Ethnobotany and Native Plant Production

Ethnobotanically Significant Plants of the Pacific Northwest

Edward Curtis

With notable exceptions, indigenous peoples in most parts of the world relied on plants for most of their physical and cultural needs. Plants provide not only food, in many diverse forms, but also medicine, as well as the basis of material culture. Traditional cultures manufactured everything from string to boats to houses with the materials provided by the plants around them. We have provided a list of some of the more ethnobotanically significant plants of the Pacific Northwest to serve as a reference for restoration efforts in the region and to demonstrate the wide array of plants and uses that fall into the realm of ethnobotany and TEK. The plants listed below by no means provide a thorough ethnobotany of the region, but do represent some of the most ethnobotanically significant plants of the region, as well as those plants that lend themselves to restoration efforts (namely woody species and perennial herbs for the most part). Further discussion of a handful of species of outstanding importance is given.

Considerations

When considering the option of planting with ethnobotanical use in mind, the most important considerations (apart from money), are size of the site, the potential purpose of the restoration, and the involvement of native peoples and local communities.

Certain planning designs are better suited to larger sites, while others are more practical for small sites. For example, on a large site, it may be possible to employ the use of fire and other traditional management techniques in order to encourage sustainable harvest of plant materials from the site. Perhaps more importantly, large sites could accommodate harvest of plant materials and become

culturally important to communities that utilize them. Community investment and involvement is of course important to most restoration projects. Smaller sites, if they are in high profile locations, such as city parks might be better suited by planting a large diversity of species and providing interpretive signage, and thereby creating a living library of ethnobotany. To some degree, any restoration project will have ethnobotanical significance, as most native plants have traditional indigenous uses. Thus it would be very impractical to take ethnobotanical considerations into account if the site is intended to be inaccessible to people. To clarify, certainly employ management practices based in Traditional Ecological Knowledge, but also recognize that there is no practicality in engaging in extra effort to plant specific plants for ethnobotanical purposes. If the planned purpose of a planting is to provide traditional native food plants for harvest, it is important to make sure that the site is not contaminated with heavy metals and other pollutants. Certainly such a site could still be restored with a mind towards ethnobotany, but the emphasis should be on plants that provide material uses instead of food uses.

When planning how to incorporate ethnobotany into a restoration site, it would be very wise to collaborate with local native groups. Such partnerships could work to the benefit of all parties involved. As mentioned above, an involved, invested community will add to the success of the site, through labor and protection. Additionally, discussion and involvement at al stages of a project would make sure that the needs of native groups are met.

If harvest of plant materials is to take place on the site, consider the impact of the harvest. Many species have parts that can be harvested sustainably and in large quantity without damaging or killing the plant. Others species are necessarily killed in order to be utilizable. Also consider that some species may need fifty years of growth to reach harvestable size, as is the case with cedar. Other, herbaceous species may be harvestable within a few short years after installation. Additionally, consider that plant uses shown in ethnobotany texts may be lost and no longer practiced. Of course, much of the intent of incorporating ethnobotany into restoration ecology is help to preserve and pass on that knowledge before it is lost. However, it may be more meaningful to plant a site full of species that are regularly used and known, than to plant a site with species whose uses have been lost.

Food Plants

* Indicates use of coppicing, tilling, and/or controlled burning to promote reproduction and growth

Berries and Fruits: *Amelanchier alnifolia*, Fragaria spp.*, Gaultheria shallon*, Mahonia spp., Malus fusca, Oemlaria cerasiformis, Ribes spp., Rosa spp., Rubus spp.*, Sambucus spp.*, Vaccinium spp.*, Viburnum edule*

Nuts and Seeds: *Corylus cornuta*, Quercus garryana**

Roots: *Allium spp., Camassia spp.*, Dryopteris expansa, Fritillaria spp.*, Lilium columbianum*, Lomatium spp.*, Lysichiton americanus, Potentilla pacifica, Pteridium aquilinium*, Sagittaria latifolia, Trifolium wormskjoldii, Typha latifolia*

Shoots, Sprouts and Greens: *Epilobium angustifolium, Ledum groenlandica, Lomatium spp.*, Urtica dioica*

Berries and fruits along with nuts and seeds are probably more appropriate for harvest in restoration sites than other plant materials as harvest is relatively straightforward and does not damage-installed plants. Nearly all fruit and seed crops in the region were managed with fire to increase production. Larger, shrubby species such as *Amelanchier* were also coppiced regularly. Interestingly, fire was not only used in lowland prairies and woodlands, but also in high-elevation meadows, where *Vaccinium* species grew abundantly.

