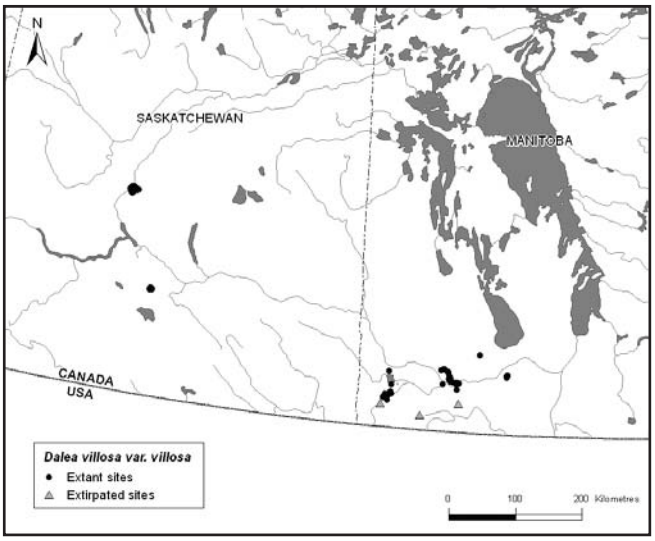
A perennial, herbaceous legume that inhabits sand dune landscapes within the prairies of south-central Saskatchewan and southwestern Manitoba. Threats to the extent and quality of habitat continue, including a lack of fire allowing encroachment of competing vegetation, invasive alien plant species, recreational traffic, sand extraction as well as a general decline in open sandy habitat. However, a larger population size is now known due to greatly increased survey effort, and as a result the level of risk is now thought to be much reduced.

Wildlife species description and significance

Hairy Prairie-clover (*Dalea villosa*) is member of the Fabaceae (pea) family. It is a perennial with a woody taproot and stem base. Hairy Prairie-clover is a sand dune specialist and, as a nitrogen-fixing legume, would be an important source of nutrients in an otherwise somewhat impoverished habitat. In the United States, the species has been developed as a horticultural species.

Distribution

Hairy Prairie-clover is restricted to the Great Plains region of North America. In Canada it is distributed from south-central Saskatchewan to southwestern Manitoba and extends southward into the United States to New Mexico and Texas and eastward to Michigan. Within its Canadian range, it is found only in sand or sand dune complexes and so distribution is limited to these habitats. To date, it has been found in the areas of Dundurn Sand Hills and the Mortlach/ Caron area in Saskatchewan and Lauder, Routledge, Carberry, Treesbank, and Portage Sandhills in Manitoba.



Canadian occurrences of Hairy Prairie-clover.

Source: November 2011 COSEWIC Status Report.

Habitat

Hairy Prairie-clover is found locally on active sand or sandhill blowouts although it also tolerates partially stabilized sandy sites. Habitat generally includes some element of open or active sand including old deltas of glacial lakes formed 10,000 to 17,000 years ago. During this time, all of the modern sites of Hairy Prairie-clover were connected by a series of glacial lakes and their spillways.

Biology

Hairy Prairie-clover is a warm-season species that is well-adapted to dry environments. Flowers appear in July-August and are insect-pollinated. Seed is set in late August to September and seed is dispersed by wind, rodents and deer. Deer are the major grazer, while sheep are the most threatening domestic grazer of Hairy Prairie-clover.

Population sizes and trends

The largest known population exists in the Dundurn area, with roughly 110 000 plants. Sites in the Mortlach/Caron (SK), Shilo/Treesbanks (MB) and Lauder/Routledge (MB) areas each have on the order of 10 000 plants. A smaller population of approximately 2 000 plants occurs in the Portage Sandhills (MB). Total estimated Canadian population size is approximately 145 000. Trends are difficult to discern at this point because the majority of these populations have been found only in the past decade.

Threats and limiting factors

The greatest threats to Hairy Prairie-clover are dune stabilization, in part due to changes in ecological processes such as fire suppression and disruption of natural grazing regimes, and the introduction and spread of invasive species. Many of the southern sites have been invaded by Leafy Spurge, and some are threatened by Smooth Brome and Crested Wheatgrass. Further, invasive species may be introduced through hay for deer feed. Recreational activities are problematic; in particular, unrestricted all-terrain vehicle activities and hiking are thought to have crushed plants. Also due to the nature of the sites, sand removal by humans results in a complete loss of habitat and presumably the seed bank.

Protection, status, and ranks

The Hairy Prairie-clover is listed as Threatened under Schedule 1 of the Canadian *Species at Risk Act*, as of June 2003. In Saskatchewan, the plant has been protected since 1999 under *The Wildlife Act*. In Manitoba, Hairy Prairie-clover has been protected since July 2007 on all lands under the *Endangered Species Act*. The plant is protected also in Spruce Woods Provincial Park through the *Manitoba Provincial Park Act*. In Saskatchewan, the Dundurn Sand Hills population is partially protected because it occurs in 17-Wing Detachment Dundurn, which restricts public access.

A Recovery Strategy is being drafted identifying critical habitat. Within Saskatchewan, recommendations regarding Hairy Prairie-clover are listed in the *Saskatchewan Activity Restriction Guidelines*. On federal lands, recommendations regarding Hairy Prairie-clover are listed in the activity set-back distance guidelines for prairie plant species at risk.

Globally, both the full species and variety of Hairy Prairie-clover are ranked secure (G5T5) by NatureServe. Its national status in Canada is imperilled to vulnerable (N2N3), and in Saskatchewan it is ranked critically imperilled (S1). In Manitoba, it is ranked imperilled to vulnerable (S2S3). Hairy Prairie-clover is not on the IUCN Red List of Threatened Species.

The conservation status has not been assessed nationally in the United States by NatureServe or by 11 of the states where it occurs. In Montana, Iowa and Wyoming, it is ranked critically imperilled (S1); and in Wisconsin it is ranked imperilled (S2). ■

Hooded Warbler

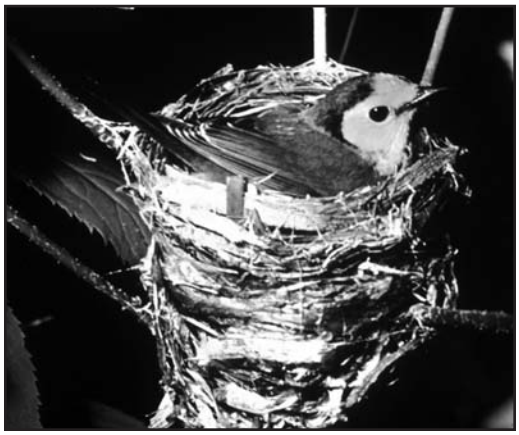


Photo: © Public Domain U.S. Fish and Wildlife Service

Scientific name
Setophaga citrina

Taxon
Birds

COSEWIC status
Not at Risk

Canadian range
Ontario

Reason for designation

In Canada, the range and abundance of this forest-nesting species have increased substantially since the species was last assessed. The species has also experienced a significant long-term increase in abundance in the core of its range in the United States, so there is an outside source for rescue. However, habitat degradation at breeding sites and habitat loss and degradation at migration stopover sites and on the wintering grounds are potential threats.

