

SPRING  
2015



*Journal of*  
**MEDICINAL PLANT  
CONSERVATION**

*A United Plant Savers' Publication*

Now on the  
To-Watch List  
**Ramps**

*Allium tricoccum*

**Pirates**  
for the Planet

The American  
**Ginseng summit**

**Fragrant**  
Fragrances

**Osha Update**

**Florida's**  
Threatened Herbs

**Disjunct Medicine**  
A History of Mayapple

**Medicinal**  
Mangrove

**Sacred Seeds**

**Forest Grown**  
Verification



## SPRING 2015

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# Pirates for the Planet

by UpS Executive Director, Susan Leopold

The "At-Risk" Tool made its published debut in 2014 culminating in years of work by many in the UpS community. The visionaries of the "At-Risk" tool are former UpS Board Member Kelly Kindscher of the University of Kansas and Lisa Castle, the 2014 Medicinal Plant Conservation Award recipient, of Southwestern Oklahoma State University. The format of the assessment tool was in part patterned after the Blue Oceans Group's Seafood Mini Guides.<sup>2</sup> Similar to plants' susceptibility to over-harvesting, wild caught seafood is also in deep decline from over-fishing. Vulnerability of species that are wild and in demand depends on many different factors, from intrinsic life history traits to market forces. Based on literature, logic, and discussions with conservation practitioners, five main factors that influence a species' vulnerability to overharvest were determined: life history, effect of harvest on individual plants, population size, habitat, and demand.<sup>3</sup> These five categories are the framework for the tool, and in each section a series of questions leads to a numerical answer, and the total scores then rate a species. The higher the number, the more vulnerable the species is to over-harvesting. In figure one you can see a graph of all the at-risk and to-watch plants that have been reviewed, which illustrates the numerical risk and the colors indicate scores within each of the five main factors.

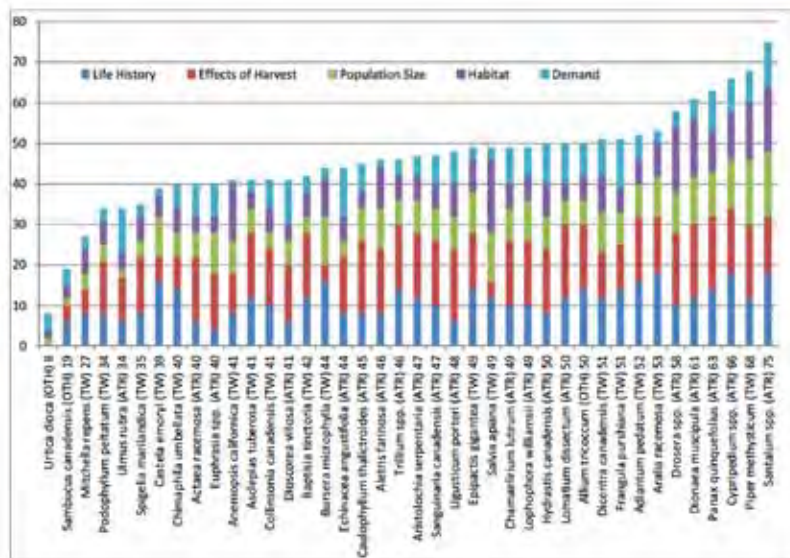
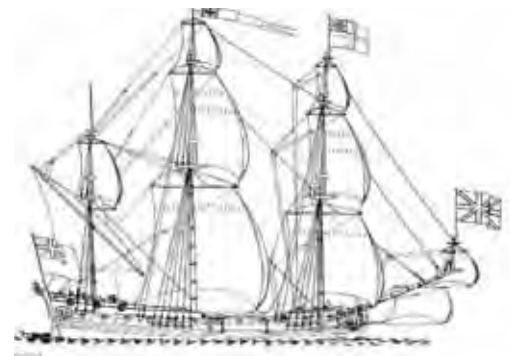


Figure one: See [www.unitedplantsavers.org](http://www.unitedplantsavers.org) for all scoring data, assessment tool, and *Journal* article

Paul Watson founder of the Sea Shepherd movement, a true modern day pirate defending the whales, dolphins, sharks, and ocean vitality is a person I have been fortunate to meet. When I inquired about the term sustainability in regards to seafood, his remark was, "It's just another term for business as usual". Sadly I agree as I have witnessed the logging of endemic Hawaiian sandalwood being promoted by many essential oil companies and the loggers themselves with the simplistic green-washing of terms, such as eco-harvest, renewably sourced, and sustainably harvested/cultivated. These terms are used on websites and in promotional videos without any research or guidelines that define the terms used. The "At-Risk" Assessment Tool is designed to be transparent, and it is on our website in a format that the general public can use. In addition, the tool has unlimited potential as a teaching tool for herbal schools and classrooms.



<http://atochagold.com/TheWhydah.htm>



[www.seashepherd.org](http://www.seashepherd.org)

In regards to sandalwood, I was in Hawaii in the winter of 2014. While on this trip I was interviewed for a feature article that appeared in the *Hanna Hou* magazine,<sup>4</sup> which you can read from a link on our website. The article highlights Mark Hanson (winner of the Medicinal Plant Conservation Award in 2013) for

his heroic efforts in sandalwood

reforestation. *Fragrant Fragrances*, an article by Jen Landry featured in this year's *Journal* goes into further detail about the questions we should be asking when we are considering purchasing essential oils. As the pyramid marketing of essential oil grows, so should the awareness of which oils are harvested from wild sources and of those, which are endangered.

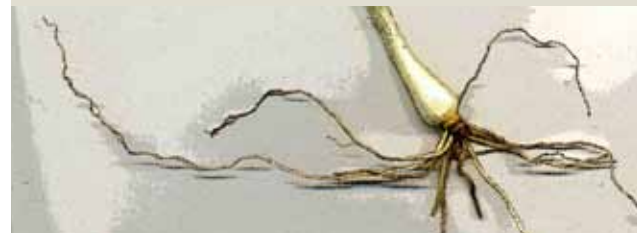
Paul Watson and I talked about the social justice that pirates represented that goes beyond their Hollywood personification. For pirates the ocean was a place of refuge where slavery and class distinction were not the defining cultural norm. Pirates were free on the open waters. There was a pirate code of ethics based more on skill and merit unlike that on land where servitude, class distinctions, and religious prosecution prevailed. An example is that of the famous pirate ship, *Whydah*,<sup>5</sup> Captained by "Black Sam" whose crew called themselves "Robin Hood's Men", they lived by a democratic set of rules. A terrible storm sank the ship off the coast of New England in 1717 and when it was recovered, historians were able to piece together a more accurate concept of pirates in the seventeenth century. On board were a diverse group of former African slaves, Carib and Native American Indians, and social outcasts from Europe and elsewhere. They did not have a common language or religion but instead were united by a spirit of revolt against the current conditions of their time. You can imagine the interesting mix of unique cultural backgrounds that would bring these men and, in some cases women together, to go from a system of slavery to freedom on the sea.

