

Medicinal Plants of the North Cascades

Specific to the Environmental Learning Center



Natural History Project and Presentation

Martine Mariott
Candidate for Master's in Environmental Education
Western Washington University and North Cascades Institute
Summer 2010

Medicinal Plants of the North Cascades

Specific to the NCI Environmental Learning Center

Of all forms of life, plants are the most vital to all others. Through photosynthesis plants convert solar energy into chemical energy which is then carried up the food chain to the top where Homo sapiens are found. The connection we have with plants is critical and life giving. In addition to providing the oxygen we breathe, plants often have complex molecular structures that are able to heal our bodies. Every ancient culture known to man has had some form of medicinal relationship with plants. Sites in Iraq dated to 50,000 years ago show Neanderthals used yarrow for its medicinal properties. The earliest known medical document is a Sumerian clay tablet outlining various plant remedies for illnesses. The ancient Chinese, Egyptian, Greek, Roman, and Hindu cultures all had herbal medicine literature. In the Americas, the oldest known medical text recorded Aztec herbology and was translated by Juan Badiano. The document is called the Badianus Manuscript and it now resides in the Vatican.

Texts were often laced with the supernatural and the ethereal. People who practiced medicine were known to have a sensitivity that bordered on omnipotent capabilities. Amongst numerous other titles these apothecaries, herbalists, shamans, priests (later to become physicians), sorcerers, witches, and wizards (today's toxicologists) could heal with their knowledge. With the advent of Christian religion many healers were persecuted. Earth or nature oriented philosophies were considered a threat to control and order, blasphemies. In Western culture a separation between medicine and spirituality is still seen.

The Pacific Northwest's First Nations' People saw the spiritual world and the physical world as connected. This relationship resulted in an extraordinary awareness of life and energy. The First Nation's People believed, like many other cultures, that there was a communication between plant and man. Many insist they learned from the plant itself about its uses. Modern objective thought reasons that our knowledge of plants evolved over time through trial and error, but that the possibility of us having lost a sense of awareness is equally plausible. It would not be the first sense that humanity has lost.

Today plants are still used by the pharmaceutical industry. Approximately 25% of prescriptions written in the US are plant derived. China leads the world in medicinal plant usage by incorporating it in their modern health care system. Herbal medicine is still relied upon from 75% to 90% of the rural population of the world. And although Western medicine has swayed from herbal medicine there seems to be a conscious effort being made by the scientific community to investigate plant species. Much interest has been focused on the tropical rainforests with the hope that new plants will be found for pharmaceutical industry before they are gone forever.

Plants have been known to cure ailments for thousands of years, and the First Nation's People have been using plants found here for almost as long. Nearly every plant in the Pacific Northwest has had some medicinal use; however, some seem to be more revered than others. These plants are still used today by herbalists and have some chemical compounds that are recognized by modern medicine. Hands on learning is one of the most effective learning styles known, but before running out to harvest local medicinal plants please take ethical consideration of the process. Refer to the wildcrafting page for harvesting guidelines. Happy Harvesting!

PLANT INDEX

DEVIL'S CLUB

Oplopanax horridus

Habitat: Moist woods, avalanche tracks, stream banks

Location: Spine trail, between the Lily Shelter and the service road

Harvest Season: Late spring – early summer, before flowering.

Medical Attributes: Roots and stems used in steam baths for rheumatism and stomach trouble. Tea made from leaves and bark was drunk for colds, tuberculosis, fever reduction, diabetes and re-establishment menstruation after child birth. Dethorned bark was applied to women's breasts to stop the flow of milk and berries were rubbed on the head to combat lice and dandruff. Bark and shredded inner root was applied as poultice (moist mass balled until gooey and placed on wound) for boils and infections. Pulverized bark was used as perfume, baby talc, and deodorant.

Application: Shave the outer layer of the root to get to the greenish inner bark. Make a tincture of the shredded inner bark. Let the tincture steep for 6 weeks.

Factoids: Member of the Ginseng family. Protects against evil influences.



FOXGLOVE

Digitalis Purpurea

Habitat: Roadsides, fields, forest edges

Location: Dam Road, Buster Brown Field, Diablo East Trail, Sourdough Trail

Harvest Season: Late spring – early summer

Medicinal Attributes: Used for congested heart failure and atrial fibrillation (chaotic contractions of the heart) by pumping more liquids to the kidneys, stimulating urination. Contains the chemical compound Digitoxin, a stimulant that improves heart tone and rhythm, by blocking an enzyme that regulates the heart's electrical activity; the compound also slows the pulsation rate of the human heart.