Wildlife species description and significance

This small yellow songbird is readily identified by its distinctive plumage and vocalizations. Adult males have a characteristic black hood but this feature is reduced or lacking in adult females.

Distribution

The Hooded Warbler is a long-distance migrant that breeds in eastern North America and winters in Mexico, Central America and the Caribbean. The breeding range of this species has been expanding northwards for at least 40 years. The Canadian breeding distribution is restricted to southern Ontario, where it is considered to be a rare or locally uncommon breeder.

Breeding and non-breeding ranges of the Hooded Warbler.

Source: "Birds of North America Online" **http://bna.birds.cornell.edu/bna** maintained by the Cornell Lab of Ornithology, Ithaca, NY.

Habitat

The Hooded Warbler typically nests in shrubs associated with small canopy-gaps within large tracts (>100 ha) of mature deciduous or mixed forests. High densities can occur following selective logging, provided many mature trees remain. On the wintering grounds, there is strong sexual segregation by habitat with males preferring closed canopy forests and females preferring more open shrubby habitats.

Biology

This insect-eating passerine begins breeding when it is 1 year old. Hooded Warblers typically lay 3 or 4 eggs in cup-shaped nests, 1 m from the ground, that are frequently parasitized by Brown-headed Cowbirds. Nest predation rates are high (e.g., in Ontario 30–50% of nests are depredated). Even so, this species often succeeds in raising two broods to fledging in a single breeding season (early May through September in Ontario). Hooded Warblers rarely return to breed at their natal site, whereas adults show relatively strong fidelity to breeding and wintering sites. The expected life span is short, and the average age of breeding adults is about 2–3 years.

Population sizes and trends

Data from all sources show a consistent pattern of strong increases in the abundance and distribution of the Hooded Warbler population in Canada. The Canadian population is currently estimated to be between 1 000 and 2 000 breeding birds (much less than 1% of the global population). The Ontario Breeding Bird Atlas (OBBA) showed a strong population increase, from 21 atlas squares (10 km^2 survey blocks) with breeding evidence during 1981–85, to 81 squares during 2001–05, although with relatively greater search effort in the second atlas.

Directed searches at known and potential breeding locations in southern Ontario in 1997, 1998, 2002, and 2007 also documented ongoing increases in population size, number of occupied sites, and breeding distribution. The 1997 survey found 88 territorial males while the 2007 survey recorded at least 436 at 89 sites. These surveys covered most but not all areas with known or potentially occupied habitat in southern Ontario.

Threats and limiting factors

Given the observed increase in the Hooded Warbler population in Canada, habitat availability does not appear to be a limiting factor at present. Climate change appears to be an important factor in the observed range expansion. Some studies in Ontario have found low productivity and suggested that some areas may be acting as ecological sinks. However, there is also evidence that the Hooded Warbler population is very dynamic, and is characterized by high levels of immigration and emigration in response to habitat quality. Provided that there is an ongoing supply of suitable habitat, then it is likely that the Hooded Warbler population will continue to be stable, or increasing. Loss and degradation of habitat at migration stopover sites and on the wintering grounds have been identified as potential threats, but the magnitude of these threats is unknown.

Protection, status, and ranks

The Hooded Warbler is protected under the *Migratory Birds Convention Act* in Canada and the United States. It was assessed by COSEWIC in 1993 and again in 2000 and then listed as Threatened under the federal *Species at Risk Act* when the Act came into force in 2003. It is also listed as Special Concern under Ontario's *Endangered Species Act, 2007*. This species is considered globally secure by BirdLife International (Least Concern) and NatureServe (G5).

The current draft of the proposed federal Recovery Strategy identifies 56 sites in Ontario with critical habitat for this species, with a total area of about 9000 ha. None of the proposed critical habitat is on federal lands. Over half of the sites are on publicly owned lands, consisting mostly of managed forests that are not formally protected. ■

Magnum Mantleslug

Photo: © Kristiina Ovaska

Scientific name
Magnipelta mycophaga

Taxon
Molluscs

COSEWIC status
Special Concern

Canadian range
British Columbia

Reason for designation

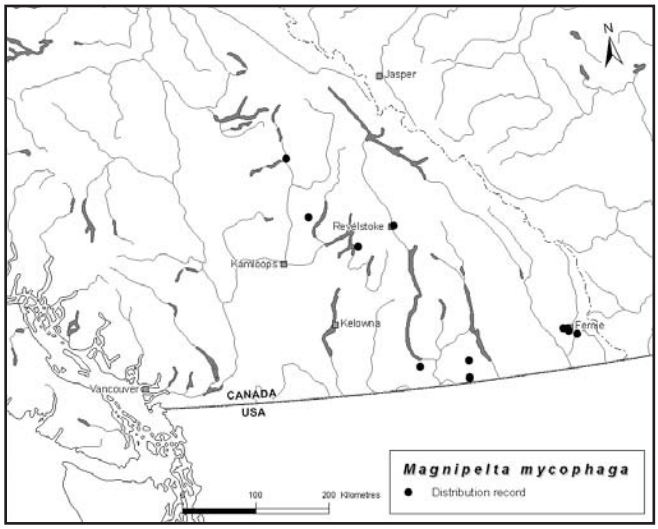
This large slug, up to 80 mm in length, is regionally endemic to the northern Columbia Basin in western North America. About half of the species' global range extends into southeastern British Columbia. It occurs in a number of widely separated habitat patches and is confined to cool, moist places in coniferous forests at mid- to high elevations. While hundreds of sites have been searched for slugs and land snails within the range of this slug, mostly within the past decade, as of November 2010 there are only 13 records for it in Canada. Since the 1960s its habitat has become increasingly fragmented. The number and variety of threats including logging, recreational developments and activities, wildfire, and changes in moisture regimes caused by climate change increase the level of risk.

Wildlife species description and significance

The Magnum Mantleslug is the sole member of the genus *Magnipelta*. It is a large slug up to 80 mm in length. Its most distinctive feature is a large mantle, which covers most of the back. The body is tan-brown with uneven black spotting; there is an irregular dark stripe on each side of the mantle. The species is regionally endemic to the northern Columbia Basin and adjacent mountains, an area that contains many unique plants and animals.

Distribution

The Magnum Mantleslug occurs in southeastern British Columbia (BC), northwestern Montana, northern Idaho, and extreme northeastern Washington. About half of the species' global distribution is in BC; the remainder is mostly in Montana. In BC, the species distribution extends from the Canada–U.S. border north to Wells Gray Provincial Park and from near Trail east to Fernie. This distribution encompasses portions of the Rocky Mountains, Columbia Mountains (Purcell, Selkirk, and Monashee ranges), and Shuswap Highlands. The distribution of the species is extremely patchy within this large range, possibly reflecting the availability of suitable moist habitats and low dispersal abilities of the slugs. As of November 2010, there are 13 records of the species from scattered sites, assigned to nine populations. Hundreds of sites have been searched for slugs and land snails within the distribution of this species, mostly within the past 10 years.



Canadian distribution of Magnum Mantleslug, based on records from 1992–2010.

Source: May 2012 COSEWIC Status Report.