Social and environmental justice are also important aspects of native medicinal plant conservation that are not adequately discussed and addressed. We need to look beyond the packaging and ask who are the people harvesting these plants, what are they getting paid, how is this sustainable to the people, the plants, and the ecosystems. We have to raise the bar and lift the veil if we are going to pay farmers/harvesters fair prices and shift towards conservation through cultivation.<sup>6</sup> When you look at the prices paid for forest botanicals, you see they are based on the uncompensated ecosystem services that provide wild plants. The ecosystems that produce wild populations are sadly being tapped and the economic incentive of realistically farming slow-growing woodland botanicals is going to need to be readdressed if we are going to ensure a future of the medicinal plants we use and love.

To address this issue, United Plant Savers hosted the Ginseng Summit in July of 2014. This event was well documented through NPR.<sup>7</sup> You can listen to the podcast from the UpS website, and the print version is also reprinted in this *Journal*. The Ginseng Summit was a two-day invitation gathering of ginseng stakeholder; growers, law enforcement, top ginseng researchers,

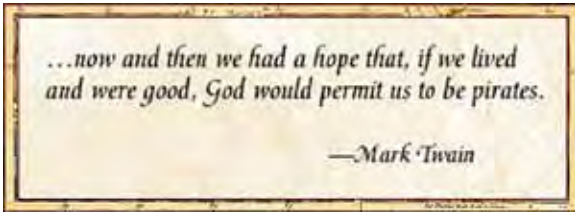
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Ramp cover art courtesy of Eric Burkhardt.

and herb companies. We held both formal and informal discussions to address the complexity of the wild/forest-grown ginseng market and how to ensure its future. Ginseng is a poster child for the forest farming movement that is taking place. If a model can be established for ginseng, the implication for other non-timber forest products and other forest botanicals starts to look more hopeful. We need to desperately shift the paradigm of how wild plant material is sourced and collaborate on a future vision where these botanicals are cultivated in a forest-grown



environment and these forest farmers are supported through a fair cost for their efforts. In addition,

the forest-grown verification program is a way that buyers and consumers can ensure that the medicinals sourced are being stewarded. The forest-grown verification program is an innovative effort that has been years in development and recently launched by Pennsylvania Certified Organic. United Plant Savers members have a unique opportunity to educate those in their local community about the importance of understanding which plants are "At-Risk", where plants are sourced, and how they are grown and harvested.

In October of 2014, I attended the Forest Farming Gathering, which was well documented in a short video that presented an overview of the forest farming movement from the eastern woodlands.<sup>8</sup> Three recent books have emerged, *Integrated Forest Gardening* and *Farming the Woods*, both published by Chelsea Green; and the reprint and updated *Growing and Marketing Ginseng Goldenseal and other Woodland Medicinals*, published by New Society Publishers. All three books are excellent overviews of the potential of the eastern forest and filled with hands-on how-to approaches for land-owners.

The concept of Forest Farming has been spurred by those in the permaculture movement, such as Dave Jacke and Eric Toensmeir, who wrote the two-volume *Edible Forest Gardens*, now in its 4th printing and also published by Chelsea Green. This book deals with the concept of permaculture adapted from the lessons of the tropics to the temperate climates. The tropics provide a consistent growing season in which fruit trees can start bearing in a relatively short time frame, and the strata of a food forest guild develops as an abundant producer, allowing for land restoration and regeneration that is more tangible in one person's lifetime. The temperate trees and the long living herbs grow much slower and the time frame of these life cycles makes them more vulnerable to over-harvesting and requires a vision that includes generations to steward the rewards. This perspective of land management was embraced

in ways we have yet to fully understand by Native Americans, who used fire and other techniques to maintain a productive food forest, discussed in further detail in the article "Pre-Colonial New England Landscapes".

Native Americans most certainly relied and favored ramps as an important medicinal food, appearing in the most critical time as the first signs of spring. Ramps have recently been added to the UpS's "To-Watch" list and are also a prime candidate for future forest grown verification. The rise in popularity sadly translates into declining populations. Ramps that are harvested for the bulbs can take up to seven years to mature from seed to reproducing plant. The temperate forests require a much deeper sense of mindfulness as we look to develop the integrated forest gardening of botanicals.

The concept of Sanctuary is something each one of us can do in our own backyard and in our communities to safeguard the botanical biodiversity of our regions. United Plant Savers' recent alliance with Sacred Seeds expands the network to those tropical regions as we connect on a global scale the mission of native medicinal plant conservation. From Colombia to Madagascar explore the Sacred Seeds website to read inspirational stories from various continents of gardens taking on the role of safeguarding sacred plants in their communities.

Looking ahead United Plant Savers intends to reach out and expand the networks of Botanical Sanctuaries in hopes of creating stronger regional alliances. Each of us in our own way represents the spirit of a modern day pirate. We are a mix of many cultural backgrounds creating new networks to protect the biodiversity that our native plants call home. We are essentially Pirates for the Planet in these current times, charting an alternative route to ensuring a future for all species, from mangroves to ramps.

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# United Plant Savers & Sacred Seeds Sanctuary Collaborate for Plant Conservation

by Hannah Bauman (*HerbalEgram*: Volume II, Issue 12, December 2014)



SACRED SEEDS

[www.sacredseedsanctuary.org](http://www.sacredseedsanctuary.org)

In October 2014, United Plant Savers (UpS) announced its merger with Sacred Seeds Sanctuary, uniting two organizations with the common goal of native plant conservation.<sup>1</sup> Both organizations oversee groups of botanical gardens

devoted to raising and preserving native plants, including UpS's Botanical Sanctuary Network and Sacred Seeds' Foundational Gardens. According to a Sacred Seeds press release, the merger is intended "to grow our Botanical Sanctuary Network and the Foundation Gardens in the effort to safeguard traditional plant knowledge and the native habitats in which these sacred plants thrive."<sup>2</sup>

Sacred Seeds, a coalition of sanctuaries and gardens managed through the Missouri Botanical Garden in St. Louis, works to preserve biodiversity and plant knowledge around the world through its Foundational Gardens. Sacred Seeds began with Finca Luna Nueva in Costa Rica, and there now are Foundational Gardens in 14 different countries, including at the American Botanical Council's Case Mill Homestead in Austin, Texas. These gardens propagate native plants with medicinal, ceremonial, food, and craft value.

UpS celebrated its 20th year in 2014, and Executive Director Susan Leopold, PhD, looks forward to expanding the scope of its projects. "This merger allows us to share internationally the framework that UpS had created," she wrote (email, November 22, 2014). "Sacred Seeds brings with it the knowledge of [its founders].... [T]o have Tom Newmark, Steve Farrell, Dr. Michael Balick, and Dr. Rainer Bussmann join the intellectual mission of UpS is incredible." Similar to the founding of Sacred Seeds, the UpS Botanical Sanctuary Network started with the Goldenseal Botanical Sanctuary in Rutland, Ohio, and now includes gardens in 31 US states as well as two Canadian provinces.

As part of the organization's continuing efforts to conserve valuable medicinal plants, UpS recently published a "Plants at Risk" Tool and assessment guide, in addition to its "At-Risk" and "To-Watch" Lists. The tool and guide are focused primarily on plants

in the United States, but Dr. Leopold hopes that the new partnership with Sacred Seeds will allow the project to go global. "[The List] has helped bring awareness and more sourcing of cultivated plant material when possible," she wrote. "We hope to work with international Sacred Seeds gardens to help establish regional lists of at-risk and to-watch plants."