Application: Picked when the bloom spike has ran up the length of the stock and about two-thirds of the flowers are present; powdered foxglove leaves of two-year old plants are administered in pill form, leaf tinctures.

Factoids: Extremely poisonous and fatal in large doses. Introduced to the Pacific Northwest from Europe. The name "dead man's thimbles" is used to refer to the foxglove in Ireland.



KINNIKINNICK

Arctostaphylos uva-ursi
(Bearberry)

Habitat: Sandy, well-drained, dry rocky slopes, clearings

Location: ELC campus decretive shrub, Buster Brown

Lookout (higher elevation), Diablo East Trail

Harvest Season: Late spring – early summer

Medical Attributes: Used as a diuretic for kidney disease and urinary infections, relaxation.

Application: Tea leaves used as diuretic, dried leaves smoked for recreation.

Factoids: Hallucinogenic if smoked in large quantities, often supplemented with tobacco to extend the supply.



OREGON GRAPE

Mahonia nervosa

Habitat: Low to middle elevations

Location: All ELC trails, used as a decretive shrub on the ELC campus

Harvest Season: Early spring, late autumn

Medical Attributes: Drank in tea as a general tonic.

Contains berberine – a strong antimicrobial (kills or inhibits microorganisms – protozoa, bacteria, fungi), and is high in vitamin C. It has been known to treat infections, sore throats, and venereal diseases. The bark and berries were also used for digestive problems.

Application: To make a tincture: gently strip the brown outer layer of the root to access the fibrous orange-yellow layer. Separate the orange-yellow layer of root from the remaining base white root. The orange-yellow layer has the medicinal properties. Add 100 - proof alcohol to the shavings of the orange-yellow layer. Let steep for 6 weeks. Add two drops of tincture to hot tea and honey – too much can cause stomach irritation. Can add cedar needles to the tincture for additional vitamin C.

Factoids: Evergreen, inner root used to make yellow dye by First Nation's People.



PACIFIC YEW
Taxus brevifolia
(Western Yew)

Habitat: Moist – mature Douglas Fir and Western Hemlock forests

Location: Before Fawn Creek Shelter on Sourdough Trail and Diablo East Trail

Identifying Features: Droopy and sickly looking with reddish scaly-shreddy bark

Medical Attributes: Produces a cancer fighting compound – Taxol – found in the bark and needles. Cancers that taxol is used to combat include: ovarian, testis, breast, lung cancer, melanoma, head and neck cancer.

Application: Taxol is used in combination with other chemotherapy drugs to bind to polymerised tubulin (protein involved in mitosis), stabilizing it against disassembly and consequently inhibiting mitosis, metabolizing in the liver.

Factoids: Discovered in the 1960's the compound was not approved by the FDA for first-line treatment of carcinoma until 1992. In 1997 the FDA approved taxol for second-line treatment for AIDS. The tree became endangered due to over harvesting until a synthetic form of taxol was created in 1995.



PIPSISSEWA
Chimaphila umbellata
(Prince's-pine)

Habitat: Well-drained forests and clearings

Location: All trails

Identifying Features: Serrated leaves with a dark stock stemming from the center of the plant with spheres on the end

Harvest Season: Late spring – early summer

Medical Attributes: Used for kidney stones, bladder inflammation and eye sores. Displays hypoglycemic (lowers blood sugar) and anti-diuretic properties. Infusions used for urinary tract problems such as cystitis (inflammation of the urinary bladder) and urethritis (inflammation of the urethra).

Application: Tea made from the leaves.

Factoids: In Cree means “breaks-into-small-pieces” referring to kidney stones. Secret ingredient of popular soda lead(s) to commercial over-harvesting in the Pacific Northwest. (Pepsi?)



STINGING NETTLE

Urtica dioica

Habitat: Meadows, thickets, stream beds, open forests, disturbed areas.

Location: Cross roads between Service Road and Sourdough Creek Trail

Identifying Features: Heart-shaped serrated leaves. Long thin stem, 1-3m tall

Harvest Season: Spring, leaves before flowers bloom – tea. Fall stems can be used to make twine and rope.

Medical Attributes: General spring tonic (anything that enlivens or strengthens), postpartum tonic – replaces trace minerals after childbirth.

Application: Cutting off the tops of the plants does not kill them. Leaves can be dried by hanging or placing in a paper bag that is shaken every day until dry. Drying the nettles deactivates the stinging agent, however, the plant will still have thorns with small amounts of formic acid on them – gloves are recommended.

Factoids: 30% - 50% of its weight is protein. Leaves are also good for eating and make a delicious pesto sauce.