Habitat

The Magnum Mantleslug occupies coniferous forests at mid- to high elevations and requires cool, moist conditions. In BC, the species has been found in Interior Cedar-Hemlock and Engelmann Spruce–Sub-alpine Fir biogeoclimatic zones at elevations of 800–2 060 m. The slugs inhabit very moist microsites, often with abundant herbaceous vegetation such as found in splash zones of cascading creeks and avalanche chutes, but also occur on the forest floor under heavily shaded forest canopy. The slugs are often associated with decaying logs and other coarse woody debris and have also been found under rocks in stable talus in moist situations.

From 1960 to present, habitats of the Magnum Mantleslug in Canada have become increasingly fragmented mainly due to logging, agriculture, ranching, mining, hydro development, transportation corridors and land conversions to residential areas. Considerable areas of mid- to high elevation forests are still intact due to a network of protected areas and inaccessible terrain, but logging and other resource extraction activities continue to expand in higher elevation forests.

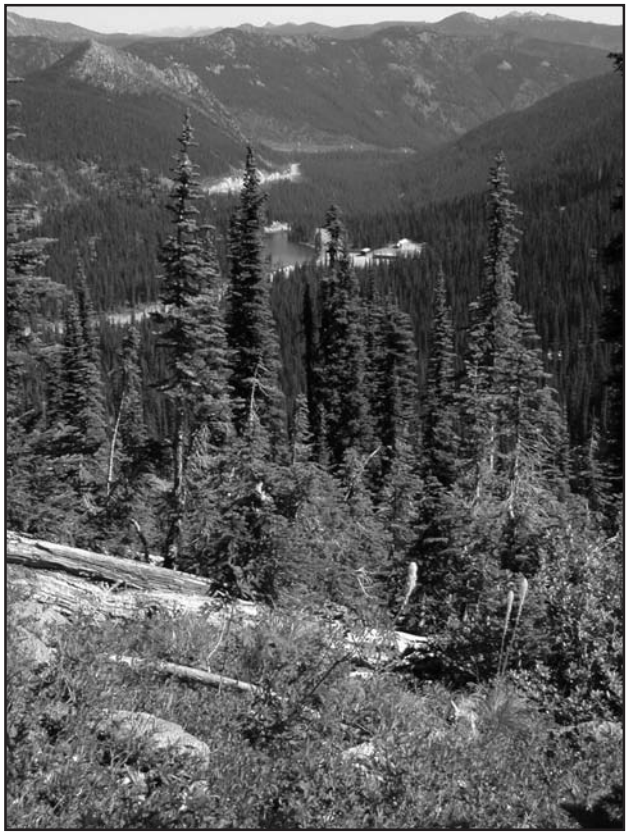


Photo: © Robert Forsyth

Magnum Mantleslug habitat.

Biology

Very little is known of the life cycle of the Magnum Mantleslug. The species is hermaphroditic, possessing both female and male reproductive organs, but exchange of sperm with other individuals, rather than self-fertilization, is probably the norm similar to most other slugs. The slugs lay eggs and can live more than 1 year; whether individuals are capable of reproducing in their first year is unknown but possible. The slugs are active during moist conditions from spring to autumn and seem to prefer substrate temperatures of 12–15°C. Their requirements for cool, moist microhabitats probably limit their distribution within the landscape and increase their vulnerability to human activities that alter hydrology or forest floor microclimates. The species is expected to have poor dispersal abilities similar to other terrestrial gastropods.

These slugs exhibit an unusual behaviour in response to disturbance. If provoked, the slug is prone to spread its large mantle in a wing-like fashion. This behaviour perhaps startles a predator or exaggerates the slug's body size, making it appear too large to swallow.

Population sizes and trends

No estimates of population sizes or trends are available. There are 13 records of the species from BC, representing a total of only 15 individuals, from 1992–2010. New sites continue to be found with increasing search effort. However, it is clear that the species' distribution is extremely uneven, even in apparently suitable habitats. Some habitat patches are small, raising questions about long-term viability of the populations. All six sites where the species had been found previously were visited in 2010; the species was found only near one of the sites, as well as at two new sites in the intervening areas. Given the species' patchy distribution across the landscape, poor dispersal ability, and the scattered distribution of suitable moist habitat patches, it is highly probable that populations have been lost over the past century and continue to be lost as a result of habitat degradation.

Threats and limiting factors

At known sites, the species is threatened by logging, recreational developments and activities, wildfire, and climate change. Logging is pervasive throughout the species' range, and five of 10 occupied sites are on forestry lands. Logging alters temperature and moisture regimes on the forest floor and can disturb or destroy habitat patches. Logging roads have increased public access to the backcountry, including off-road vehicle use that compacts soil and can destroy habitat patches used by the slugs. Recreational developments and activities, such as ski hill developments, are localized but expanding within the species' range. Infrastructure development and heavy recreational use can result in soil compaction and damage to understorey vegetation, posing threats to slug habitats. Strip-mining for coal is expanding in the southeastern part of the species' range in Canada.

The frequency and extent of wildfires is expected to increase with climate change and Mountain Pine Beetle infestations that are sweeping across interior BC. Terrestrial gastropods are thought to be sensitive to fire, which can decimate habitats and individuals, but the ability of the Magnum Mantleslug to survive fire events and persist in burned areas is unknown. Increased mortality due to the toxic effects of fire retardant chemicals is also a potential threat. Climate change is predicted to result in shifts in habitats and ecosystems over the next decades. Species occupying higher elevation habitats, such as the Magnum Mantleslug, might be especially vulnerable to shifts in habitats and ecosystems along altitudinal gradients, but the magnitude of such effects is uncertain.

Protection, status, and ranks

The Magnum Mantleslug has no official protection or status under the federal *Species at Risk Act*, BC *Wildlife Act*, or other legislation. It is ranked by NatureServe as follows: Global status: G3 – vulnerable; United States: N3 – vulnerable; Canada: N2N3 – imperiled to vulnerable; Idaho: SNR – not assessed; Montana: S1S3 – critically imperiled to vulnerable; Washington: S2 – imperiled; British Columbia: S2S3 – imperiled to vulnerable. In addition, the species is on the provincial blue list of species at risk (currently under reassessment).

The species has been recorded from Mount Revelstoke National Park, two provincial parks (Wells Gray and Stagleap), and a recently protected area owned by the Nature Conservancy of Canada. The remaining known sites are on private or provincial forestry lands and private resort properties. ■

Northern Dusky Salamander – Carolinian population

Photo: © Michael Oldham

Scientific name
Desmognathus fuscus

Taxon
Amphibians

COSEWIC status
Endangered

Canadian range
Ontario

Reason for designation

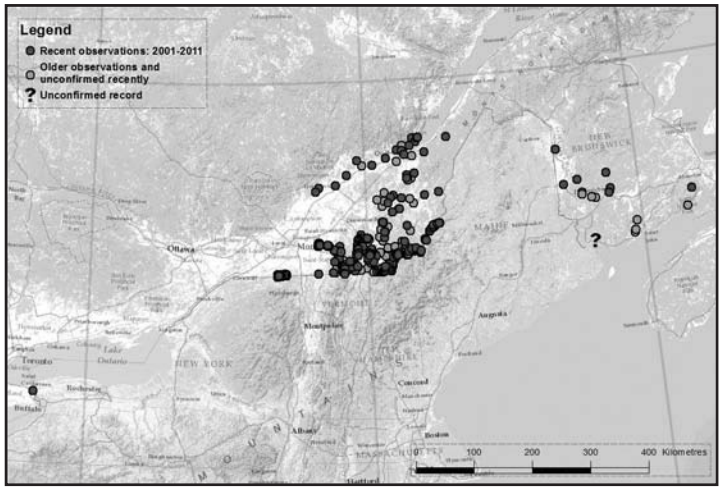
This species is restricted to one small creek sustained by groundwater seepage on the steep slope of a gorge vulnerable to erosion, atmospheric deposition of pollutants and habitat acidification. The population is small and susceptible to ecological, demographic and genetic stochasticity.

