

# Alberta's rare and uncommon plants and those species restricted in Canada to Alberta

## What is a rare or uncommon plant?

We typically think of species of conservation concern as being rare or uncommon. Conservation of these species requires an understanding of why they are uncommon or rare, whether from natural or human-caused factors. Plants that are naturally rare may continue to persist if their habitat is secure and they continue to reproduce in numbers such that the population is not declining. These types of plants may have always been uncommon.

Scientists have devised ways to understand why species are rare. One method (Rabinowitz 1981) looks at things like where the species lives (habitat specificity), how many individuals there are (population size), and how far they spread out (geographic range) to understand why they are rare. More recent research (Crisfield et al. 2024) has improved on these ideas to include how much of the species' habitat is actually occupied in an attempt to link patterns of rarity to causes.

When deciding how urgently a species needs special conservation efforts, scientists also assess factors like how many individuals produce seeds or other propagules and other life history traits, how they interact with other species through processes like pollination, and overall, how this affects population size. In addition, whether propagules (e.g., seeds) can travel between different habitats determines if those habitats can be occupied. If there are barriers that stop them from dispersing, it affects whether they can spread across the landscape to find new places to occupy.

Common species are generally wide-ranging, abundant and not restricted to a specific habitat (Rabinowitz 1981). Common plants may become rare because of human-caused factors such as:

- Habitat loss,
- Habitat alteration and degradation (including disturbance),
- Loss of species with which a plant has an interaction (e.g., pollinators, symbiotic fungi, etc.),
- Pests and diseases,
- Competition with invasive plants,
- Climate change (and associated changes to ecosystem processes such as fire), and
- Human use (e.g., collecting).

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Classification: Public

Understanding why a plant is rare or uncommon is an important first step in determining the type of conservation measures that may need to be implemented. Plant status assessment processes are designed to help identify the reasons for concern and conservation measures needed to address identified threats.

## Examples of Alberta plants that are naturally rare or uncommon

### Small range, low population size

Jones' columbine (*Aquilegia jonesii*) is a small blue-flowered columbine that is restricted in Canada to the mountains of southwestern Alberta. It is also found in Montana and Wyoming, but nowhere else in the world. Never abundant, it is restricted to limestone rocky areas in the subalpine and alpine (Thorne 1993). Several species of bumblebees are thought to be pollinators of this species ([Montana Field Guide](#)). It is a plant that is of interest to gardeners and thus collecting is one threat to its persistence.



*Jones' columbine.* Copyright: Joyce Gould

### Conservation status of Jones' columbine

Global Rank (Nature Serve March 2024)	G3	Vulnerable
National Rank (General Status 2020)	N1	Critically imperiled
Provincial Status (ACIMS 2022)	S1	Critically imperiled
Legal designation(s)	none	

## Habitat specialist, low population size

Heuchera-like boykinia (*Telesonix heucheriformis*) is a small, perennial member of the Saxifrage family, and restricted, in Canada, to the crevices and cracks of limestone rocks in the Rocky Mountains and foothills of Alberta.

It is never abundant where found, but is widely distributed throughout its range (Alberta, Montana, Idaho, South Dakota, Nevada, Wyoming and Utah). Threats to populations include, but are not limited to, collecting and recreational activity.



*Heuchera-like boykinia.* Copyright: Joyce Gould

### Conservation status of heuchera-like boykinia

Global Rank (Nature Serve March 2024)	G4	Apparently secure
National Rank (General Status 2020)	N3	Vulnerable
Provincial Status (ACIMS 2022)	S3	Vulnerable
Legal designation(s)	none	

## Examples of Alberta plants that are at risk due to human activities

### Population declines due to pests and/or pathogens

Whitebark pine (*Pinus albicaulis*) is a long-lived tree that is found throughout western North America from Nevada and California to Alberta and British Columbia.

In Alberta, it is known from the montane, subalpine, and alpine habitats of the Rocky Mountains from Waterton Lakes National Park north to Kakwa Wildland Provincial Park. The tree is relatively abundant throughout its range in Alberta and North America, but populations are undergoing rapid decline due primarily to an introduced pathogen (whitepine blister rust [*Cronartium ribicola*]) and mountain pine beetle (*Dendroctonus ponderosae*). Fire (both suppression and



*Whitebark pine (left) and whitebark pine cone (right).* Copyright: Joyce Gould

intensity of fire activity) and climate change have been identified as additional threats to populations in Alberta and elsewhere in Canada.

Whitebark pine trees do not produce cones until 50-80 years of age and are dependent on a bird, Clark's Nutcracker (*Nucifraga columbiana*), to disperse their seeds; without Clark's Nutcracker, the trees cannot reproduce. Heavy infestation of white pine blister rust reduces the number of cones that trees can produce and loss of sufficient cones in a stand leads to the loss of nutcrackers, and hence seeds for regeneration, from an area.

Other species that use whitebark pine include red squirrels (*Tamiasciurus hudsonicus*) and bears. Whitebark pine is considered to be a keystone species as its loss from an ecosystem can negatively impact these wildlife species.