Plants with traditional and medicinal uses face dwindling population numbers due to a number of environmental factors and human activities, including overharvesting, destruction of habitat, an increased



Sara Newmark, Director of Sustainability at New Chapter. Paul Schulick, Susan Leopold & Tom Newmark, discussing Sacred Seeds at Expo West.

herbivore population, and drought. Such factors emphasize the importance of conservation-focused organizations such as UpS and Sacred Seeds. "We all know the cultural and physical landscape is changing rapidly," Dr. Leopold wrote, "and we need the ethnobotanical tool box to reverse the loss of plant knowledge and the rapid extinction of native medicinal and sacred plants."

"All of us at Sacred Seeds are thrilled that Dr. Susan Leopold and her team at United Plant Savers will now be administering our international project," wrote Tom Newmark, chair and co-founder of Sacred Seeds (email, December 8, 2014). "We are deeply grateful to Ashley Glenn and the William L. Brown Center at the Missouri Botanical Garden for their foundational work on behalf of our project, and we look forward to their continued collaboration. We need to establish more Sacred Seeds sanctuaries around the world; indeed, our founding mission was to have sanctuaries in every life zone around the world, and by connecting them in an open network help to preserve both plants and traditional knowledge. We're well on our way, and through this confederation with UpS we expect a rapid build of our international network."

The collaboration between the two organizations was made possible through support from New Chapter® supplement manufacturer, a key sponsor of Sacred Seeds Sanctuary.

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# American Ginseng Summit

by Glynis Board, West Virginia Public Radio

*United Plant Savers was honored to host the 2014 American Ginseng Summit at our Goldenseal Botanical Sanctuary in Rutland, OH where we discussed safe-guarding wild populations of American ginseng, as well as protecting the American ginseng export industry and creating a domestic market. Below is the write up of the NPR radio coverage. You can also listen to this program with a link from our website.*



Attendees of The American Ginseng Summit

Ginseng annually brings millions of dollars in revenue into Appalachia. But its future as a revenue option, or even its existence at all in these parts is far from certain. Growers are struggling to conserve the plant and ensure the vitality of the industry. Those concerns, as well as new research that sheds light on the therapeutic qualities of the plant were discussed at the 2014 Ginseng Summit.

A small gathering of key stakeholders in the ginseng industry gathered at the Goldenseal Botanical Sanctuary just outside the small town of Rutland, in Meigs County Ohio, to discuss important topics surrounding the medicinal root.

About 35 gathered, including producers, buyers, government enforcement agents, and academics to discuss relevant topics within the ginseng industry. United Plant Savers hosted the summit. Susan Leopold, the medicinal native plant conservation group's executive director, said there are two main goals of the summit, both focused on conserving the plant:

Conservation through cultivation; encouraging people to grow American ginseng on their wood lots.

Promoting a national conservation plan that looks at protecting wild populations of genetic diversity throughout ginseng's range.

Folks at the 2014 Ginseng Summit were also working to find ways to collaborate among themselves to develop and align best practices to sustain their agro-forest business.

Demand for ginseng root in Asian markets has fueled the ginseng industry since the 1700s when the plant was discovered in North America. Since then, an ever-increasing demand has landed the plant on a list of endangered species, alongside things like ivory and shark and mahogany—species that are carefully monitored to ensure that international trade doesn't threaten their survival.

## Threats to the Industry

It's hard to convince forest owners to endeavor to cultivate and promulgate ginseng since it requires a 5-10 year time investment to legally harvest roots, and without much organization throughout the industry, there's little assurance for producers that the investment will pay off.

## Lack of Industry Alignment

Eric Burkhart, one of the organizers of the Ginseng Summit and the program director of plant science at Shavers Creek Environmental Center at Penn State University, says there's very little awareness in this country that the ginseng industry even exists in North America, let alone the threats it faces.

Burkhart has been working over the past several years to determine how to better align state programs with the growing ginseng industry, working to address grower concerns, as well as those of regulators.

Current regulations are designed to safeguard the plant's existence in the wild:

- You can't harvest a plant that is younger than five years old.
- You can't harvest except when the berries are ripe, red, and ready, themselves, to be planted.
- You must have all roots certified with approved dealers.
- The rules vary from state to state.

Burkhart points to the maple sugar industry as an example of an agro-forest business that is well-organized, working with agriculture colleges and other organizations to develop robust programs not only around research but also economics and branding and appropriate involvement of government agricultural departments.

Ginseng, he says, is still considered a fringe product in the states where it's exported, so growers struggle with very basic things like the ability to harvest their crop whenever they deem it appropriate versus being bound to regulations designed for wild harvesters.

## Plant Extinction

Habitat fragmentation and loss, as well as pressures that come with it like overgrazing from inflated deer populations increasingly threaten ginseng occurring naturally in the wild.

## Poaching

With such a high demand for ginseng, a very cautious and protective culture exists among producers. That's exacerbated by the prevalence of poaching. It's difficult to enforce anti-poaching laws. Right now, poachers must be caught red-handed, more or less, to face prosecution. The recent television show *Appalachian Outlaws* is thought by many within the industry to have glorified the practice of poaching off of private and public land.

## Ban on Wild Exports

In Canada the sale of wild ginseng is already illegal. Experts like Burkhart believe a ban on the sale of wild ginseng is imminent in the United States given the rapid decline in populations. He and others are working to prepare for such scenarios, creating a certification process for those who cultivate ginseng in wild-simulated environments.

## Expanding Market

Ginseng is big medicine here in the states and especially in China according to Holly Chittum a researcher from Maryland University's Integrative Health department who has done a lot of work researching forest-grown medicinal plants.

She explains that Western (Allopathic) medicine already classifies ginseng as an adaptogen, meaning it modulates functions in the human system like hormones and immune responses.

"The theory is – and there's a lot of research behind it that really supports it," Chittum said; "[ginseng] helps your body deal better with the stress response on a cellular level so that you have more energy, but you also sleep better; it also helps to level your mood; if your immune system is working too hard, then it would modulate that down, and if your immune system needs a boost, it would bring it up."

Chittum is hopeful that a more robust market will develop in this country.

## Research

Marla McIntosh, professor in the Department of Plant Sciences and Landscape Architecture at the University of Maryland at College Park, studies the genetics of American ginseng.

Studying and comparing ginseng populations that span various geographical regions throughout the

country, McIntosh was able to determine genetically different variations of the plants. Among those differences, she found various levels of the bioactive components, called ginsenosides, from region to region.



A wonderful arrangement that formed from our summit: Mountain Rose is the first company to now sell [Verified Forest Grown](#) ginseng with 5% of the proceeds being donated to United Plant Savers

"This is very important because the different ginsenosides have different modes of action," McIntosh explained, "For example, some ginsenosides are known to promote cell growth and would help in heart diseases, whereas others are known to inhibit growth and these would be helpful for applications in cancer therapy."

McIntosh says given the genetic testing procedures and technologies available today, conservation efforts need to be aimed at preserving not simply the plant, but also the genetically diverse populations, which stand to benefit us in ways we've only just begun to understand.

“When we take a view of the vast number of vegetables with which our country is adorned, we must candidly acknowledge that our acquaintance with their medicinal properties, is extremely limited indeed. The investigation of their uses is the arts and as medicines, is an object of importance to society. **There is perhaps, no portion of the globe that has been more highly favored by nature in esculent and medicinal vegetables.** The *Podophyllum peltatum*, *nicotiana*, *spigelia* and what has been emphatically called the vegetable antimony, the *Eupatorium perfoliatum* are medicines not inferior to any yet discovered... I have made a feeble attempt to investigate the properties and uses of the *Sanguinaria canadensis*, a plant peculiar to our country...”