Wildlife species description and significance

The Northern Dusky Salamander (*Desmognathus fuscus*) is a member of the family Plethodontidae (lungless salamanders). Adults are usually brownish with a light dorsal stripe that continues onto the first portion of the tail. The body is sparsely covered with dark spots that are concentrated on the sides and becomes white or grey on the underside. Old individuals tend to be uniformly dark brown or black. Younger life stages have five to eight pairs of dorsal blotches or spots. Both adults and larvae have larger hind legs than forelegs and a pale line extending from the eye to the rear of the jaw. The Northern Dusky Salamander is the most widespread representative of its genus in Canada.

Distribution

The Northern Dusky Salamander is distributed throughout the mountainous regions of eastern North America. The Canadian distribution accounts for about 5% of the global range and includes a small area in the Niagara Gorge in Ontario, three large areas in Quebec (the Adirondack Piedmont, the Appalachian uplift, and the north shore of the St. Lawrence River), and scattered areas in southern New Brunswick. Within its range, the Northern Dusky Salamander occurs discontinuously usually in high elevation, low-order streams, in forested habitat. There are two designatable units, the Carolinian DU in Ontario, and the Quebec/New Brunswick DU.



Canadian distribution of the Northern Dusky Salamander.

Source: May 2012 COSEWIC Status Report.

Habitat

The Northern Dusky Salamander inhabits the vicinity of springs, seepages, and small tributaries of clear headwater streams in forested habitats. The species takes refuge under protective cover (rocks, logs, moss or leaf litter) or in cool subterranean retreats near stream edges. It forages along the streamside, mostly in terrestrial habitat. Females usually nest in cryptic microhabitats near a stream's source where soil is saturated. Larvae are strictly aquatic and remain in interstitial spaces among rocks of the streambed during their development. In winter, larvae remain in shallow running water, whereas adults retreat to subterranean refuges with constant water flow. Habitat availability and quality are optimal in undisturbed watersheds with abundant forest cover.

Biology

The Northern Dusky Salamander has a biphasic life cycle that includes an aquatic larval stage of 7 to 16 months, followed by a semi-aquatic adult stage. Sexual maturity is attained at 3 to 4 years of age. Mating takes place in the spring or fall and females lay eggs annually in late spring and summer. Fecundity increases with body size, and clutch size varies geographically between 8 and 45 eggs. Females remain with their clutches until they hatch 45 to 60 days after oviposition. Maximum life span is about 10 years.

Northern Dusky Salamanders are particularly vulnerable to water loss, and are most active at night. The threat of desiccation makes the species a poor overland disperser. Movements occur primarily along the stream channel usually within a few metres of water's edge. Adult home range is small (0.1 m^2–3.6 m^2). The species consumes aquatic and terrestrial invertebrates opportunistically. It lacks defence mechanisms against predators, but is capable of tail breakage. Fish, snakes, crayfish, birds, small mammals and larger salamanders are the main predators of the Northern Dusky Salamander. Hybridization between Northern Dusky Salamanders and Allegheny Mountain Dusky Salamanders occurs infrequently.

Population sizes and trends

Although considerable sampling effort has been invested in some parts of the species' Canadian range, current data do not allow an accurate estimate of population sizes or trends. In Ontario, the species is confined to a single small location in the Niagara Gorge. Estimates suggest the Ontario population size is likely fewer than 250 adults. The species is widespread in Quebec and New Brunswick; however, local densities are usually low. In each province six new populations have been discovered in the past few years as a result of increased targeted searches. Accordingly, the extent of occurrence has slightly increased, reflecting greater search effort rather than population growth or the establishment of new populations. On the other hand, some populations seem to have disappeared.

Threats and limiting factors

Changes in water supply and quality due to human activities are the main threats to the Northern Dusky Salamander in Canada. Decreased groundwater supply to the species' habitat can be catastrophic to local populations. Artificial increase in discharged water volumes in some areas is also likely to disrupt salamander populations and reduce suitable microhabitats. Runoff water from urban, industrial and agricultural areas can contaminate groundwater and waterways. Heavy metal contamination from atmospheric deposition is likely responsible for the disappearance of the species in Acadia National Park in Maine. Stream acidification is also a concern to the species as nearly 40% of the mountain streams in the southern Appalachians show signs of acidification.

Timber harvesting, windfarms, and watershed urbanization reduce water supply, water quality and microhabitat availability. Siltation is one of the most adverse effects of timber harvesting because interstitial spaces used by salamanders for foraging, shelter, nesting, and overwintering are lost. At the watershed scale, urbanization has caused the disappearance of the Northern Dusky Salamander in Mount Saint-Hilaire National Park (Quebec) and other areas. Introduction of predatory fish, particularly Brook Trout, is a threat to the species.

Protection, status, and ranks

The Northern Dusky Salamander is listed as Endangered in Ontario and is protected under the *Endangered Species Act, 2007*. In Quebec, the species is likely to be designated Threatened or Vulnerable by the provincial government. Nonetheless, the provincial *Act respecting conservation and development of wildlife* (R.S.Q., c. C-61.1) prohibits collecting, buying, selling or keeping specimens in captivity. Article 22 of the provincial *Environment Quality Act* (R.S.Q., c. Q-2) offers protection against unregulated degradation of environmental quality. The Northern Dusky Salamander is designated as Sensitive in New Brunswick under the General Status of Species in Canada. It is protected under the New Brunswick *Fish and Wildlife Act*, which prohibits taking any wildlife into captivity, keeping wildlife in captivity, or selling, trading or purchasing any wildlife, without authorization from the Minister.

At the present time, nearly a quarter of Northern Dusky Salamander localities in Canada are secured in protected areas and by ownership agreements. More than 75% of the species' observations do not fall under any type of habitat protection. ■

Okanagan Efferia

Photo: © Werner Eigelsreiter

Scientific name
Efferia okanagana

Taxon
Arthropods

COSEWIC status
Endangered

Canadian range
British Columbia

Reason for designation

This Canadian endemic is known from only five locations within a very small area of south-central British Columbia. The species' grassland habitat is limited and continues to be degraded. Threats include introduction and spread of invasive species, changing fire regimes, pesticide drift and unrestricted ATV use.

