

Everything is One

Case Study: Bitterroot

Overview

Imagine you are in the driest region of British Columbia, the Southern Interior, just after the snow has melted. The soils are sandy or rocky and the vegetation is low and sparse, with scattered low-growing plants, such as sage brush and grasses. If you are in the right spot and extra observant, you may be lucky enough to see something small on the soil that catches your eye: fleshy green leaves about the length of your pinky finger in a cluster on the ground. You might overlook them in winter. But return to that spot on a sunny day in the spring and you won't believe your eyes! Large white-pink waterlily-like flowers scattered upon the surface of the soil, bringing a flash of colour to the arid grasslands. The blooms only last a few short weeks and by the time the heat of summer arrives they have disappeared, becoming dormant and storing all their energy underground in their roots. The only clue remaining that they had ever been there are their dried seed clusters.

This is Bitterroot. Also known as Desert rose, Sand rose, Spatlum, among many other names. For thousands of years, it has been one of the most revered plants to the Indigenous people west of the Rocky Mountains, including the Ktunaxa, Nlaka'pmx, Okanagan, Secwepemc, and Sinixt in the BC Interior, and to many tribes in the United States, including the Bitterroot Salish, Kootenai, and Pend d'Oreilles.

Bitterroot is important as a medicine to treat many illnesses and as a nutritious food eaten on its own or in stews. It was important in trade and even today people will travel long distances to obtain bitterroots and they are treasured as gifts.

Indigenous people have passed on their knowledge of Bitterroot for many generations, including where it grows best, which areas have the best ones to eat, and how to harvest it in ways that ensures that there plenty of healthy plants will grow at a harvesting site in the future. Bitterroot also has great cultural and spiritual importance to many First Nations as one of the four Food Chiefs and the Chief of all the Roots.



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Description and Habitat

Bitterroot grows in dry, rocky or sandy soils on grassland slopes and valleys in the Okanagan, southern Kootenay and lower Thompson River valleys, from Penticton and Osoyoos areas to Kimberly and north to Ashcroft and Clinton. It also grows in the arid western United States and is the state flower of Montana.

Bitterroot grows only 1-3 cm tall and has a forked taproot. One plant produces a cluster of up to 30 succulent (water-storing) leaves, 3-7 cm long. In the spring, the plant will produce up to 10 flowers with 10-16 white to bright pink petals, 18-35 cm long. Flowers open during the day and close at night.



Mark Behan

Bitterroot in flower with flower buds.



Shane Sater

Bitterroot in early spring before flowering. Notice its green leaves and roots, one of which is peeled. The skin of the root is the most bitter part of the plant and is always removed before the plant flowers, when it is easy to peel off.

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Names

In the early 1800s, Meriweather Lewis and William Clark explored and mapped western North America on what is today known as the Lewis and Clark expedition. They tasted the prepared root and found it too bitter for their taste, so named it Bitterroot.

Lewis dried and pressed a sample of the plant for scientific study in 1806. Months later, botanists (plant scientists) discovered that the sample still showed signs of life. It was replanted and it grew! Because of this it was given its scientific name *Lewisia rediviva*: *Lewisia* for Meriweather Lewis, and *rediviva*, the Latin word meaning “to live again”. Some Indigenous Names:

- naqamꞵu, in Ktanaxa
- sp̓iɫəm (Spatlum, Spitlum, or Speetlum), in Syilx and the eastern dialect of Secwépemctsin
- llek'wpiṇ, in the western dialect of Secwépemctsin
- ɫk̓ w̓əpn (IhQuoope) by the Nlaka'pamux First Nation in nteʔkepmxcin language



Try This!

Learn how to say some phrases about bitterroot in Indigenous languages, such as Ktanaxa, Syilx, nteʔkepmxcin, or Secwépemctsin. Learn how at www.firstvoices.com

Cultural Significance

Bitterroot holds great cultural and spiritual significance. Legends tell how Bitterroot first came to be as a gift from the Creator that helped the people to survive starvation.

Bitterroot is also one of the most important beings because it is one of the Four Food Chiefs— the Chief of all the roots. Traditional stories tell how the Four Food Chiefs gave their lives to help the humans when they were first created and arrived on the land. The Four Food Chiefs are Black bear, Chief of all creatures on the land; Salmon, Chief of all creatures in the water; Saskatoon berry, Chief of all berries and things growing on land; and Bitterroot, Chief of all things under the ground.