Whitebark pine was first assessed as 'apparently secure' in the 2005 General Status Report for Canada, but subsequent monitoring of populations has shown them to be in decline and it is now assessed as 'imperiled' (see [The General Status of Species in Canada](#)). For more information, see the [Whitebark Foundation](#), [Whitebark Pine Ecosystem Foundation of Canada](#), [Alberta Species at Risk](#) and [Federal Species Registry](#).

### Conservation status for whitebark pine

Global Rank (Nature Serve March 2024)	G3	Vulnerable
National Rank (General Status 2020)	N2N3	Imperiled
Provincial Status (ACIMS 2022)	S2	Imperiled
Legal designation(s)	Endangered Schedule 1, <i>Species at Risk Act</i>  Endangered, Alberta <i>Wildlife Act</i>	

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## Population Declines Due to Loss of Habitat

Twiggy fissurewort or slender mouse-ear-cress (*Crucihimalaya virgata*) is a small, short-lived plant that is restricted in Canada to the grasslands of southern Alberta and Saskatchewan. Globally, it is known from Alberta and Saskatchewan south to California, Utah, Nevada and Wyoming. Competition from invasive species, loss of habitat through activities such as cultivation, and alteration of grazing and fire regimes are threats to this species. More information on this species is available at: [Alberta Species at Risk](#) and [Federal Species Registry](#).



Twiggy fissurewort.  
Copyright: Sandi Robertson

### Conservation status of twiggy fissurewort

Global Rank (Nature Serve March 2024)	G3	Vulnerable
National Rank (General Status 2020)	N2	Imperiled
Provincial Status (ACIMS 2022)	S2	Imperiled
Legal designation(s)	Threatened Schedule 1, <i>Species at Risk Act</i>  Endangered, Alberta <i>Wildlife Act</i>	

## Plants whose range in Canada is restricted to Alberta

Several plants are restricted in Canada to Alberta and while they occur elsewhere in North America, Alberta is the only Canadian jurisdiction in which these species are found (Table 1).

Some of these plants have a very restricted range and are uncommon throughout it (e.g., Jones' columbine). Other species are more common throughout their range outside of Alberta (e.g., four-wing saltbush). Some of these plants are considered to be at the edge of their range in North America

(e.g., Rocky Mountain dwarf primrose, western blue iris) but are separated from the nearest populations by many kilometers. Species such as heuchera-like boykinia, while more common further south, occur in Alberta, and Canada, as disjunct species; the nearest populations outside of Alberta and Canada are several hundred kilometers away. All of these plants are an important part of the biodiversity of Alberta and Canada.

## References

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**TABLE 1. SPECIES RESTRICTED TO ALBERTA WITHIN CANADA. COMMON NAMES ARE BASED ON THE DATABASE OF VASCULAR PLANTS OF CANADA (VASCAN), MAY 2024**

Scientific name	Common name	Canadian distribution	Global distribution	2020 General Status subnational rank
<i>Antennaria aromatica</i>	Scented pussytoes	Alberta	Montana and Wyoming	S3
<i>Aquilegia jonesii</i>	Jones' columbine	Alberta	Montana and Wyoming	S1
<i>Atriplex canescens</i>	Four-wing saltbush	Alberta	western US	S3
<i>Carex nebrascensis</i>	Nebraska sedge	Alberta	western and mid US	S3
<i>Conimitella williamsii</i>	Williams' mitrewort	Alberta	Montana, Idaho, Wyoming and Colorado	S2
<i>Dichanthelium thermale</i>	Geyser panicgrass	Alberta	global distribution unknown given taxonomic issues	S1S2
<i>Douglasia montana</i>	Rocky Mountain dwarf primrose	Alberta	Montana, Idaho, Wyoming	S1
<i>Hordeum pusillum</i>	Little barley	Alberta	much of the continental US	SH
<i>Iris missouriensis</i>	Western blue iris	Alberta, British Columbia (introduced)	western US	S2
<i>Isoetes bolanderi</i>	Bolander's quillwort	Alberta	western US	S1
<i>Machaeranthera tanacetifolia</i>	Tahoka daisy	Alberta	western US	S1
<i>Oxytropis lagopus</i>	Hare's-foot locoweed	Alberta	Idaho, Montana, Wyoming, Nebraska	S1
<i>Potentilla macounii</i>	Macoun's cinquefoil	Alberta	Montana	S1
<i>Potentilla multisecta</i>	Great Basin cinquefoil	Alberta	Idaho, Montana, Nevada, Utah, Wyoming	S2
<i>Potentilla subjuga</i>	Colorado cinquefoil	Alberta	Colorado, New Mexico	SH
<i>Stellaria americana</i>	American starwort	Alberta	Montana	S1
<i>Telesonix heucheriformis</i>	Heuchera-like boykinia	Alberta	Montana, Idaho, South Dakota, Wyoming, Colorado, Utah and Nevada	S3
<i>Thelesperma subnudum</i>	Navajo tea	Alberta	Arizona, Colorado, Montana, Nevada, New Mexico, North Dakota, Utah, Wyoming	S1
<i>Townsendia condensata</i>	Alpine townsendia	Alberta	Montana, Idaho, Utah, Wyoming and California	S2