Reverend John Andrews, Dissertation University of Pennsylvania 1803

# Fragrant Fragrances Are Essential Oils Sustainable?

by Jen Landry, Dipl. ABT (NCCAOM)

As a community striving for a holistic healing paradigm, herbal practitioners need to be fully conscious of the ecological consequences of the products we use and promote. An extravagant amount of resources is necessary for the cultivation, harvest, distillation, and global distribution of essential oils. In a few cases, global demand is driving some plant species to the brink of extinction. Like so many of the privileges we First-Worlders enjoy, the substantial ecological costs of essential oils are hidden. On a planet burgeoning in population and limited in natural resources, these oils should be used sparingly.

Essential oils have gained widespread popularity in recent years, their use and appearance in a wide array of consumer and therapeutic goods skyrocketing. Concentrated plant essences stimulate deep breathing, positive feelings, and the release of tension and anxiety. Numerous studies support the efficacy of essential oils for a range of conditions from skin disorders to headaches to treating antibiotic resistant bacteria. Essential oils are used in products as varied as candles, perfumes, cosmetics, bath and body care products, vitamins, candies, and processed foods. Therapeutically, they are increasingly used for self-care by individuals and professionally by massage therapists, herbalists, aromatherapists, and nurses in hospitals.

It often takes hundreds of pounds of plant material to make one pound of essential oil (as a visual reference, this is roughly 16 fluid ounces). Companies reach extensively across the globe to slake their sizeable needs. For example, one pound of essential oil requires:

\* 50-60 pounds of eucalyptus (*Eucalyptus globulus*).

One company's sources are Australia, Tasmania, Brazil, California, China, India, Portugal, Russia, and Spain.<sup>1</sup>

\* 200-250 lbs of lavender (*Lavandula* spp.). Sources include Bulgaria, England, France, USSR, Yugoslavia, Australia, USA, Canada, South Africa, Tanzania, Italy, and Spain.<sup>2</sup>

\* 2,000 lbs of cypress (*Cupressus sempervirens*).

\* 5,000 to 10,000 pounds of rose blossoms (*Rosa* spp.). Primary cultivation sites for one company include France, Tasmania, Spain, Italy, England, and China.<sup>3</sup> (These figures are averages gleaned from numerous sources; figures vary among companies.)

## Land Resources & Carbon Footprint

Modern monoculture farming techniques are typically used to grow the substantial quantities of plant material needed to produce essential oils,

with large swaths of land dedicated to that single species. Intense mechanization, heavy fossil fuel reliance, synthetic fertilizers, intensive irrigation—the unpleasant panoply of modern agribusiness practices is utilized to ensure optimal oil production of crops. In many parts of the world arable land is becoming

scarce. As global citizens we have not learned how to equitably distribute vital foodstuffs, and water resources are heading toward a crisis. I feel there are deep ethical concerns about devoting croplands to essential oils destined for use in first world luxury products such as scented candles, bath oils, perfumes, massage, and for spa purposes.



Rose (*Rosa* spp.)  
<http://zmchip.com>

Fossil fuels are again required for the heat distillation process. Typically, plant materials are heated above two hundred degrees from 2-24 hours to extract various oils. Chemical solvents may be used in other cases, which pose their own concerns of toxicity for people and the environment.

Steam distillation is not suitable for the delicate fragrances of rose, tuberose, gardenia, lily, jasmine, and frangipani flowers. A process called "enfleurage" employs fat as the primary saturation medium for these fragrances, which are later extracted into alcohol. Since the time of the Egyptians, animal fats have been the most cost effective and accessible substance for this process. Animal fats may raise more than a few ethical hackles, but unfortunately modern times have provided another cheap and increasingly ubiquitous fat source that is one of the environmental tragedies of our time – palm oil. Vast swaths of tropical rainforests have been razed to create palm oil plantations, particularly in Southeast Asia, endangering wildlife, disrupting indigenous communities, and contributing to global warming. Species such as the orangutan, Asian elephant, tiger, and Sumatran rhinoceros are threatened with extinction. The Union of Concerned Scientists warns that nascent standards for "sustainable" palm oil are not nearly strong enough, and critical issues in its production are not being addressed.<sup>4</sup>

## Threatened & Endangered Species

For those essential oils that are derived from wild harvested species, questions of sustainability are more disturbing. Some species are at risk, particularly those occupying dwindling habitats such as tropical forests. We all hope that botanical knowledge will help spare tropical forests, but unfortunately that does not seem to be the reality that is playing out. Impoverished rural residents will often do whatever is necessary to earn money and survive. Cropwatch,



an independent watchdog organization for the natural aromatics industry, has published a list of threatened species<sup>5</sup> (See partial list at end). Species such as rosewood (*Dalbergia* spp.) and sandalwood (*Santalum* spp.) are particularly at risk due to the long regeneration cycle of these trees. Despite these known threats, some brands continue to wild source these oils.

There is not an international standard for the term "sustainable harvest", let alone enforcement. A few companies have gone to great lengths to promote sustainable harvest practices, but threats from illegal logging, smuggling, and lack of funds seem to plague these efforts.



Sandalwood (*Santalum* spp.) <https://farm5.staticflickr.com/>

## Purity

Many botanicals are not available 'organically grown'. Fortunately, it appears uncommon for herbicides and pesticides to be used in the cultivation of essential oil crops. Nevertheless, in countries with low environmental standards, or agricultural sites compromised by proximity to industrial areas or traffic arteries, pervasive air, soil and water borne pollutants can lead to products of questionable purity. If these compounds are present in raw botanical material, what happens when this material is concentrated? The closer each of us is to touching, growing, harvesting, and processing plant materials, the more we can be assured of their quality, as well as fair labor practices.

Many unsubstantiated claims have been made about essential oils. According to Cropwatch, there are no standards for "pure", "therapeutic grade", or even "organic". The Organic Consumer's Association (OCA) has been working to promote organic standards for the bodycare industry, but states, "The word 'organic' is not properly regulated on personal care products as it is on food products, unless the product is certified by the USDA National Organic Program."<sup>6</sup>

AFNOR certification and what that actually means is best discussed in the article, "The 'Therapeutic Grade' Essential Oils Disinformation Campaign"<sup>7</sup>.

## Safety

As an herbalist I want people to be excited and passionate about plants. Yet, the combination of passion and enthusiasm does not always translate to wise action or outcomes. Due to the highly concentrated nature of essential oils, they no longer resemble the whole herb. Essential oils have warnings similar to many harsh household chemicals or hazardous substances and have special requirements for their safe disposal; i.e., they should never be put down a drain where they can enter the water supply or impact vegetation or wildlife.<sup>8,9</sup> Several herbs which

are very safe and commonly used in their whole form, such as cinnamon (*Cinnamomum* spp.), thyme (*Thymus* spp.), or marjoram (*Origanum majorana*), can be quite irritating to the skin when applied as essential oils. A Taiwanese study of lavender, eucalyptus, and tea tree oils (*Melaleuca alternifolia*) disconcertingly found that these essential oils can produce harmful indoor air pollutants such as volatile organic compounds (VOCs) and other secondary pollutants.<sup>10</sup> Essential oils are flammable, several cause photosensitivity, others are made from plants known to contain toxins, and a few are even carcinogenic. Cropwatch's Tony Burfeld wrote an excellent paper to the National Association for Holistic Aromatherapy on this topic.<sup>11</sup>

Essential oils are generally not considered safe for use:

- internally
  - undiluted directly on the skin
  - on children
  - on pets
  - by pregnant women before the first trimester.
- Only the safest oils should be used by pregnant women.