The Syilx people in the Okanagan and others hold a ceremony every spring to celebrate the harvest of the first Bitterroots, the first Saskatoon berries, the first fish and game. Before the first harvest of the Bitterroots

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women elders say a special prayer of thanks to ensure a good harvest. Women were traditionally the gatherers of roots and other foods. Although Bitterroot may not be as essential as a food or medicine as in the past, it is important as a connection to peoples' culture and traditions.

- [Read the story](#): Gift of the Bitterroot. A Salish and Pend d'Oreille Story. 2008. As told by Johnny Arlee, Illustrated by Antoine Sandoval. Npustin Press.
- [Watch the video](#): Four Food Chiefs (2.43) A Syilx Story told by Coralee. From the Sncewips Heritage Museum, Kelowna, BC.
- [Watch the video](#): The Story of the Bitterroot (Part 1, In the Beginning), by Steve Slocomb (7.03; Most relevant section is from 0.53-5.48). Part 1, "In the Beginning", tells the legend of how Bitterroot came to be, along with elder's stories of gathering the plant when they were young. With interviews with spiritual leaders from the Confederated Salish and Kootenai Tribes of Montana, including Johnny Arlee, Louie Adams, and Stephen Small Salmon

Harvest Methods and Traditional Ecological Knowledge

Bitterroot –and roots of any plant—may only be harvested after the First Roots Ceremony is conducted in early spring, just after snow melts in the valleys and leaves begin to appear on the trees and shrubs. When the leaves of Bitterroot appear, it signals that the roots are nutritious and ready to harvest. At this time the extremely bitter skin of the plant's roots can easily be peeled off. Later in the season when the flowers start to form, the roots are too bitter, old, and difficult to peel.

Bitterroot isn't common everywhere, but people knew where it grew in abundance, and which areas had the largest and most delicious roots. Harvesters are aware and observant because Bitterroot harvest time is also when rattlesnakes are active, often well-camouflaged on the ground or hidden under vegetation or among rocks. Harvesters also knew how the weather and soil type affected Bitterroot growth. According to the Nlaka'pamux, the largest roots were found after winters that weren't too cold and in soils that weren't too rocky.

In the past, women would collect about 100 pounds of roots for their family to last for a year, roughly estimated at 90,000 to 900,000 roots per family. Unlike picking fruit, collecting a root kills the plant. Yet people harvested from the same area year after year for generations.

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Bitterroot remained abundant at harvesting sites because of the ways in which people harvested and managed the land.

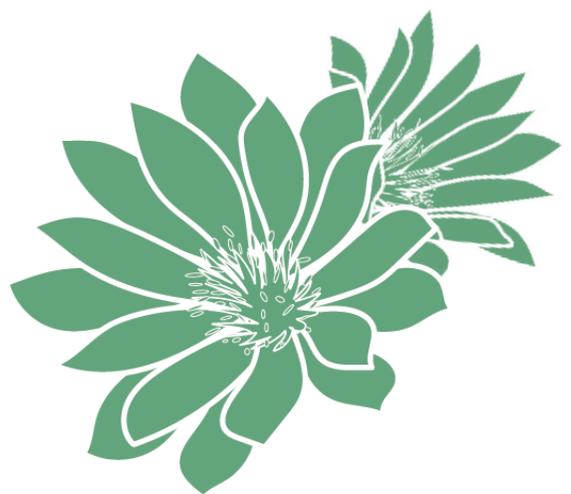
Only the plants with the largest leaves were collected—smaller ones were left to grow larger. Traditionally, women harvested the roots and used a digging stick with a small point. Unlike a shovel, the digging stick only removes one plant that is being dug up and doesn't disturb the surrounding plants or soil. By digging up Bitterroot using the digging stick, the soil is aerated (oxygen is added), which helps the plants left behind to grow. Also, small pieces of the root break off when harvested and could grow into a new plant.

Roots that were harvested were peeled on that day or the day after harvesting, when the root skin slides off easily. They also remove what some call the plant's "heart"—a small, orange bud-like core that will be the following year's growth. This part is too bitter to eat. Some groups replanted the "heart" which can grow into a new plant. After harvest, the roots are then rinsed with water and dried in the sun.

People also transplanted Bitterroot to new areas to ensure a good supply for future generations. They would dig them up during the spring harvest time, store them in a pit covered in dirt through the summer, and then transplant them to a new location in the late fall after rain or snow.



