

Sustainable Wildcrafting & Endangered Plants

Considerations for Sustainable Wildcrafting

What is the highest percentage of a stand that can be harvested on an annual basis and not degrade the stand? Be conservative.

Be 100% certain of your identification.

Be respectful. Pray and make offerings before collecting. Put your healing energy into the herbs.

Should harvesting be done on a 2-year, 3-year, or longer, rotation?

Look for opportunities to harvest where the species is naturally going out of succession? eg. sun-dependent species being shaded out.

Look for opportunities for salvage collecting prior to development, logging, etc.

Wildcraft weedy non-natives to reduce them in areas where we wish native plants to make a comeback.

Never take the biggest or best individuals. This is respectful and leaves good genetics for propagation.

Consider picking in swaths and deliberately skipping every other swath.

Pick only where abundant.

Do not pick the outliers of a patch. We want patches to expand, not contract.

For flowers only pick part of the bloom cycle. e.g. Arnica patches have early, mid and late bloom periods.

Watch where you step. Avoid undue trampling of plants, causing erosion, etc.

Fill any holes you dig. Reseed disturbed areas or re-plant rhizomes. Mulch planted areas to increase chance of seedling success.

Establish new patches.

Dig roots in flatter areas as opposed to steeper ground where erosion is likely to be more of a problem.

Avoid picking along trafficked roads or from polluted places or where herbicides have been sprayed.

Be safety conscious for yourself and others.

Pick at times when desired plant constituents are at, or near, their optimum levels.

Take note of associated species, animals, habitat types, etc. Be observant.

Prune trees and shrubs for twigs so as to increase twiggy regrowth, thus increasing resource.

Utilize all material collected fully. Don't let things go to waste.

Keep the quality high. Process promptly, dry carefully and store correctly.

Wash roots thoroughly to remove dirt.

Garble out foreign material or unwanted parts.

Know legalities, permits and regulations.

Keep lot numbers and samples. Keep records.

Educate buyers and consumers about sustainability considerations.



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Sustainable Harvesting of Medicinal Plants

The harvesting of wild plants for medicinal use is a conservation concern for many localities in the world. It is estimated that over half of the world's population still relies to some degree on locally-harvested herbs via subsistence gathering or local markets. Basically, wherever subsistence and small-scale agriculture, or hunter-gathering is still practiced. As population density rises, local subsistence harvesting can lead to reduction or extinction of medicinal species.

The other main demand for wildcrafted medicinal plants is from the herb industry and the international marketplace. This demand has greatly increased over the past 20 years and especially during the 1990s. This has led to an increase in cash income opportunities for wildcrafters at the same time as the standard of living is going down in much of the world, and this has increased the likelihood of overharvesting of many medicinal species. An example is the case of *Prunus africana* throughout this species range in the African Highlands. It is restricted to pockets of moist highlands in a handful of countries, including Ethiopia, Cameroon, Kenya, Uganda, Congo and Madagascar. Following are a few quotes from an article on this species in ICRAF's (International Centre for Research in Agroforestry) Annual Yearbook 1998-99, pages 22-24.

"Attempts to manage the tree sustainably in the wild seem doomed", warns Tony Simons, leader of ICRAF's tree domestication programme. Overexploitation is associated with the breakdown of traditional tribal authority and the growth of the cash economy.' The plight of *Prunus africana* is now well known. In 1995, at Kenya's request, the tree was added to Appendix II of the Convention on International Trade in Endangered Species (CITES). Dr Simons says deliberate cultivation on farmers' fields is the only option that will ensure the sustainability of bark supply, and ICRAF and its partners are easing the tree's passage from a wild to a domestic species."

There are, of course, many people around the world who are already working on the issues of endangered medicinal plants (but we need many, many more). But only a small number of these people approach this from the angle of the commercial wildcrafter. There is also the matter of approaching the issue from the angle of the subsistence herb gatherer. I am sympathetic with commercial wildcrafters, because I am one. My goal isn't to stop wildcrafting. Rather, it is to help put wildcrafting on a sustainable basis. This includes establishing conservation areas where harvesting is not

allowed at all. We need them as benchmark ecosystems. Obviously there is a crying need for restoration plantings in most parts of the world, both in developed and developing countries.

In many parts of the world the rights of subsistence gatherers need to be recognized. Mechanisms for self-regulated sustainable management of natural resources in the "commons" have been worked out by many cultures. Unfortunately many of these "common laws" have been lost and the breakdown of traditional systems is ongoing in most places. The identification and promulgation of locally-based sustainable management systems for the commons is of utmost importance to the world.