Both *Camassia* species and *Fritillaria* species in our region, apart from being intimately adapted to fire, also benefit from other forms of anthropogenic disturbance. Turning and tilling of soil associated with root harvesting has been shown to increase growth in the individuals that remain and also to encourage germination of seeds in the soil seed bank. Root crops, particularly camas and lomatium, are

extremely potent cultural symbols to many native groups today, and will very likely attract attention and interest in a restoration site.

Typically, the shoots, sprouts and greens utilized in our region can be harvested without detriment to the plant. In the case of *Urtica dioica*, harvest of the top half of newly sprouted plants encourages increased growth and branching, which may be desirable in restoration projects.

Materials Plants

Bark: *Acer spp., Alnus rubra, Betula papyrifera, Chamaecyparis nootkatensis, Picea sitchensis, Prunus emarginata, Thuja plicata*

Fibers: *Apocynum spp., Asclepias speciosa, Carex spp., Epilobium angustifolium, Heirochloë odorata, Phyllospadix spp., Scirpus acutus, Typha latifolia, Urtica dioica, Xerophyllum tenax*, Zostera marina*

Roots: *Picea sitchensis, Populus balsamifera, Thuja plicata*

Wood: *Acer spp., Amelanchier alnifolia*, Cornus spp., Corylus cornuta, Holodiscus discolor*, Philadelphus lewisii, Salix spp., Taxus brevifolia, Thuja plicata*

Baskets by Theresa Jefferson Galeassi

In the Pacific Northwest, *Thuja plicata* is without a doubt the most culturally important plant to most native groups. The bark is made into baskets, clothing, rope and decorations, the wood into boxes, masks, totem poles, longhouses and canoes, the withes into rope and baskets, and the roots into baskets and hats. The lists could go on and on. From a mature stand, which is unlikely to be found anytime soon on a restoration site, all materials including planks of wood (but not including the trunk itself), can be harvested without killing the trees, using traditional harvest methods. Unfortunately, it would be nearly impossible to harvest useful materials from young trees, at least in any quantity to make it

worthwhile. Nonetheless, because of cedar's significance and ubiquity, it is very desirable for restoration projects.

Fall harvests of the leaves and stems of *Scirpus acutus* and *Typha latifolia*, used for mats and baskets, is very much sustainable and in line with restoration, as those parts die back every year. The same can be said for other cordage plants so crucial to traditional net making, *Apocynum* and *Urtica dioica*, as again, harvest occurs at the end of the growing season.

Harvest of wood materials is on the whole not a realistic possibility on a restoration site prior to thinning work. However, some shrubby species, such as *Amelanchier*, *Holodiscus* and *Philadelphus* may be cut back, and in so doing, encouraged the growth of long straight suckers ideal for arrow shafts.

Medicine Plants:

Achillea millefolium, Lonicera ciliosa, Mahonia spp., Oplopanax horridus, Petacites speciosus, Prunus emarginata, Rhamnus purshiana, Veratrum viride, Symphoricarpus albus, Taxus brevifolia, Urtica dioica