Essential oils are safest used in dilution; twelve drops in one ounce of carrier oil is effective for adults (this is referred to as a 2% dilution).<sup>12</sup> Using essential oils in higher concentrations has not proven to be more effective; it is simply a waste of precious resources. Essential oils need to be stored in a cool place. They do have a shelf life which varies depending on the type of oil; resins generally last only 2 years while other essential oils may be fine for twenty years.<sup>13</sup> As with all botanical materials, oxidation can degrade and deteriorate what was once vital. (Note: don't throw the old oils away—just don't use them on your body. They will make a great cleaning agent around the house. But be careful how you use them, as they can dissolve plastic and rubber.)

## Alternatives to Essential Oils

I have used essential oils in my practice and in my first aid kit, but based on these concerns I have drastically reduced their presence. If we are going to use essential oils, I believe we should truly consider them as precious, not a drop to be squandered. I have come to the realization that an essential oil is often like 'using a sledgehammer to crack a nut'. There are a myriad of less resource intensive and more locally available

therapies that will achieve the same end effectively and more safely. Wildcrafters or herbalists gathering or growing plant materials for a small local market are generally going to be more sensitive to plant

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Frankincense (*Boswellia* spp.)

population dynamics than those harvesting for a global market.

Essential oils are often used to support emotional well-being. As we all know, the real change comes not from an external fix but from the changes we make within

ourselves and our lives. Slowing down, sharing quality time with supportive friends or family, simplifying our lives to decrease stress, truthful communication, and addressing and working on our emotional shadows and wounds are at the root of healing and transforming ourselves.

Despite the appeal of 'miracle' cures and fixes, those things outside of ourselves such as essential oils, herbs, reiki, or flower essences only play a supporting role to the hard inner work of transformation. Flower essences are an exponentially more sustainable approach to plant medicine, as they use small amounts of plant material very efficiently and rely on the sun for extraction. They are a more local solution for those seeking herbal support for emotional healing. Relying on the synergy of local plants benefits not only our local community — local plants share our environment, are exposed to the same environmental stressors that we are and have adapted themselves to thrive in these conditions...which means they possess and offer to us the energetic strengths we need.

There are many common problems from anxiety to skin imbalances to headaches to sore muscles to allergies where essential oils may be proposed. A little research will likely reveal another therapy more appropriate for the well-being of our bodies and the planet.

### Before choosing essential oils these are the important questions to ask:

Is there a less resource intensive therapy? Is there a more locally produced therapy? How much do you really know about the essential oil? What is the safety data particular to this essential oil?

### If you are going to buy an essential oil:

Is there a Latin name on the oil to verify the species? Where on the earth is it coming from? Does it come from a threatened species? What methods are used to extract it? What are the claims associated with this oil? Are there scientific studies supporting the indications for which you are using it?

Below is an incomplete list of essential oils and herbs to avoid due to threats to the species (mostly summarized by common name or genus, however some threats are species and/or location specific).

### For detailed information, go to the **Cropwatch Threatened Species List:**

- Rosewood oil
- Frankincense oil (*Boswellia* spp.)
- Amyris oil (*Amyris balsamifera*)
- Sandalwood oil
- Thyme oil (*Thymus moroderis*, *T. baetigis*, *T. zygis gracilis*)
- Jatamansi oil (*Nardostachys jatamansi*)
- Chaulmoogra oils (*Hydnocarpus wightiana*)
- Gentian (*Gentiana* spp.)
- Kenyan cedarwood oil (*Juniperus procera*)
- Himalayan cedarwood oil (*Cedrus deodora*)
- Cedar atlas oil (*Cedrus atlantica*)
- Agarwood (*Aquilaria* spp.; *Gonystulus* spp.)
- Greater wormwood oil (*Artemisia gracilis*)
- Anise scented myrtle oil (*Anetholia anisata*)
- Havoso tree oil (*Ravensara anisata*)
- Origanum oils (species include *Origanum barygli*, *O. dictamus*, *O. vetter*)
- Buchu oils (*Agathosma betulina*, *A. crenulata*)
- Cinnamon oils

### Recommended Reading:

Links to high quality educational materials, sources of essential oils, associations and scientific studies: [www.greenscentations.com/aromatherapylinks.html](http://www.greenscentations.com/aromatherapylinks.html) (Mindy Green is an aromatherapist, herbalist, author and lecturer. She is an advocate for the wise use of essential oils. She used to work for Aveda Corp. and founded a line of essential oils.)

Cropwatch is a highly regarded, independent watchdog organization for the natural aromatics industry. They have extensive materials and a "Pesticides in Essential Oils" database.

[www.cropwatch.org/index.htm](http://www.cropwatch.org/index.htm)

"The Adulteration of Essential Oils – and the Consequences to Aromatherapy & Natural Perfumery Practice", Tony Burfield

[www.cropwatch.org/cwfiles.htm](http://www.cropwatch.org/cwfiles.htm)

"Conservation and Aromatherapy—Is There A Problem?" by Dr. Keith Shawe

[www.users.globalnet.co.uk/~nodice/new/magazine/shawe/shaw.htm](http://www.users.globalnet.co.uk/~nodice/new/magazine/shawe/shaw.htm)

For a critique of Raindrop Therapy:

[www.naturesgift.com/aromatherapy-information/essential-oil-safety/rdt/](http://www.naturesgift.com/aromatherapy-information/essential-oil-safety/rdt/) and

<http://aromatherapycouncil.org/?p=44>

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# Pre-Colonial New England Landscapes

by Rachel Ross

Imagine the “forest primeval” as described by Longfellow in his well-known poem. What do you see? We often imagine the pre-colonial New England landscape as a vast forested space broken up only by bodies of water and granite rock outcrops.

Poets and painters have given us images of an untouched pristine landscape made up of towering giants and understories devoid of vegetation. Yet, the pre-colonial landscape was shaped by many influences—some better understood than others. We are most familiar with the “natural” influences. Beaver activity created ponds and marshland. As water stagnated over time, shallow ponds would fill in with marshland plants.

Severe storms created clearings along hillsides and shorelines. Natural fires cleared mountain tops and hillsides. Significant storm events occurred every 85 years on average and lesser events occurred every 5-10 years (Foster, 2001). These occurrences do not explain the landscape mosaic that we found 400 years ago.

We don't consider the participation of man in nature as part of the ecology of our natural world. However, the role of indigenous people who inhabited the land since the melting of ice from the last ice age, over 10,000 years ago, did have a role in the shaping of the natural landscape.

What was their influence? To what extent did they affect the topography, the landscape, and the species growing in these places? Does in fact our pre-colonial landscape reflect a different kind of human activity – that is one where food plants and medicinal plants were managed?