Wildcrafters have a lot of information to offer in this regard. Wildcrafters also are some of the best people to consult in coming up with knowledge of plant commonness or rarity in the landscape and their trends. Wildcrafters are some of the most knowledgeable people about plant location and abundance in the landscape. Locally-based, trained field botanists are another main group of knowledgeable people about plant location and abundance in the landscape. Most of these people work for government agencies and organizations such as The Nature Conservancy.

I encourage people working in conservation to cultivate working relationships with wildcrafters in their regions. Reward them for information. Dialogue with them about sustainable harvesting methods. They can also give useful information on propagation and restoration strategies because of their first-hand work with the plants.

Friends of the Trees Society (FTS) is a small organization based in Washington State. FTS produces international directories on sustainable forestry, agroforestry, organic agriculture, permaculture and ethnobotany. For the past seven years FTS director Michael Pilarski has been wildcrafting medicinal herbs in many different habitats in Washington State including coastal beach, lowland delta, montane and subalpine temperate rainforest, bunchgrass prairie and dry shrub steppe. My goal is to gain hands-on knowledge of sustainable harvesting of medicinal plants from the perspective of the wildcrafter. Having a wide background in sustainable natural resource management and production from 30 years of experience has helped me in this quest for experiential knowledge with the result that I am now one of the more knowledgeable people in my region on sustainable wildcrafting. I have come up with a system which rates native and naturalized species found in the Pacific Northwest region of the USA in regards to overharvesting concerns; which follows:

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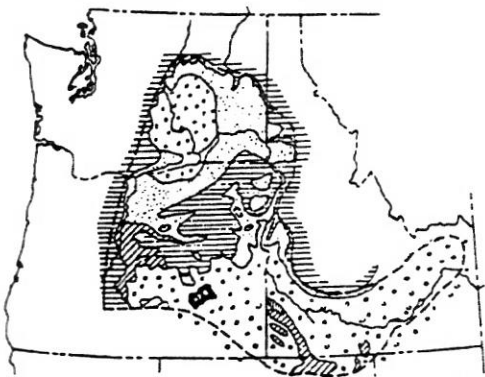
Sustainability Category Rating Key:

- A. Non-native, invasive, widespread, abundant, weedy plants which are generally considered noxious.
- B. Non-native, abundant plant species which are generally not considered noxious.
- C. Native, widespread, abundant plant species.
- D. Native, locally abundant plant species.
- E. Native plants. Widespread, but seldom or never abundant in the landscape.
- F. Native plants. Rare locally but not throughout its range.
- G. Native plants which are abundant locally but rare in most other parts of its range.
- H. Native plant species which are officially classified as rare, sensitive, threatened or endangered in that state. The "Red List". It is illegal to harvest any part of these plants.

I would be happy to do an exchange of publications with people/organizations who are working on sustainable wildcrafting issues in their countries/regions.

Best wishes to all the medicinal plants of the world and to the people who work for their protection and increase.

Michael Pilarski
Director - Friends of the Trees Society



Map of natural vegetation on the Columbia-Snake River Plateau.

- Spruce-Fir Forest in the Wallowa Mountains, includes some alpine grassland
- ▨ Yellow pine and Douglas fir
- ▩ Western juniper
- Sagebrush □ Bunchgrass ■ Marsh vegetation

Geographical levels of endangered plants classification systems.

If you start researching endangered plant classification systems you'll find that there are a number of geographical levels for classification:

International
National
State
County
Localities
Site

International level.

It was only in 1997 that the first serious attempt was published which combined the information from all the national endangered plant lists from around the world. This resulted in the publication of the **1997 IUCN Red List of Threatened Plants**. Kerry Walter and Harriet Gillett, Editors. 1998. IUCN, 862 pages. For each family of plants it gives the number of genera, number of species, and names of all recorded threatened species. This is the most comprehensive worldwide list of endangered plants. The 1997 Red Book lists 12.5% of the world's flora as endangered. It is certainly much higher in actuality because they only used the plants on "official" lists and also because many rare plant species in the least settled parts of the world haven't even been discovered yet, and may be extinct before they are.

National level.

Ever since the Endangered Species Act happened in the USA there has been obvious foot-dragging by government and industry to get new species on the endangered species list.

State level.

Most (all?) states now maintain a state-wide endangered plants list. A state-wide red book.