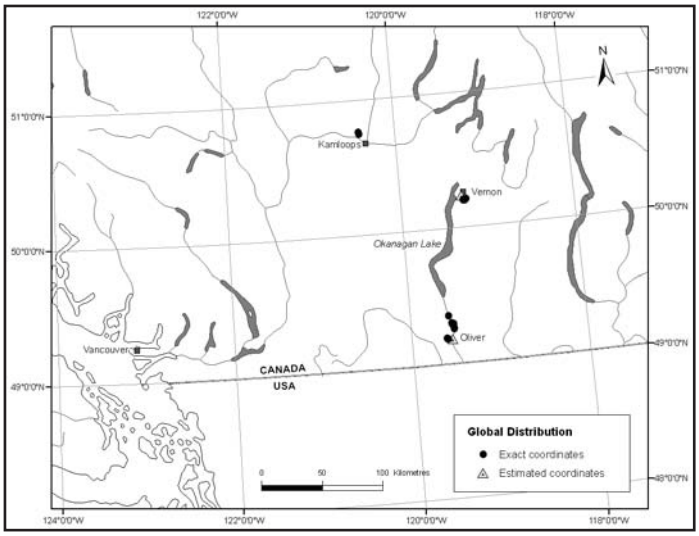
Wildlife species description and significance

Efferia okanagana Cannings (Okanagan Efferia – working common name) is a large (up to about 2 cm long), brown, bristly fly in the family Asilidae (robber flies). Both sexes have striking orange-golden bristles behind the eyes. In the male, the external genitalia at the tip of the abdomen are large and hammer-shaped; the last three visible abdominal segments are silver-white. The female has a long, sword-shaped ovipositor at the end of the abdomen. There are no subspecies known. The larva and pupa are unknown.

This robber fly is significant because it is one of the more obvious large invertebrates representative of the Antelope-brush ecosystem in Canada. Much of this habitat is threatened and, as yet, the fly is unknown from anywhere else in the world.

Distribution

The known global distribution of the fly is restricted to five locations (28 individual sites) in the Okanagan and Thompson valleys of south-central British Columbia, from Kamloops in the north, to Oliver in the south.



Global and Canadian distribution of Okanagan Efferia.
Source: November 2011 COSEWIC Status Report.

Habitat

The Okanagan Efferia is apparently restricted to dry grasslands growing on gravelly or sandy loam soils. Open soil is usually present, as is Bluebunch Wheatgrass. In the South Okanagan, the species has been found only in Antelope-brush steppe.

Biology

Robber flies are generalist predators of other insects, both as larvae and adults. The adults of Okanagan Efferia have been recorded capturing leafhoppers, click beetles, leafcutter and andrenid bees and ants, micromoths, flower flies, crane flies and robber flies. Prey is seized in the fly's bristly legs

Photo: © Robert Cannings

Okanagan Efferia habitat.

and the prominent proboscis is inserted in the prey's body. Paralyzing, proteolytic saliva is injected and the tissues are dissolved; the resulting fluid is sucked up by the fly. Eggs are laid in the empty glumes of the previous year's wheatgrass inflorescences. It is assumed that, like most other robber flies, larvae feed on soil invertebrates such as beetle larvae. The larval period lasts 1–2 years; pupation evidently occurs in the last spring and the adults emerge in late April or early May.

The Okanagan Efferia has been collected or photographed from 17 April to 18 June, with most records falling in the middle weeks of May.

Population sizes and trends

Population sizes have not been estimated. Populations are patchily distributed in suitable habitat at the regional scale and density is extremely variable at the site scale. In appropriate habitat, thirty-minute searches can produce catches of up to 15 specimens; usually the range is 0 to 5. There is no direct information on population trends, although declines can be inferred from trends in habitat destruction. In the southern part of the species' range, Antelope-brush steppe, the main habitat of the fly, has declined by two-thirds since European settlement.

Threats and limiting factors

Threats to the Okanagan Efferia include habitat loss or degradation (development, especially of vineyards; overgrazing by livestock; damage by vehicles), wild fires and related changes, invasive plants, climate warming, and pesticide effects.

There is no detailed information on limiting factors. There is an apparent, unmeasured correlation of the species' presence with Bluebunch Wheatgrass growing on gravelly soils. The well-drained character of these soils, or some other features, may be limiting requirements of the soil-dwelling larvae. The only oviposition sites observed are the empty glumes in the old inflorescences of this grass species. Larvae feed on subterranean insect larvae and the availability of suitable prey may be limiting. Adults are opportunistic, general predators of flying insects and locating suitable prey is likely not limiting.

Protection, status, and ranks

Okanagan Efferia has no legal protection, except for that general protection it receives when living in parks and other provincially or federally protected areas and lands owned by non-governmental conservation organizations such as the Nature Trust of BC. The most significant protected areas where the species has been recorded are the Lac du Bois Grassland Protected Area near Kamloops, Kalamalka Lake Provincial Park near Vernon (BC Parks, British Columbia *Park Act*) and Nature Trust of BC properties at Okanagan Falls and Vaseux Lake. Three of the five locations and most of the collection sites are from the southern Okanagan in Antelope-brush steppe. Government and private conservation lands there protect 15% of the remainder of this habitat in BC.

The Okanagan Efferia is not ranked by the National General Status program. It is unranked globally by NatureServe and unranked provincially by the BC Conservation Data Centre. ■

Tiny Cryptantha

Photo: © Her Majesty the Queen in Right of Canada, Candace Elchuk

Scientific name
Cryptantha minima

Taxon
Vascular plants

COSEWIC status
Threatened

Canadian range
Alberta, Saskatchewan

Reason for designation

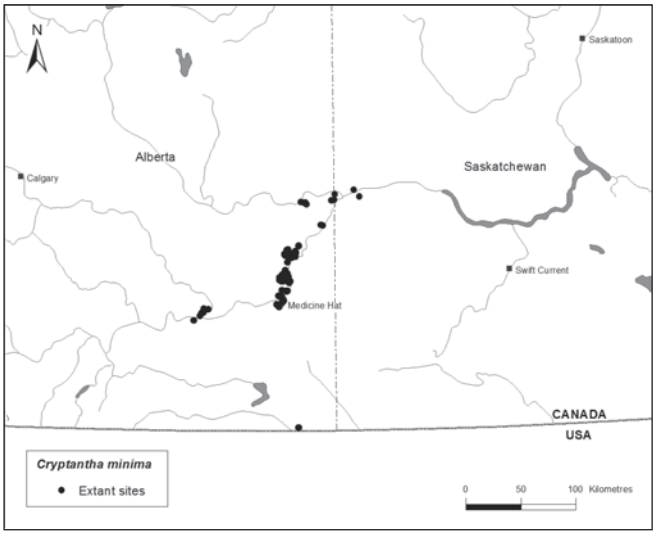
This small herbaceous annual plant is limited in Canada to a small area of grassland habitat in southeastern Alberta and adjacent southwestern Saskatchewan. Though a larger range and population size are now known due to greatly increased search effort, the species remains under threat from residential and industrial development, agricultural activities, altered hydrological regimes, and a lack of fire and grazing which allows encroachment of competing vegetation, such as invasive species. The species' extent and quality of habitat continue to decline and it is subject to extreme fluctuations in population size, which increases its vulnerability.

Wildlife species description and significance

Tiny Cryptantha is a small, bristly-haired annual plant that has tiny white flowers with yellow centres. The Canadian populations are the most northern occurrences of this species, and because these populations are disjunct from more southern populations, they could carry unique genetic variability that may contribute to adaptations and long-term persistence of the species.