David Foster (2004) estimates that 75,000 indigenous peoples inhabited New England for thousands of years. Historical accounts written by early colonists in the early 1600s tell of the widespread use of fire by native peoples which makes it certain that the landscape was influenced by human activity (Foster, 2001). The extent of the use of fire has been controversial among scholars. However, no one disputes that fire was used to manage and shape the landscape for their needs.

While, it is discussed that burning was used to favor wildlife habitat and clear land for villages and agriculture, the literature is scant concerning the use of fire to manage wild foods and plant medicines. One paper; “The Pristine Myth: The Landscape of the Americas in 1492” (Denevan: online: 2015) discusses the significance of Native American use of fire to favor the “gatherable foods” such as blueberries, raspberries, and blackberries. Nuts were also favored by burning fire tolerant oak and chestnut tree forests (Foster, et al 2001). Denevan (online 2015) supports my notion that plants were saved, protected, planted and perhaps transplanted, in addition to being managed to support food and medicine resources.

Native Americans used the trees, understory woodland plants, and plants from wetlands and from dry open areas for medicine. While many important medicinal plants grew in mature woodlands, a significant number



Restored Williamsburg court & palace greens with surroundings [www.history.org](http://www.history.org)

required human intervention in order to be maintained. Undoubtedly, the pre-colonial landscape was a complex mosaic due to, not only natural events, but also due to human activity of notable significance.

*Rachel Ross is a botanist, herbalist, certified nurse-midwife, and owner of her small local herb business, Hillside Herbs. Current interests include preserving native plant medicines and their habitats and medicinal herbalism for women and infants. Rachel lives on a five-acre hillside of mixed forest, gardens, and abandoned meadow in Central Massachusetts.*

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# Disjunct Medicine: *A History of the (Two) Mayapple(s)*

by Sasha M. White

When Europeans came to North America, the mayapple (*Podophyllum peltatum*), also called mandrake, raccoon berry or wild lemon, was one of the earliest plants to be noticed. Samuel Champlain noted Huron tribes eating the fruit in 1616, and shortly thereafter it was collected and cultivated in gardens in Europe. Linnaeus gave the plant its official scientific name, *Podophyllum peltatum*, in his 1753 publication *Species Plantarum*. A perennial herb native to moist woodland edges from southern New England south to Georgia and west to Texas, mayapple became popular not just for its beautiful flower, edible fruit, and horticultural novelty, but also for the medicinal properties of its root.

Medical theory of the 17th and 18th centuries relied on balancing the "humors", or secretions of the body, to treat disease. Purgatives, bloodletting, sweating, and vomiting were general remedies for all types of illness. The dried or roasted rhizome and roots of mayapple were used by some Native American tribes as a purgative, and the medicine was quickly adopted by early American doctors to treat various types of fever, dropsy, rheumatism, and syphilis. As an indigenous herb, mayapple could replace expensive foreign remedies, such as ipecac (*Cephaelis*

*ipecacuanha*) and jalap (*Ipomoea purga*) and also avoid the deleterious side effects of mercury (Barton). In the 19th century Eclectic practitioners developed disease-specific remedies and began using mayapple as a low-dose alterative for glandular disease, rheumatism, chronic hepatitis, and atonic conditions of the digestive system. They also used the compound resin derived from mayapple as a stimulant to the sympathetic nervous system of the solar plexus, to normalize secretions in such afflictions as diarrhea, constipation, gallstones, and gastric catarrh (Felter).

This compound, popularized as podophyllin, became the first commercially produced botanical medicine (Haller).

Along with other herbaceous members of the Berberidaceae found in Eastern North America, mayapple was for many years believed to be the sole member of its genus. In 1824 a second species of mayapple was discovered growing in Asia. *Podophyllum hexandrum* syn. *P. emodi*, the Himalayan mayapple, grows in small, widespread populations in the alpine regions of Northern India, Pakistan, Bhutan and western China. Like American mayapple, it has a single flower, ranging from white to pink, born between two lobed and peltate leaves. Both produce an edible fleshy fruit, the American most often yellow, the Himalayan red. Unlike the American species, which varies in both petal and stamen number, Himalayan mayapple consistently has six petals and six stamens and blooms before its leaves are fully open. And while American mayapple grows in large, clonal, generally self-incompatible colonies, spreading by its stoloniferous rhizomes, the Himalayan species is self-pollinating. This characteristic is believed to have evolved when the Himalayan Mountains lifted the mayapple into an alpine zone depauperate in spring pollinators. An effective reproductive strategy for the long-range dispersal of fruits eaten by birds and herbivores, it has also created the great morphological variation documented between the Asian populations (Xiong, Nag).

The two mayapples, one Asian, one American, are part of what is known as the Eastern Asian-Eastern North American Floral Disjunction. In the 1800s, as Western explorers gained greater access to Eastern Asia, their botanical collections displayed a stunning similarity to the flora of Eastern North America. The two regions share more closely related species and genera than either does with Europe, Western North America, or Western Asia. Based on collections made in Japan, botanist Asa Gray outlined the first theory of the EA-ENA Disjunction in 1849. The theory continues to be refined to present day through interdisciplinary research in botany, paleobotany, phytogeography,



As early as 1731 Mark Catesby described the medicinal use of American mayapple root in his *Natural History of the Carolinas*. Image courtesy of the Lloyd Library & Museum.

geology, chemistry, and palynology. Generally it is believed that beginning around 50 million years ago a vast, deciduous boreo-tropical forest spread across the Northern Hemisphere, utilizing land bridges across the North Pacific and the North Atlantic Oceans.

During subsequent climatic periods of cooling and glaciation and geological shifts, such as the collision of India with Asia and the rise of the Rockies in America, the forest shifted its range, changed, diversified and, in some places, went extinct (Tiffney, 1985).

Eastern Asia and Eastern North America remained relatively hospitable to these ancient plants and hundreds of closely related taxa, now isolated from each other, continued to evolve and grow in these regions. The two mayapple species, called "sister species", are believed to have diverged from one another around 6 or 7 million years ago, concomitant with the rise of the Himalayan Mountains (Xiong).

Many of the plants that are part of the EA-ENA Disjunction have been used similarly in the traditional systems of medicine in their regions (Duke). Himalayan mayapple is called "bakra" in the vernacular and is thought to be a traditional bile-expelling plant of Sanskrit writings; its fruits are eaten as a mild laxative and for female reproductive issues (Arora). In the 1890s colonial administrators and pharmaceutical companies in British India began exploring the economic possibilities of Himalayan mayapple, hoping to supplant the American domination of the European market for podophyllin. Chemical assays of the Asian root were promising, reporting two to three times the amount of podophyllin as compared to the American mayapple (Thurston). But the remote, mountainous habitat of Himalayan mayapple made the cost of harvest and transport too high to be profitable and the market for it was slow to develop (Chatterjee).

Mayapple is not a medicine to be used without caution. The fresh root is a violent, sometimes fatal emeto-cathartic, used among some Native American peoples for suicides and poisonings (Erichsen-Brown).