Washington State currently has 7 categories: Endangered, Threatened, Sensitive, Possibly extinct or extirpated, Review group 1, Review group 2 and Watch.

To comprehensively assess the status of a particular species in the area you are working in, you should know the plant's status at all these geographical levels. For instance if you looked at Washington States list of endangered plants you could find a plant that is listed as endangered within the state; but further research would show that it is a southern outlier of a

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circumboreal species which is widespread and common in Canada and in northern Eurasia as well. This is of course no excuse for harvesting plants in areas where it is endangered or rare. But we would then know about the option of ordering from a reputable source in parts of Canada or Eurasia where the plant is abundant.

Some plants have wide ranges, Others have very restricted ranges. Another case in point. Some species on Washington State's endangered plant list may only be found in Washington and Oregon, but whereas it is endangered in Washington, it is common in Oregon.

I have worked out a system of classifying plants in my region (northern Washington State) as to abundance/scarcity and wildcrafting sustainability. It currently has 8 categories (see previous page).

County-wide level.

At this time there are very few examples of this being done on a county level. One example is a book in my library *The Flora of Whatcom County, Washington* by W.C. Muenscher. Published by the author in 1941. Muenscher at the time was Professor of Botany at Cornell University in Ithaca New York, but had lived and traveled and botanically explored Whatcom County extensively for 30 years. Thus he observed the changes in the flora of the county from 1910 to 1940. A period in which there was a large change in the vegetation in the lower elevation western part of the county due to logging, clearing and wetland drainage for agriculture. Muenscher found 1008 vascular plant species in the county (most of them native, but some naturalized weeds as well. For each species, he tells what habitats and parts of the county it is found and often gives mention of species which are rare (or becoming rare) in the county. It is a county-scale example of a botanical abundance/rarity assessment. If it was updated it would provide the basis of a sophisticated endangered plant list for this particular county. In the long run, this should be done for every county.

Locality level. Comprehensive botanical assessments of localities are even rarer. One example is the book *Wild Plants of Greater Seattle* by Arthur Lee Jacobson. The area covered comprises the western portion of King County bordering Puget Sound. This book was published by the author in 2001 and is an up-to-date assessment of the areas flora and each species relative abundance or rarity and includes all native and non-native species. Jacobson also notes all the native species which have been extirpated in the greater Seattle area. In other words, plants which have gone extinct in that locality. Some of these extirpated species are common in other parts of Washington state (or beyond) while others are on the state-wide endangered list.

Jacobson's book has one thing in common with Muenscher's book, they are both largely the result of one single person. It took each of them many decades of persistent botanizing for them to seriously assess the whole flora of their area. For larger areas such as states or nations, it takes the combined work of many people to do the kind of work individuals can do for more limited areas. We need more people to obtain this level of botanical knowledge.

I highly recommend Jacobson's book to anyone in western Washington as it contains a wealth of information and is a very good identification guide as well. For ordering information visit:

www.arthurleej.com

Site level.

Site species assessments are now done on hundreds and thousands of individual sites on national forest land, nature reserves, etc. These site assessments generally aim at cataloging all plant species on site and relative abundance. There is a range of accuracy depending on factors such as size of unit, and what kind of plot methods or transects were used to identify species.

National Forests Species Checklists

Some, but not all, National Forests have a checklist of species which have been identified as present in that particular National Forest, in some cases even down to the District level. The checklists do not give abundance/rarity information, but they can be useful when botanizing in the counties concerned. They generally cover only higher elevation areas in a several county area.



Is "Sustainable Wildcrafting" an Oxymoron?

Michael Pilarski - 1st draft - 5/8/97

The United Plant Savers is an association of herbalists working to protect endangered medicinal plants. In a conversation with a member of the UPS, he wondered if "sustainable wildcrafting" was an oxymoron. The sustainability of wildcrafting is a complex issue given the wide diversity of the plant world and of human opinion. There is a debate within the herbal community on the issue. Here are a few of my thoughts on the subject to add to the discussion. Hopefully we will see an increasing numbers of letters and articles on this topic published in herb and land stewardship journals.

Wildcrafting includes collecting non-native as well as native plant species. This article is written from my wildcrafting experience in Washington State. I have lived, worked and collected in both the wet maritime western Washington and the dry interior eastern Washington bioregions. The species examples listed below are in regards to the situation in Washington state.

Following is a list of categories which I use in placing plant species in a framework to help me consider sustainability issues on a species by species basis.