Distribution

Tiny Cryptantha is native to North America. In Canada, the species is associated with river systems, mainly the South Saskatchewan River valley in the eastern half of Alberta and into western Saskatchewan. It also occurs near the lower Red Deer, lower Bow, Oldman and Lost rivers in Alberta and the Red Deer River in Saskatchewan. The closest occurrence outside Canada is a historical collection from Great Falls, Montana approximately 200 km from the southernmost Alberta population at Onefour. The species' range in Canada represents less than 1% of its total range.



Distribution of Tiny Cryptantha in Canada.

Source: May 2012 COSEWIC Status Report.

Habitat

Tiny Cryptantha is found within about five kilometres of river systems, typically in sandy, level to rolling upland areas and sand dunes near valley breaks, valley slopes with up to 50% slope, and level or gently sloping terraces in valley bottoms, particularly in meander lobes where flooding provides more frequent disturbance. It requires habitats with low litter levels and a minimum of 10% bare soil for establishment. Periodic soil disturbance by wind, water, erosion or animals is required to open up the canopy and provide spaces for germination and establishment. However, areas that have repeated intense disturbance, such as actively eroding slopes, dunes and sandbars do not appear to support Tiny Cryptantha.

Photo: © Her Majesty the Queen in Right of Canada, Jennifer Neudorf

Tiny Cryptantha habitat.

Biology

Tiny Cryptantha is an annual that spends a large portion of its life cycle as a seed. It lacks a dormancy mechanism, but exhibits conditional dormancy in which germination is temperature and moisture dependent. The proportion of seeds deposited into the seed bank and the period of viability of seeds remains unknown.

Seeds are likely dispersed passively, with most falling close to the parent plant. There may also be dispersal by animals, wind and water. There is no means of asexual reproduction for this species.

Population sizes and trends

Twenty-five extant populations of Tiny Cryptantha exist in Canada. There are 22 in Alberta, two in Saskatchewan and one straddling the Alberta–Saskatchewan border. A third Saskatchewan population may have been misidentified or may be extirpated. Due to its annual life cycle, the timing of various surveys throughout the growing season, and a limited number of resurveys of known populations, population trends for the species cannot be fully assessed.

Threats and limiting factors

Availability of suitable habitat is limiting. Identified threats to Tiny Cryptantha include habitat loss and degradation as a result of residential development and oil and gas exploration. Cultivation and sand/gravel extraction have also been identified as threats. Additional threats include modifications to natural processes through altered hydrological regimes and lack of grazing and/or fire, invasion by alien species, and the effects of climate change.

Protection, status, and ranks

Tiny Cryptantha is designated as Endangered under Schedule 1 of the federal *Species at Risk Act*. It is also listed as Endangered under the provincial species at risk legislation in Alberta and Saskatchewan, the two provinces where it occurs in Canada.

A large part of the Canadian population occurs in the Suffield National Wildlife Area where legal protection exists but ongoing petroleum exploration and development threatens the species. ■

Western Screech-Owl *kennicottii* subspecies and *macfarlanei* subspecies

Photo: © Stephen R. Cannings

Western Screech-Owl *macfarlanei* subspecies.

Scientific name
Megascops kennicottii kennicottii; Megascops kennicottii macfarlanei

Taxon
Birds

COSEWIC status
Threatened (*kennicottii* and *macfarlanei* subspecies)

Canadian range
British Columbia (*kennicottii* and *macfarlanei* subspecies)

Reason for designation

***Kennicottii* subspecies:**

This small owl has shown serious declines in the southern part of its range in Metro Vancouver, Victoria and the Gulf Islands areas, where it has nearly disappeared over the last 10 to 15 years. Based on observed declines reported in Alaska, it has likely also declined in the northern part of its range, but the magnitude of the decline is unknown. The population is thought to be relatively small (less than 10 000 adults) and the owls face ongoing threats including predation from newly established populations of Barred Owls, and the removal of dead trees and snags, which serve as nest sites and roosts.

***Macfarlanei* subspecies:**

The Canadian population of this owl is small, numbering between 350 and 500 adults, but is larger than previously estimated based on recent survey effort and has a much wider range in southern British Columbia than previously thought. The population has been apparently stable over the last 10 years, but faces ongoing threats especially from the loss of mature trees needed for nesting and roost sites. The loss of these trees is associated with urban and agricultural developments and degradation of riparian woodlands.

Wildlife species description and significance

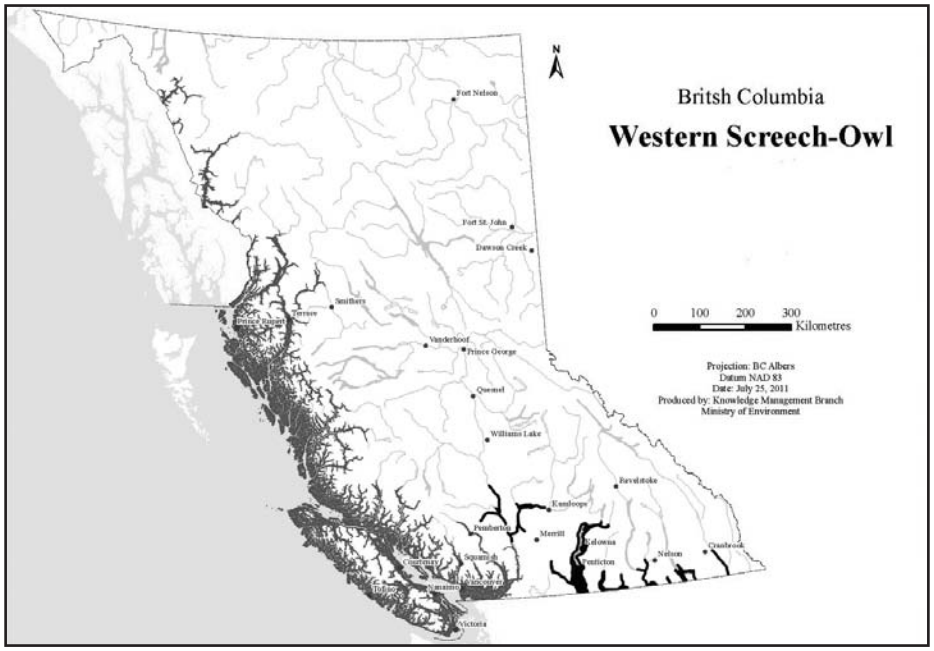
The Western Screech-Owl, Petit-duc des montagnes in French, is one of two species in the genus *Megascops* in Canada. It is a small owl with distinct “ear” tufts and yellow eyes; sexes are alike. There are two distinct subspecies in Canada: the *kennicottii* subspecies along the Pacific coast and the *macfarlanei* subspecies in the valleys of the southern interior of British Columbia.

Distribution

The Western Screech-Owl is found at low elevations in Pacific coastal forests, and at lower elevations from the southern interior of British Columbia south through mountain valleys to northwestern Mexico. In Canada, it is found in coastal British Columbia (except Haida Gwaii) and in the valleys of southern British Columbia from Lillooet, Kamloops, Lumby, Slocan, Creston and Cranbrook south to the US border.