YARROW

Achillea millefolium

Habitat: Well drained open sites; roadsides, clearings, rocky slopes

Location: Buster Brown Field, Dam Road, Waterfall – Sourdough Creek Trail

Identifying Features: Fern-like leaves, usually 5 ray flowers

Harvest Season: Late spring – early summer

Medical Attributes: One of the oldest known herbal medicines in the world, it has been used for: expectorant (helps dissolve thick mucus and other material from the lungs), analgesic (pain reliever), diaphoretic (promotes sweating), various circulatory diseases, and blood coagulant (stops bleeding).

Application: Leaves – tea, poultice (moist mass of leaves balled until gooey and placed on wound).

Factoids: Poultice applied to Achilles' tendon when severed, hence the name. Leaves may be rubbed into skin as an insect repellent.



Wildcrafting

Wildcrafting is the process of harvesting plants from their natural environment for food, medicine, and/or other human materials.

Harvesting Guidelines

1. Get permission from landowner. The North Cascades Environmental Learning Center is in a National Park and is therefore illegal to harvest without consent of the Park. The Cascade River Road in Marblemount leads in to National Forest Land and is a good option for wildcrafters near the ELC.
2. Make sure the plant is strong and vital. Harvest in the proper growing phase. Plants are particularly susceptible to pollution; harvest away from roads and other sources of contaminants such as downstream from livestock or areas known to have had pesticide use.
3. Never take more than 25% from a given stand and make sure there is at least 10 species of the plant in the surrounding area before harvesting. Always leave the largest and smallest members of the plant community. Of course, never harvest endangered or threatened species.
4. Monitor harvest areas every year to ensure the health of the plant community.
5. Properly identify the plant. There are many lookalikes out there that may cause adverse effects.
6. Don't harvest more than needed. This seems obvious but can be tricky for beginners. Wildcrafters can always return to the area if need be.

Collection Seasons

Roots – Collect roots in early spring or late autumn. Before it buds or after the aerial part of the plant begins to wither. Plants are usually dormant during these times and store their nutrients in the roots.

Bark – Late spring and early summer is a good time to collect plants for their bark. The plants are in their growing phase and have ample sap. The bark has more nutrients at this time and is more easily separated from the woody parts.

Stems, branches, leaves – In general, whole plant parts should be collected in the late spring and early summer when they are growing luxuriantly.

Flowers – It is advised to collect flowers for medicinal purposes as buds or just beginning to bloom to avoid loss of fragrance and petals. Collect over several separate occasions to allow the plant to recuperate.

Fruits – Collect when ripe. Some species may need to be collected beforehand. Consult guide.

Seeds and kernels – When fruit is completely ripe. Fruits that would crack and lose their seeds are collected on sunny days as soon as they are ripe but have not yet cracked.

RESOURCE LIST

BOOKS

- Gahlinger, Paul, (2004). *Illegal Drugs: A Complete Guide to Their History, Chemistry, Use, and Abuse*. New York, NY: Penguin Group
- Gunther, Erna, (1973). *Ethnobotany of Western Washington: The Knowledge and use of Indigenous Plants by Native Americans* (Rev. ed.). Seattle, WA: University of Washington.
- Pojar, Jim, and Andy MacKinnon, (2004). *Plants of the Pacific Northwest Coast* (Rev. ed.). Vancouver, British Columbia: Lone Pine Publishing.
- Tilford, Gregory, (1997). *Edible and Medicinal Plants of the West*. Missoula, MT: Mountain Press Publishing Company.
- Turner, Nancy, (1998). *Plant Technology of First Peoples in British Columbia*. Vancouver, BC: UBC Press.
- Weiner, Michael, (1972). *Earth Medicine Earth Food: Plant Remedies, Drugs, & Natural Foods the North American Indians*. (1972). New York, NY: Collier Books.

RESEARCH PAPERS

- Bodmer, Laurie, (2005). *Select Native American Medicinal Plants*. Bellingham, WA: Western Washington University.
- Durham, Heather, (2009). *Pacific Northwest Ethnobotany: Traditional Uses of Common Local Flora*. Rockport, WA: North Cascades Institute.
- Park, Cynthia, (2008). *Ethnobotany of the Pacific Northwest: An Edible Plant Walk from the North Cascade's Environmental Learning Center*. Bellingham, WA: Western Washington University.
- Pilarski, Michael and Allison Lutz (1999). *Ethnobotany and Ethnoecology Resource Guide*. Bellingham, WA: Western Washington University.

WEBSITES

American Indian Ethnobotany Database

<http://herb.umd.umich.edu/>

US Food and Drug Administration

<http://www.fda.gov/>