Here there are many, many plants that may have been listed. Of those above, devil's club (*Oplopanax horridus*) was and is considered one of the most important plants to the indigenous peoples of the Northwest Coast. Every native group within the Pacific Northwest range of the plant used it. Many contemporary misconceptions of devil's club abound. Despite claims to the contrary, devil's club is not a therapeutic substitute for ginseng, as it does not contain ginsenosides, and it has no adaptogenic properties. It has been shown to have strong antifungal and antibacterial actions. Despite false claims

of devil's club's abilities, it is used effectively in many traditional treatments, ranging from in use from general tonics to tuberculosis, diabetes, flu and pneumonia treatments. The cultural significance of the plant however lies more in its spiritual capabilities. It was/is used for purification, luck, protection, and for "shamanic" purposes. It's uses, both spiritual and medicinal, are mostly related to cultural perceptions of its spiny nature imparting a quality of protection. It is also important to note that traditional use of devil's club focused on the bark of above ground parts, not the "root bark". Marketing of the latter seems to be an attempt to highlight the plants relationship to ginseng (both are Araliaceae). Devil's club is long lived, slow-growing shrub, forming sprawling clones that spread through layering of decumbent stems. Reproduction is primarily vegetative and only rarely by seed. Harvest of root bark, for the most part by euro-american wildcrafters and herbalists, has thus far proven to be unsustainable as it can kill large patches of what appear to be separate plants but may not be. Conversely, harvest of stem bark is potentially sustainable and in restoration could be coupled with staking of unused sections of stem to promote overall health and expansion of established stands.

False hellebore (*Veratrum spp.*) is among the most poisonous plants to grow in our region. To eat even small amounts can be fatal, but nonetheless, indigenous peoples of the area used it internally for a wide variety of afflictions as well as for general purification. It is unknown whether there are any people who still retain the knowledge of how to use this plant. If there are they are probably few and far between. False hellebore is abundant in mountain meadows and low elevation wetlands. In restoration efforts it could potentially be used to compete with reed canary grass in the latter habitat, and might also stand as a testament to increasingly precious and endangered knowledge of traditional peoples and their ways of living.

Resource Management Through the Use of Fire

When the Europeans first arrived in the Pacific Northwest, they found that the land west of the Cascades was not completely forested as was expected. Instead, there were prairies of all sizes scattered throughout the area. East of the mountains, the forests were also different in that there was little underbrush or clutter. In journals documenting first impressions of the region, most thought that these unexpected environmental conditions were works of nature. Until recently, anthropologists also believed this to be true.

No one considered that the Native inhabitants of the area might be playing a role in modifying the land. These early inhabitants were sorely underestimated and labeled wanderers who took from the land and then moved on. They couldn’t have the knowledge and tools needed to manage the land in

order to better meet their needs. We now know that to be untrue. The Native inhabitants did have a tool and that tool was fire. Anthropogenic (human-caused) fire was the major tool used to manipulate early Pacific Northwest environments.

Unfortunately, because it took so long for the importance of this management practice to be realized, much of their knowledge of the land and its successional stages has been lost. Recently, there has been an effort toward trying to collect whatever "traditional ecological knowledge" remains.

One of the many uses of anthropogenic fire (or controlled burn) was to promote the growth of important root and berry crops. There are nineteen reported plant species that benefit from periodic burns. They are successional species that require clearings or open canopy for optimum growth and productivity. They fall into two categories, either shrubby fruiting species or herbaceous species with edible roots but they all are capable of regenerating from underground rhizomes.

For example, fire was used to maintain mountain huckleberry (*Vaccinium membranaceum*) patches. It was realized that although huckleberry can survive in the shade of a late successional forest, within a couple of years after a controlled burn (which removes all competition and opens up the forest), the huckleberry becomes the dominant vegetation and is usually loaded with berries. As time passes, succession takes over again; the land becomes forested with willows, alders, and other deciduous trees that begin to replace the huckleberry patches. Eventually, conifers move in and become the dominant species. The Sahaptin and Chinookan Indians used a type of controlled burn to re-establish declining huckleberry patches that had proven productive in the past. Rather than burn an entire area, they would contain the fire to those patches they wanted to restore. They began the controlled burns after the berry season in late fall when the winter rains had started reducing the potential for spread into unwanted areas.

