

Ecosystems of BC

Grasslands



What is a grassland?

A grassland is a dry area where the most common plants are grasses or grass-like plants with some shrubs and flowers. There are many kinds of grasslands in British Columbia. If you look closely at the undisturbed ground between bunchgrasses you will see algae, mosses, and lichens forming a community called a biotic soil crust. This crust is essential to maintaining a soil surface that effectively captures water and reduces erosion from wind and water.

Grasslands are the rarest land cover type in BC, occupying only 1% of the province yet supporting about 33% of B.C.'s species at risk. Grasslands provide habitat and food for a variety of birds, deer, small mammals, and many other wildlife species.

What is the climate?

Grasslands vary throughout BC, but they all share a common feature - a climate where drought occurs in mid-summer. Grasslands experience limited moisture with warm, dry summers and cool, dry winters. Most of the grasses are dormant (dry out) in the dry hot summer and only grow in the spring and fall. This climate is ideal for grasses but limits tree growth.

What plants are found in BC's grasslands?

Bluebunch wheatgrass, rough fescue and Idaho fescue are common in the southern Interior grassland ecosystems. These provide excellent food for elk, deer and livestock.

In the Chilcotin and Cariboo, porcupine grass is an important species. In the northern grasslands, rough fescue and 'needle and thread' are common grasses. In other areas of the province, the species of grasses may be different.

Common flowers in the Southern Interior grasslands are arrow-leaved balsamroot, yarrow, silky lupine, and pussy toes.

Shrubs are often interspersed throughout grasslands. In the Okanagan, the shrub steppe grasslands have sagebrush that provides nesting sites for rare birds. Grasslands higher up on the hills often have choke cherry and saskatoon bushes that produce berries.

On the southern coast of Vancouver Island and the Southern Gulf Islands, the Garry oak ecosystem grassland meadows contain some of the same plants found in the Southern Interior such as chocolate lily and tall Oregon grape. These Garry oak ecosystems also contain rare and unique species such as the endangered deltoid balsamroot.

Each type of grassland has its own community of plants and animals that are adapted to living in its climate.



Bluebunch wheatgrass, Nathan Early, iNaturalist.ca



Arrowleaf balsamroot, Ellen Eiriksson, iNaturalist.ca

How do invasive species affect grassland ecosystems?

Many of BC's grasslands have been altered by humans through development and agriculture. These activities alter the landscape in many ways including the introduction of invasive species.

When invasive species such as spotted knapweed or sulphur cinquefoil take over an area, they replace native grassland species like bluebunch wheatgrass, eliminating food sources and habitat for wildlife. Invasive plants can be poisonous or unpalatable, providing less food value

than native plants. Other invasive plant species that have impacts are cheatgrass, hoary alyssum, hoary cress, hound's tongue, orange hawkweed, perennial pepperweed, Dalmatian toadflax, yellow toadflax, rush skeletonweed, leafy spurge, puncturevine, scentless chamomile, common bugloss, and blueweed. A high priority invasive plant that to date has been only found in some isolated places in the Okanagan is black henbane, which outcompetes desirable forage species and is poisonous to humans and animals if ingested. An invasive plant that is not established in BC yet is black henbane which outcompetes desirable forage species and is poisonous to humans and animals if ingested.

If invasive plants take over too much of the area where native food plants grow, animals may need to move elsewhere. Once the animals leave, the food chains and food webs are altered. For example, if elk are unable to find forage, they will not stay in that area. Any animals that eat elk would also have to look elsewhere for food.

Spotted knapweed pushes out native food plants by releasing toxins into the soil that kill other plants growing nearby in a process called "allelopathy". Knapweed also affects water cycling on grasslands. A study in Montana found that sites covered in spotted knapweed had 1½ times more rainfall water running off, rather than being absorbed into the soil, making dry sites even drier. They also found that the water running off was loaded with twice as many bits of soil (sediment) than would normally occur from a stand of healthy bunchgrass. Too much sediment reaching streams can impact fish and spawning areas in creeks.

Another example of how invasive plants can affect native animals is found in the Cranbrook and Kaslo areas of the province. Western painted turtle eggs and hatchlings are getting trapped and killed by the roots of invasive plants such as knapweed, couch grass and hawkweed. The Western painted turtle in these areas is at the northernmost extent of its range in North America. Western painted turtle hatchlings stay underground in their nests through the fall and winter and don't emerge until the next spring. The problem is that while they are waiting, couch grass roots are growing around and into the turtle eggs and hatchlings, taking nutrients from them.

Behr's hairstreak butterfly larvae depend exclusively on antelope-brush in the Okanagan area. The female butterflies lay their eggs on this plant and the larvae eat and pupate on this one kind of plant. Without the antelope-brush, the Behr's hairstreak butterfly cannot complete its lifecycle. Sulphur cinquefoil grows into such dense infestations that it can keep antelope-brush from sprouting and growing. Yarrow is one of the native plants that the adult butterflies get nectar from. Cheatgrass, diffuse knapweed, and Dalmatian toadflax also out-compete the native flowering plants that provide nectar for the Behr's hairstreak butterfly.



Spotted knapweed, Megan Blackmore



Sulphur cinquefoil, Michael Ellis, iNaturalist

For more information on the species mentioned, visit [ISCBC's website](#). To find further information about the grasslands in BC, please visit www.bcgrasslands.org. To find more information about the Garry oak ecosystem, visit www.goert.ca.