Even dried, a large dose can be fatal. In early American medicine its purgative or cathartic doses were usually modulated by the addition of such botanicals as hyoscyamus (*Hyoscyamus niger*) and belladonna (*Atropa belladonna*) to dull the pain of intestinal griping (Felter). The Physio-Medicalist William H. Cook came to eschew the use of mayapple almost altogether. He describes it in his 1869 Dispensatory as a powerful stimulant to the secretory organs, useful perhaps in moderation for atony of the digestive organs, but exacerbating and debilitating even in

small amounts to disease states. It is escharotic to the skin, and workers with the powdered drug have reported severe inflammation in mucous membranes and other sensitive areas. This property has been put to use both historically and contemporarily

as a topical treatment for various types of skin lesions including genital warts (Hartwell). In 1947 mayapple was investigated for its anti-cancer properties and was found both to be anti-tumoural and to cause toxic side effects in the patient. By the late 1960s, semi-synthetic drugs, such as etoposide and teniposide, were being derived from podophyllotoxin, one of the lignans found in podophyllin and mayapple. These anti-cancer drugs have mitigated some, but not all, side effects. In addition to possible gastrointestinal distress, studies have shown that podophyllotoxin is damaging to the bone marrow, liver, and central nervous system, as well as teratogenic and detrimental to the development of the fetus. Still, these drugs are being used extensively and effectively against cancers of the lymph, lungs, brain, breast, and testes (Arora).



Victor Jacquemont's Voyage dans l'Inde of 1844 established the scientific name for Himalayan mayapple. Image courtesy of the Lloyd Library and Museum.

Anti-cancer drugs are now the driving force behind the wild harvest of mayapple. In 1970, 130 tons of American mayapple were dug from the wild (Meijer). The higher amounts of podophyllotoxin found in the Himalayan species, however, quickly shifted pharmaceutical manufacturers' interest to Asia.

Today, far from being the "abundant" and "plentiful" plant promoted by British colonial administrators, Himalayan mayapple is an endangered species. It is listed in the *Convention on International Trade in Endangered Species Appendix II*, along with goldenseal (*Hydrastis canadensis*) and American ginseng (*Panax quinquefolius*) (both of which are also part of the EA-ENA Floral Disjunction). These plant species may not be immediately threatened with extinction, but it is feared they soon may be if their trade is not closely regulated. Despite this status, Himalayan mayapple's dwindling wild populations continue to be the main pharmaceutical source of podophyllotoxin.\* Harvest data are difficult to obtain, as the market from digger to buyer is secretive, but Asian Internet wholesalers offer supply abilities of Podophyllum extract of up to 10 tons per month. With 50 plants of Himalayan mayapple required to make a single kilogram of dried root, the harvest rates are "well over natural regeneration" (Rai, Nadeem).

One recent author lamented the disappearance of plants from their Himalayan study populations: in the area of Prashar the average number of plants per

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# Florida's Threatened Herbs

by Emily Ruff

Some 450 miles long and kept humid by the ocean on either side, the state of Florida supports plant species from temperate to tropical, coastal to wetland to upland. Boasting a melting pot of exotic plants naturalized from far away, this region also features an impressive array of native medicinal species. The climate variations of Florida support rare habitats of tropical and subtropical plants found nowhere else in North America.

For this reason, when one wanders into a bookstore and picks up an average book on herbal medicine, many of the temperate herbs featured within the pages will only survive in Florida in a controlled garden. Conversely, few of these herb books cover the vast array of tropical medicinal plants found in the Sunshine State, which weave together a rich tapestry of culture, heritage, and tradition from across the globe.

Practicing bioregional herbalism in Florida is a trailblazing craft. Many temperate plants such as mullein (*Verbascum thapsus*), pleurisy root (*Asclepias tuberosa*), lobelia (*Lobelia inflata*), and skullcap (*Scutellaria lateriflora*) have tropical cousins with similar, if distinct, medicinal actions to their temperate counterparts. Much of our apothecary is a cobbling together of various cultures; a veritable melting pot of materia medica with herbs ranging in origin from the Caribbean to South America to Asia.

Resourceful herbalists can find granny healers in the nooks and crannies of immigrant sections of towns in Florida to share personal experience about these plants, but many rely on tropical ethnobotanical books from the likes of James Duke and Julia Morton to gain an introduction to these medicinal plants. We also take cues from the plants themselves, which even in their relative anonymity will often call to us from backyard gardens and nature trails, begging us to grab our botanical key, confirm an accurate identification, and begin to dig to discover any historical evidence of medicinal use. Even still, many herbalists – myself included – go so far as to travel to other countries to learn the traditions of these species from an unbroken lineage and begin to lay a foundation for a new bioregional practice in the sunny south, rooted in the rich history from where these plants come.

Only two of the United Plant Savers "At-Risk" herbs – Virginia snakeroot (*Aristolochia serpentaria*) and sundew (*Drosera* spp.) – occur in Florida. (Eight others can also be found – but only at our northernmost border with Georgia.) Partridgeberry and pleurisy root from the UpS "To-Watch" List also make their way down to Florida, but none reach past subtropical zones.



Wild cinnamon (*Canella winterana*) flowers

This isn't to say that Florida doesn't hold many ethnobotanical gems in need of our conservation efforts. In fact, over fifty plants on Florida's official state Endangered Species list have historical medicinal uses, many within tropical cultures of the Caribbean Islands or Central America. A majority of these

species are found within tropical zones of South Florida, and about half occur in the endangered pine rocklands habitat.

Pine rocklands is a biome of moist tropical and subtropical broadleaf forests atop limestone substrate that occurs in southern Florida, the Florida Keys, and the Bahamas. The unique combination of limestone ridge and ocean breeze creates a habitat that supports diverse plant life. The pineland forests, interwoven with hardwood hammocks, once covered 185,000 acres of south Florida's Miami area. Thanks to the rampant development of this region for urban and suburban settlement, only about 20,000 acres remain, and much of what remains is largely within the protective border of the Everglades National Park. Over 225 types of native plants occur in the pine rocklands ecosystem, and more than 20% of the plant species are found nowhere else in the world.

This sensitive habitat came under even greater threat from development last summer, as the University of Miami has sold 80 acres of pine rocklands to a developer to launch a multi-use complex including a Walmart, apartment complex, and various retail establishments. A few months later, an additional 60 acres of this threatened biome was sold to a developer to build a theme park called "Miami Wilds."

Thankfully, US Department of Fish & Wildlife has stalled development plans, pending proper surveys of the area for endangered flora and fauna, but the pressure of cancerous rates of urban sprawl continue to threaten this rare ecosystem. Florida herbalists are currently cataloging the medicinal uses of some of these rare species, in hopes that by lifting up their medicinal virtues, we can lend to the voice of support and protect this exquisite habitat and its unique medicinal herbs.



Narrow-leaved betony (*Stachys tenuifolia*)

## Tropical Medicinal Plants with Florida Endangered Status

*Adiantum* spp. – Maidenhair fern  
*Alvaradoa amorphoides* – Alvaradoa  
*Canella winterana* – Wild cinnamon  
*Cyrtopodium punctatum* – Cowhorn orchid  
*Guajacum sanctum* – Lignum vitae  
*Polygala smalli* – Tiny polygala  
*Pseudophoenix sargentii* – Sargent's cherry palm  
*Spiranthes* spp. – Ladies' tresses  
*Stachys tenuifolia* – Narrow-leaved betony  
*Thelypteris* spp. – Creeping star fern  
*Torreya taxifolia* – Florida torreya  
*Vanilla* spp. – Vanilla orchid

Emily Ruff is Director of the Florida School of Holistic Living and organizes the Florida Herbal Conference. You can connect with her work in Florida at [HolisticLivingSchool.org](http://HolisticLivingSchool.org) or [EmilyRuff.com](http://EmilyRuff.com)



Creeping star fern (*Torreya taxifolia*)

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quadrant decreased from 2 to .6 over the course of two growing seasons (Nag). Attempts at cultivation of this alpine plant have been hampered by poor seed viability and germination, as well as a maturation time of anywhere from 6 to 12 years from planting to harvest of marketable rhizomes (Krishnamurthy, Troup). The uses of tissue culture and fungi to synthesize podophyllotoxin are still in early stages of investigation (Chaudhari).