Habitat

The *kennicottii* subspecies is found in a variety of coniferous and mixed forests, but is often associated with riparian zones with Broadleaf Maple or Black Cottonwood. The *macfarlanei* subspecies is strongly associated with riparian woodlands dominated by Black Cottonwood, Water Birch or Trembling Aspen, usually located in a matrix of dry coniferous forests dominated by Ponderosa Pine or Douglas-fir. Both subspecies nest in natural tree cavities or holes excavated by larger woodpeckers, and will use appropriate nest boxes.



Range of the Western Screech-Owl in British Columbia. Range of interior species *M. k. macfarlanei* shown in black; that of coastal subspecies *M. k. kennicottii* shown in grey.

Source: May 2012 COSEWIC Status Report.

Biology

The Western Screech-Owl is nonmigratory; pairs defend territories year-round. They are generalist predators, feeding primarily on small mammals and large insects, but also small birds, fish, frogs, and slugs. Young birds disperse from their natal territories in late summer.

Population sizes and trends

Populations of the *kennicottii* subspecies in southwestern British Columbia, especially around Metro Vancouver and Victoria, have all but disappeared in the past 10 to 15 years. Populations in northern Vancouver Island appear relatively healthy, but long-term trends are unknown. The subspecies has also likely declined in central and northern coastal forests, but the magnitude of the decline is unknown. Populations of the *macfarlanei* subspecies likely decreased throughout the 1900s because of habitat loss, but seem relatively stable or declining very slowly at present. The *kennicottii* subspecies in Canada is poorly known, but estimated to be about 1500–3000 individuals. The *macfarlanei* subspecies is less abundant, likely numbering 350–500 individuals.

Threats and limiting factors

Habitat loss is the primary threat to the *macfarlanei* subspecies and has likely affected the *kennicottii* subspecies as well. Predation by the newly arrived Barred Owl is thought to be the primary cause of significant population declines of the *kennicottii* subspecies on the south coast.

Protection, status, and ranks

The *macfarlanei* subspecies is listed as Endangered under the federal *Species at Risk Act*; the *kennicottii* subspecies is listed as a species of Special Concern based on the May 2002 COSEWIC assessments. In British Columbia, the species and active nests are protected from direct harm under the *Wildlife Act*; the *macfarlanei* subspecies is on the British Columbia Red List (potentially Threatened or Endangered) and the *kennicottii* subspecies is on the Blue List (Special Concern). ■

Yellow-breasted Chat *virens* subspecies

Photo: © Mike Danzenbaker

Scientific name
Icteria virens virens

Taxon
Birds

COSEWIC status
Endangered

Canadian range
Ontario

Reason for designation

This subspecies is a shrub-thicket specialist that occurs at the northern edge of its range in Canada. Its population in southern Ontario is localized and very small. Since the last status report was produced, declines have occurred in the Ontario population owing to habitat loss. The potential for rescue effect has also been dramatically reduced, because population declines are evident across most of the northeastern range of this subspecies.

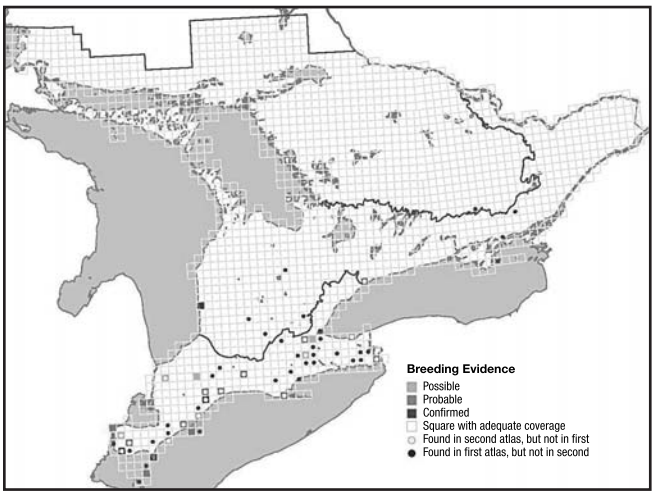
Wildlife species description and significance

The Yellow-breasted Chat is regarded as an unusually large warbler. It has olive-green upper parts, a lemon-yellow chin, throat and breast, and a white belly and undertail coverts. It has a thick bill and a long, rounded tail and rounded wings. The face is greyish, with black lores and distinctive white "spectacles". There are two subspecies – *I. v. auricollis* in the western half of North America and *I. v. virens* in the eastern half. During the breeding season, chats have a distinctive song characterized by repeated whistles, alternating with harsh chattering clucks and soft caws. The Yellow-breasted Chat is a flagship bird species for early successional shrubland habitats; members of this guild are declining widely in North America.

Distribution

Yellow-breasted Chats breed in North America, south of the boreal forest. The *auricollis* (western) subspecies breeds from southern British Columbia, Alberta and Saskatchewan, south discontinuously to northern Mexico. It occurs as far east as western Nebraska, western Kansas, and central Texas. The *virens* (eastern) subspecies breeds from the east-central Great Plains and eastern Texas eastward, and north to southwestern Ontario. Chats winter in the lowlands of eastern and western Mexico through Central America to western Panama.

In Canada, three populations are identified as separate designatable units: the Southern Mountain population of *I. v. auricollis* (British Columbia), the Prairie population of *I. v. auricollis* (Alberta and Saskatchewan), and the *I. v. virens* population (Ontario).



Breeding distribution of the Yellow-breasted Chat (*virens* subspecies) in southern Ontario, based on data from the Ontario Breeding Bird Atlas for the period 2001–2005. Squares with black dots are those in which the species was found in the first atlas period (1980–1985), but not in the second (2001–2005).

Source: Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.). 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005.* Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp.

Habitat

The Yellow-breasted Chat is a shrub specialist, occurring in dense riparian shrubland in western North America and early successional shrub habitats in the east. In British Columbia, the riparian habitat where chats live has been reduced by 87%. However, for the Prairie population, habitat may be increasing in Saskatchewan because of shrub succession. In Ontario, habitat has declined since the early 1960s, because of land conversion and successional change.

Biology

Nests are situated close to the ground in dense shrubby vegetation. If nests fail, females will attempt up to three replacement clutches in one breeding season. Loose coloniality may occur, as territories are often clumped. In British Columbia, *I. v. auricollis* shows some site fidelity. In Ontario, some breeding sites are regularly occupied, whereas most others may not be used for more than a few years at best.

Population sizes and trends

In British Columbia, the latest population estimate for *I. v. auricollis* is 152 pairs. There is some suggestion that the population there has declined from historic levels. In Saskatchewan and Alberta, this subspecies expanded its range substantially northward during the 20th century. The Prairie population has been relatively stable since the 1980s, though further increases may have occurred in Saskatchewan. In Alberta, the population is estimated at 900–1 000 pairs. There are an estimated 530 pairs in Saskatchewan. Overall, the population of *I. v. auricollis* in Canada is estimated at between 1582 and 1682 pairs. In the west, populations in the adjacent U.S. appear to be relatively stable.

For the *I. v. virens* subspecies, there are fewer than 42 pairs in Ontario. Until very recently, the provincial stronghold was at Point Pelee National Park and Pelee Island, but this is no longer the case. The Ontario population has declined by about 33% over 10 years. The *I. v. virens* subspecies is showing long-term significant declines in all states adjacent to Ontario, coupled with a range retraction over most of the entire northeast. Thus, the potential for a future rescue effect for the Ontario population is currently low and diminishing.