A. Non-native, invasive, widespread, abundant, weedy plants which are generally considered noxious. Washington state has a noxious weed list. Some examples of species in Washington State include: St. John's wort (*Hypericum perforatum*), Himalaya blackberry (*Rubus procerus*), scotch broom (*Cytisus scoparius*), burdock (*Arctium lappa*, *A. minor*), wormwood (*Artemisia absinthium*), teasel (*Dipsacus sylvestris*), and houndstongue (*Cynoglossum officinale*).

In some cases the farmer, landowner or gardener wants to eradicate or reduce its population. Wildcrafting in these cases can be a profitable alternative to using herbicides for weed control. This is wildcrafting as weeding.

B. Non-native, abundant plant species which are generally not considered noxious. Examples include: dandelion (*Taraxacum officinale*), mullein (*Verbascum thapsus*), yellow dock (*Rumex crispus*), sheep sorrel (*Rumex acetosella*), catnip (*Nepeta cataria*), herb robert (*Geranium robertianum*), and Queen Anne's lace (*Daucus carota*).

Stands can be harvested heavily if control is desired but less people are gung ho about eradicating this class of weeds. In many cases, stands of these species can be harvested in a way which doesn't reduce the resource and so enables long-term yields.

C. Native, widespread, abundant plant species. Examples include Oregon grape (*Mahonia* spp.), Elder (*Sambucus* spp.), Yarrow (*Achillea millefolium*), Bitter Cherry (*Prunus emarginata*), Horsetail (*Equisetum arvense*), Huckleberry (*Vaccinium* spp.), Usnea (*Usnea* spp.), Willow (*Salix* spp.) and *Ceanothus* spp.

D. Native, locally abundant plant species. Some examples of species in Washington State include: gumweed (*Grindelia*), *Lomatium dissectum*, pipsissewa (*Chimaphila umbellatum*), Usnea spp., sitka valerian (*Valeriana sitchensis*), cascara (*Rhamnus purshiana*), devil's club (*Oplonax horridum*), butterbur (*Petasites palmatus*).

E. Native plants. Widespread, but seldom or never abundant in the landscape. It is hard to get much quantity at one stand. Over harvesting of stands is relatively easy to do. Sustainable wildcrafters would only take a small amount. Some examples of species in Washington State include: alumroot (*Heuchera* spp.), wild ginger (*Asarum canadense*) and rattlesnake plantain (*Goodyera oblongifolia*).

F. Native plants. Rare, threatened and endangered locally but not throughout its range. Usually these areas are at the edges of a species' range, such as the northern or southern ends of its range. These edges can also be altitude or precipitation caused. Take Pacific bayberry (*Myrica californica*) as an example. It is a coastal plant common in California and Oregon, becoming less common in the south Washington coast and rare in British Columbia. Harvesting should not take place in British Columbia, be slight in Washington, and in Oregon and California only where regionally abundant and with due caution to not deplete the resource. Sweet gale (*Myrica gale*) in contrast is common in British Columbia and Washington and becomes rarer as one goes south through Oregon.

G. Native plants which are abundant locally but threatened in most other parts of its range. We do not want to deplete the last best stands left! No harvesting. Small amounts of seed and propagation material can be judiciously harvested to bring into cultivation.

H. Native plant species which are officially classified as rare, endangered or threatened. The "Red List". It is illegal to harvest any part of these plants. Many more species should be added to this list, but government bureaucracies are too much under the influence of finance capital. The United Plant Savers' endangered plants list will be longer than the federal governments list.

A wildcrafter should know the status of each species throughout its range. You can see from the above list that sustainable wildcrafting considerations will vary from category to category and with increasing concern as we go down this list.

Bringing native botanicals into cultivation.

Wildcrafters can judiciously gather seeds or propagation material. These seeds can be used to cultivate and supply the herb trade from cultivated plants. The seed can also be used for native plant nurseries to supply the nursery trade and also to do restoration plantings. Seed sources for restoration should ideally be from the site or as close to it as possible. It is important to keep gene pools as wide as possible.

Wildcrafting as salvage. I know of wildcrafters who get contracts to harvest areas before clearcutting or road building. Other times might be before development, or a house-site is cleared. The forces of development are all too common. Where possible, wildcrafting in these kinds of area before the plants are destroyed makes

more sense than harvesting from areas where the plant populations are not getting disrupted. Several times in the 1996 season I collected plants from where a trail was going in. I harvested what was going to be taken out anyway and made things bit easier for the trail builder.