Harvesting in Restoration

Harvesting natural resources is a major source of ecological destruction. Restoration efforts work to reverse these effects and restore nature to an improved state. However, it is often that case that harvesting takes place on or near a restored area. These seemingly contrasting efforts can be reconciled in several different ways, each with varying actual benefits to the restoration project. This paper investigates three such cases and determines in each case how much harvesting detracts from the restoration work being done.

The first case study is the New England coast where fish habitat has been severely degraded. Over fishing and other factors have lowered fish yields drastically such that the fishing industry itself is endangered in the area. In an effort to revive the fishing industry, nearly all of the New England states are now following restoration plans to increase fish habitat and populations. While this large effort is taking place, the industry yet to cease fishing activity. Thus massive harvesting continues in the presence of restoration. These effects balance each other out in part. Hopefully the excess lies on the side of the restoration and slowly the amount of total viable habitat will increase. This is yet unclear however, but will become so in time as the situation progresses further.

Harvesting from a restoration site is also occurring in the Northwest with salmon populations. Native tribes are working diligently to restore salmon populations and habitat before a situation similar to that of the New England coast arises. Thus major work is going into increasing habitat and bettering environmental conditions with limited harvesting, but in no way completely restricted harvesting. While similar to the first case study, there is one key difference. These restoration and harvesting efforts begin from and act upon significantly stronger base ecosystems. The restoration of a stable system - if significantly damaged compared to historic levels - should allow for much higher levels of harvesting and increase the chances for success under its presence.

The third and final situation of harvesting during restoration occurs with eelgrass bed restorations. Often in these situations, a bed of eel grass will be restored and then quickly harvested for eelgrass. As compared to the previous examples where harvesting occurred for industrial and economic purposes, here the purpose is for restoration. The gathered eelgrass is used to provide raw material for further eelgrass restoration projects. Thus in this case, while harvesting the eelgrass hampers the newly restored habitat, it forms a cycle where other areas can be restored as well. This maximizes the effect of the restoration effort in general. While it might increase strain on the restored habitat, which could be better handled by an established system, it still increases the net effect.

Restoration of habitat occurs in many different situations, but almost always with the goal of restoring habitat and bettering the environment. Unfortunately it is often the case that other pressures dictate that harvesting of resources still occur, despite a damaged habitat. Occasionally the harvesting that takes place is not from industry pressure, but as a source to future restoration efforts. In both cases the harvesting locally restricts the success of the restoration, but as has been show, it is not always the case that harvesting works against restoration in general.

Sources:

Status and Restoration Options for Atlantic Sturgeon in North America – Waldman, John and Wirgin, Issac.

Sowing Seeds for Eelgrass Harvest
http://seagrant.gso.uri.edu/41N/Vol1No2/matso.pdf

The Columbia River Anadromous Fish Restoration Plan
http://www.critfc.org/oldsite/text/TRP_intro.htm

Gunther, Erna. 1945. *Ethnobotany of Western Washington: The Knowledge and Use of Indigenous Plants by Native Americans*. University of Washington Press, Seattle.

Lantz, Trevor C., Kristina Swerhun, and Nancy J. Turner. 2004. "Devil's Club (*Oplopanax horridus*): An Ethnobotanical Review. *HerbalGram*. 62:33-48.

Pojar, J. and A. MacKinnon. 1995. *Plants of the Pacific Northwest Coast*. B.C. Ministry of Forests and Lone Pine Publishing, Vancouver.

Stewart, Hilary. 1984. *Cedar*. Douglas and McIntyre and University of Washington Press, Seattle.

Turner, Nancy J. 1995. *Food Plants of Coastal First Peoples*. University of British Columbia, Vancouver.

Turner, Nancy J. 1998. *Plant Technology of First Peoples in British Columbia*. University of British Columbia, Vancouver.

Turner, Nancy J. 2005. *The Earth's Blanket: Traditional teachings for Sustainable Living*. University of Washington Press Seattle.

Boyd, Robert. 1999. *Indians, Fire and The Land.* Oregon State University Press, Corvallis

Submitted 6/08/06 by: Shannon Kachel, Jack Herbert, and Cheryl Brammer