Historic photo of a Flathead tribal Elder peeling and drying harvested Bitterroot. Credit: [K. Ross Toole Archives](#), The University of Montana



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Invasive Species Impacts

Bitterroot is increasingly rare and plants are smaller today than in the past due to habitat loss, the spread of invasive plants, and impacts from livestock grazing (including soil trampling and livestock eating Bitterroot flowers). Some traditional harvest sites are no longer accessible because they are privately owned. Invasive plants, such as Sulphur cinquefoil, Knapweeds, and Crested wheatgrass, have taken over large areas of Bitterroot habitat, including some traditional harvest sites. Invasive plants crowd out and outcompete Bitterroot for light, space, and soil nutrients.

Bitterroot as Food and Medicine

Note: Bitterroot is increasingly rare. Harvest should only be undertaken with permission, with knowledgeable individuals and using respectful practices.

Bitterroot is harvested in early spring. The roots are peeled, removing the most bitter coating, and then they are cooked or dried to use in the winter. The amount of bitter flavour depends on when and where it is harvested. It is a taste that people got used to. The Nlaka'pamux describe it as an “all-body healer”, the “best meal there is” and a “powerful plant and a powerful food”.

“This is such a beautiful flower we hated to dig it up, but the roots were important for our winter food. We would dry lots of it, for it stored well. It was nice to eat fresh too. The most important thing in preparing this root was to be sure you peeled it right away, then the skin slipped off easily. As soon as the root got just a little bit dry it was almost impossible to peel. The skin is where the real bitter flavour came from. After the skin was off and it was cooked the flavour was something like grapefruit. The roots turn a sort of salmon pink color when they are dried. Bitter root was often cooked together with Saskatoon berries.”

- Mary Thomas

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Some ways that Bitterroot is prepared and eaten:

- As a soup or a dumpling-like stew with salmon eggs, saskatoon berries, sugar or salt
- Mixed with flour, sugar, and beef fat to make a soup-like pudding
- Raw or lightly steamed, sometimes with salt and butter added or sugar sprinkled on top
- Mixed as dried root into bannock (traditional flat bread)
- Boiled with deer broth, saskatoon berries, or huckleberries.

Bitterroot Pudding Recipe

Bitterroot From Mrs. Guitierrez, Secwepemc from Douglas Lake.

Combine dried bitterroot with dried saskatoon berries and boil until soft, in the following proportions:

- 2 cups dried bitterroot
- ½ cup dried Saskatoon Berries
- 1 cup water

Prepare a small amount of a stiff flour-and-water dough. Roll a teaspoon of this mixture between the palms of both hands to form a small noodle-like shape. Drop enough doughy noodles into the cooking berry/root mixture to give it a pudding-like consistency.

Source: Food Plants of Interior First Peoples by Nancy J. Turner. Royal BC Museum and the First Peoples' Cultural Foundation, Royal BC Museum Handbook, Victoria, BC. 2007.

Medicinal Uses of Bitterroot

- General all-body healer: boil the roots in water and drink as a hot tea or a hot soup
- Blood purifier: cook the roots and eat
- Body and digestive tract cleanser: eat as a fresh vegetable in the spring
- Anti-aging medication to keep skin from wrinkling and prevent hair from going grey
- Helps eyesight
- Helps to soothe an upset stomach
- Chew raw roots and swallow the juices like a cough drop, preventing voice and throat hoarseness when singing and chanting for long periods
- Put dried and ground up roots directly onto cuts and scrapes. It doesn't sting and helps healing
- Helps to treat bronchitis and tuberculosis

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Additional Resources

- Kou-Skelowh- We Are the People, A Trilogy of Okanagan Legends. Okanagan Tribal Council, 2004. Illustrated by Barbara Marchand. Theytus Books Ltd. Penticton, BC. A collection of Okanagan stories for children, written in both English and Secwépemc. Includes the story, How Food Was Given, describing the care and sacrifice of the four Chiefs of animal and plant life devoted to the new people who will soon come to Earth.
- Neekna and Chemai. Jeannette C. Armstrong. Illustrated by Barbara Marchand. Theytus Books, Penticton, BC. 2018. A children's story about two young girls and their seasonal pattern of life growing up in the Okanagan Valley before colonization.
- Four Food Chiefs Sculpture by Clint George, at Okanagan College in Kelowna. [The website](#) includes images of the sculpture, written text of Syilx oral history of How Food Was Given, and a video of how the sculpture was made and its significance.
- [Video: The Story of the Bitterroot \(Part 5\)](#), by Steve Slocomb Video: (12.16). Stories from Salish elders about their journeys to the Bitterroot Mountains to dig for bitterroot. Testimonials by Oshanee Kenmille, Louie Adams, and Johnny Arlee.



Missouri Botanical Garden, Peter H. Raven Library, via Biodiversity Heritage Library