Restoration wildcrafting. A big part of all restoration funds and people power presently goes to killing non-native plants on restoration sites. I was at a restoration site recently where they were battling St John's Wort. It would be a win/win situation for wildcrafters and restorationists if wildcrafters helped control non-native plants in conjunction with native plant restoration efforts.

Sustainability concerns for different plant materials

Which part of the plant is being harvested for its medicinal properties makes a big difference in terms of impact and sustainability guidelines.

Whole Root. Root remnants do not resprout. Usually you kill the plant. In some species the crown can be successfully replanted. An example would be *Lomatium dissectum*.

Whole Root. Root pieces can send up new shoots (examples being dandelion, comfrey and horseradish).

Root bark. If the whole root is dug out the plant dies. Examples include bayberry (*Myrica* spp) and *Ceanothus*.

Rhizomes. Generally only part of the rhizomes are harvested. The colony can recolonize harvested spots with new rhizomes. Examples being licorice fern (*Polypodium glycyrrhiza*), bleeding heart (*Dicentra formosa*), nettles (*Urtica dioica*).

Stolons. These are often termed roots by the lay person. Underground, lateral running stems are called stolons. Some are green and stemlike with an example being Oregon Grape (*Mahonia* spp). Some species stolons are blanched and tend to root at the nodes (Butterbur (*Petasites palmatus*) as an example. Most of the constituents are generally in the stolon's bark and cambium. It is generally near impossible to dig up all of the stolons, even if one tried (which I don't advocate). If only a small percentage of the stolons are removed and the removal is dispersed throughout the patch, the area is generally recolonized by stolons from adjacent plants.

Recumbent Stems. Formerly upright stems which have been bent down by the natural forces of snow, gravity, wind, and branchfalls. In the case of devil's club (*Oplopanax horridum*), I take at most 5% of the recumbent stems. It is possible to harvest in such a way that only part of a recumbent stem network is taken and no individual plant is killed. Devil's club is a relatively slow grower and even 5% on a yearly basis might be too much if done year after year. It is likely we will want to rotate collection years in individual patches. Over the next several years we

will likely see the very first deliberate commercial plantings of devil's club.

Bark. In some cases bark harvest kills the tree. Many species which are harvested for bark have the ability to coppice. Coppice means the stump resprouts a new trunk. A bark harvester could manage parts of stands as coppice for bark. A less disruptive bark harvesting technique is to prune off some branches and obtain bark from them. This type of pruning for bark could actually improve the eventual timber quality of trees by pruning up lower branches. Some people advocate stripping bark lengthwise down just part of a trunk and thus not kill the tree. While this might be sustainably wise for some species in some places. However depending on the ecosystem and tree species involved, creating big bark scars can lead to a high proportion of subsequent death due to the entry of fungi, insects or disease getting into the tree through the wound. From a timber perspective, thinning can improve the timber resource and provide medicinal barks at the same time. Some barks harvested in Washington include cascara (*Rhamnus purshiana*), bitter cherry (*Prunus emarginata*), and paper birch (*Betula papyrifera*).

Whole top. If this is done with perennial or annual herbaceous plants which can regrow a new top and it is done early in the season, there can be relatively little effect on the plant community. Nettles are an example. If the harvesting is done so that it does not leave time for seed production or winter root reserves are reduced than the plant population can be depleted over time. This is why rotational harvesting is practiced for some species, so that the patch is only impacted once out of every two, three or four years, whatever the rotation may be.

Twigs. Healthy trees can stand having a small percentage of their twigs removed annually with little harm. Birch, bittersweet nightshade (*Solanum dulcamara*)

Growing tips. Some plants you take just the growing tips and new ones are quickly replaced. Some of the examples are vines such as Clematis ligusticifolia and bittersweet nightshade (*Solanum dulcamara*)

Leaves. If only a small percentage of the leaves are removed there is only a minor affect. Examples being salal (*Gaultheria shallon*) and madrone (*Arbutus menziesii*).

Seeds. Sustainable seed collecting for most species means collecting a small percentage of the seed so that new plants can replace the old. Seeding is more critical for annual plants than perennials, especially for rhizomatous perennials. Especially in drier habitats, it is important that adequate seed be naturally dispersed in favorable seedling success years. Not every year are conditions favorable to seedling success.

Flowers. If flowers are collected judiciously and plenty are left to do the necessary seeding than flower harvest is one of the less disruptive parts of the plant to harvest. One example of plants with thousands of blossoms are hawthorn. For some species there is only 1 or several seed heads. Examples are arnica (*Arnica* spp), mullein and yarrow.