Threats and limiting factors

In British Columbia, the most important threats to the Southern Mountain *I. v. auricollis* population are habitat loss from urban and agricultural land uses (coupled with proposed hydro-electric dams that would destroy riparian breeding habitat), road maintenance and/or construction, predation by introduced predators, brood parasitism by cowbirds, pesticide use, and collisions with vehicles and structures. Although the Prairie population of *I. v. auricollis* in Saskatchewan has increased because of heightened natural succession in riparian areas, some habitat has been lost as a result of reservoir construction. In Alberta, heavy levels of livestock grazing and damming of rivers may affect some sites. For the Ontario population of the *virens* subspecies, the greatest threats are loss of suitable habitat from land conversion (agriculture/urban) and changes in habitat suitability as a result of natural succession.

Protection, status, and ranks

In Canada, the Yellow-breasted Chat and its nest and eggs are protected under the *Migratory Birds Convention Act*. In North America, the species is considered secure due to its widespread distribution and relatively stable population overall. The Southern Mountain population in British Columbia is currently afforded protection under the *Species at Risk Act* (SARA) as an Endangered species. The Prairie population in Alberta and Saskatchewan is considered Not at Risk. In the western United States bordering Canada, the chat is ranked as ‘vulnerable’ in Washington, and ‘secure’ in Idaho and Montana. In Ontario, the *virens* subspecies is currently designated under SARA as Special Concern. This subspecies is declining strongly across most of its northeastern breeding range, including all states bordering Ontario. ■

Yukon Draba

Photo: © Yukon Government, Gerry Mussgnug

Scientific name
Draba yukonensis

Taxon
Vascular plants

COSEWIC status
Endangered

Canadian range
Yukon

Reason for designation

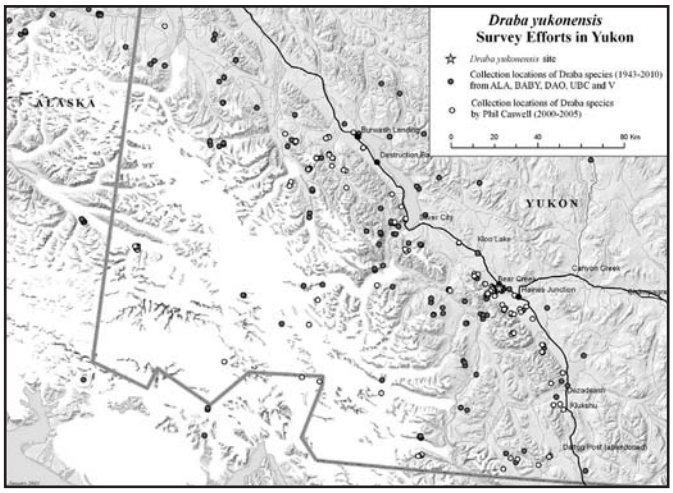
This small herbaceous mustard is limited globally to one meadow complex in southwestern Yukon; it is found nowhere else on Earth. The meadow complex is under threat from industrial activities, nearby human habitation, invasive species, and trampling by humans and forest encroachment. Human use of the meadows is projected to increase, and encroachment by woody species due to natural succession is causing suitable habitat to decline.

Wildlife species description and significance

Yukon Draba or Yukon Whitlow-grass (*Draba yukonensis*) is a small herb in the mustard family with untoothed leaves covered with distinctive stiff unforked hairs. Individual plants have a small taproot, one or more rosettes of leaves which lie on the soil, and one or more flower-bearing stems. The flowers are small, white, and have four petals. Other Draba species in the area, including Hoary Draba, are easily differentiated from *Draba yukonensis*. *Draba yukonensis* is a Canadian endemic with extremely limited distribution on unusual sandy landforms.

Distribution

Draba yukonensis has been found in only three meadows in a single meadow complex in the Dezadeash River valley in southwestern Yukon, despite numerous searches elsewhere. This locality is within the traditional territory of the Champagne and Aishihik First Nations in an area covering less than 36 hectares.



Canadian distribution of Yukon Draba in the context of the southwest corner of Yukon Territory.

Source: November 2011 COSEWIC Status Report.

Habitat

Draba yukonensis grows on almost flat, well-drained meadows, and is often most dense on the tops of low ridges, bumps, road berms, and Arctic Ground Squirrel mounds. These meadows fall within the rain-shadow of the St. Elias Mountains and are subject to windy conditions, cold winter temperatures, and only modest amounts of snow and rain. The meadows are on ancient sandy beaches and spits formed by Neoglacial Lake Alsek that was formed by a surging glacier that blocked the Alsek River. The lake is thought to have drained around 1852, leaving behind only a few isolated sandy landforms that still remain free of trees and shrubs. Several similar flooding and draining events in recent millennia are thought to have ensured the continued existence of habitat suitable for *Draba yukonensis*.

Biology

Most aspects of the biology of *Draba yukonensis* are uncertain, though much can be inferred from its habitat and from related species. *Draba yukonensis* appears to be a biennial species that can occasionally survive for more than two years. It also appears to be tolerant of dry conditions and direct sun, but intolerant of warmer conditions of south-facing exposures. The ability of *Draba yukonensis* to disperse via seeds is likely quite limited because it lacks any obvious adaptations promoting long-distance seed dispersal. Damage from small mammal and insect herbivory has been observed.

Population sizes and trends

There is only one known population of *Draba yukonensis* at the type locality and it is divided unevenly among three adjacent meadows. While these meadows are surrounded by a small number of similar meadows, dispersal to them has not been detected. Limitations in dispersal and habitat availability make the establishment of new sites unlikely.

The population size is subject to extreme fluctuations and may oscillate on a two-year cycle, with even years tending to have more individuals than odd years. Only 109 individuals were counted in 2009, while 5 358 were counted in 2010 in a subset of the inhabited meadows. The total 2010 population was estimated to be between 32 500 and 88 200 individuals. Better information on population size and trends is needed.

Threats and limiting factors

Several risks threaten this population, including expanding roads to access mineral claims, increased traffic through the meadows for mining, logging or recreation, gravel extraction, and the potential expansion of an adjacent subdivision. Invasive plant species well adapted to the meadows occupied by *Draba yukonensis* are expanding rapidly in Yukon, and may pose an additional threat. The rarity of suitable habitat within the range of natural dispersal, the restricted range, and extreme population fluctuations are serious limiting factors.

Protection, status, and ranks

Draba yukonensis has no legal protection in Canada. The global, national, and territorial NatureServe ranks are “Critically Imperiled” (G1, N1 and S1 respectively). Though its entire occupied habitat is in the Kluane Wildlife Sanctuary, it is not protected from most human land uses. A small portion of potential habitat is protected in Kluane National Park, but no plants have yet been found in the park despite repeated searches. ■

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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 the *Canada Gazette*, Part I, and official regulations are published in the *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 coordination 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, government 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. 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 Species at Risk 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.

Species at Risk Public Registry: Developed as an online service, the Species at Risk 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.registrelep-sararegistry.gc.ca**.

Schedule 1: A schedule of 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.