Possibly, what may save Himalayan mayapple is the American mayapple. Recent assays on the leaves of the American species report levels of podophyllotoxin in some populations equal to or greater than the amounts found in the Himalayan roots. Growers are finding American mayapple does not require the use of shade cloth and that it thrives under cultivation (Moraes). Thus, it could provide a renewable source of podophyllotoxin and allow for the recovery of the Asian species. Simultaneous to cultivation efforts, the restoration of savanna and fire-dependent woodland ecosystems would also ensure that wild American mayapple populations have ideal habitat, increasing fruit set and genetic diversity (Erichsen-Brown, Crants). Mayapple has graced the earth for millions of years. If protected from overexploitation, these sister species, one of alpine meadows, one of open woodlands and savannas, will continue to give us powerful medicine.

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# Seeking the Silvestre Romero in Spain

by Susan Leopold

I landed in Spain for the International Congress of Ethnobotany, and as serendipity would have it, the hotel I had booked was in a small square located in what was once the Jewish/Arabic part of Cordoba. Next to my hotel was the only remaining synagogue that was not destroyed when the Jews were forced to leave around 1200. This particular square was dedicated and named after Maimonides, a Sephardic Jewish philosopher, who was also a famous doctor and wrote several herbal treaties on Greek and Arabic medicine. He was also famous for his writings on the afterlife and resurrection.

In regards to my state of consciousness, I now felt connected to the ancient scholars of regional medicinal plant knowledge that were influenced by the convergence of many cultures—Roman, Arabic, Jewish, and Christian. Among the orange trees (*Citrus* spp.), geraniums (*Pelargonium* spp.), and aromatic plants Cordoba is a labyrinth of narrow streets that are reminders of over 2000 years of cultural history reflected in the architecture, art, and archeology. Maimonides had now become my spiritual guide through this maze from which to tap into the complexity of plant alchemy and philosophy. Being of Jewish heritage on my father's side, I seemed drawn to the archeological remains of the synagogue as a moment in time when Cordoba was a thriving vortex of plant exchange, because even though it was under Muslim rule, it was at one time tolerant of minorities and therefore a very thriving free thinking society. Cordoba in the 10th century was the center of trade as the most populous city in the world, and famous for its libraries, botanical gardens, medical schools, and philosophers.

In 1992 the first Ethnobotanical Congress was organized at the Cordoba Botanical Gardens, which also contains an impressive Ethnobotanical Museum, the School of Ethnobotany, a seed bank, a phenomenal Paleobotany Museum, and an overwhelming collection of living plants—all found in one inspiring location. Now the conference had returned here with topics such as biological and cultural diversity to face global change; traditional knowledge as world heritage or legacy; international framework of transfer of species and popular knowledge among cultures and continents; recovery of knowledge and plant

germplasm through historical documents; role of neglected and underutilized crops; role of cultural landscapes and agroforestry systems in the conservation of the ethnobotanical heritage; and plants used as food and medicine. I enjoyed reuniting with the founders of the Institute for the Preservation of Traditional Medicine, meeting many Spanish ethnobotanists working hard to reverse loss of local ecological knowledge, and connecting with Jose Farjardo, the founder of the Rock Rose Ethnobotanical Tours and local expert on esparto. El esparto (*Macrochloa tenacissima*), is an endemic grass found in Southern Spain and Northern Africa that has a human history of 7,000 years of use. This unique grass has found its way into every aspect of human use, and in return it was consistently replanted, keeping the desert at bay and exemplifying human, plant, and ecological interactions. The Congress itself was stimulating in regards to important research being presented and further signifies the important role ethnobotany serves in addressing critical environmental challenges, such as the loss of local ecological knowledge.

Leaving Cordoba was difficult, but I was on a mission headed north to meet Rosa Boyero, an herbalist that Rosemary Gladstar had recommended I visit. Natalia Fernandez had agreed to host me and introduce me to Rosa, so I took the train north to Girona. After listening to many talks at the Ethnobotanical Congress, I was anxious to meet a practicing herbalist, visit her botanical sanctuary, and to get a sense of the current state of herbalism in Spain.

We arrived at the 500-year-old stone farmhouse that had been inhabited by a known herbalista and that had then sat vacant for years before Rosa and her family began to re-inhabit the space. Breathing life back into the house is symbolic of the revival and interest in medicinal plants that is taking place in Spain. Rosa, a self-taught herbalist, talked about going to the local fairs and markets with her oils, creams, salves, and tinctures and sensing the people's apprehension about her remedies. The once popular Boticas (herb shops) have the bones of the old apothecaries but are now filled with pharmaceuticals that have replaced the formerly common herbal remedies. Rosa, like many of us back in the States is a witness to and participant in the revival of local herbalism.



Susan Leopold among the wild rosemary



Statue of Maimonides  
Cordoba, Spain



As I sat in Rosa's herbal workshop, her love for the healing plants from the steep hillside behind her house was as intoxicating as the aromatic plants that hung from her ceiling. This forest was once an olive grove that has now reverted back to a diverse landscape. Wild rosemary (*Ledum palustre*) and thyme (*Thymus serpyllum*) were abundant underneath a canopy of very old olive (*Olea europaea*) trees and oaks (*Quercus* spp.), most notably the cork oak (*Q. suber*).

Personally there was a bit of disbelief in a forest thick with wild rosemary that she described. I had arrived at Rosa's home as the sun was setting, so instead of wandering up into the mountains, we went to see her essential oil workshop. Rosa talked about the ideal time to harvest the rosemary for distillation, when the sun has drawn the oils to its peak. Spain is known for its concentration of aromatic medicinals, and this is why it has been a dream of mine to experience this aromatic landscape first hand. For an herbalist of this area the medicine is hidden in the oils extracted as hydrosols and essential oils to then make salves, sprays, or, in the case of the thymes the simplicity of tea or soup. The thyme soup is what saved the people after the Spanish civil war. Its simple ingredients fed many in time of great need. Water warmed with olive oil, and then combined with toasted old bread, thyme, and eggs made for a nourishing traditional food I was delighted to experience.

Late into the evening after soup Rosa told me the history of the Trementinaires. These were the women who would collect pine resin and other medicinal plants of the forest in the winter. They would often leave their families behind taking with them a daughter to teach not only the collection but also the routes. After making various medicines from the collected resins, they would take long journeys to various regions, visiting towns and trading the resin-based medicines. These preparations would be used for inflammation, as expectorants for winter colds, and a cure-all for farm animals as well. Rosa talked about how she learned these stories from her grandmother, who told her how wintertime is when we will see the Trementinaires visit. This was a way for these women to make money in the winter to support their families and to trade for other important household needs. This history is rich in the herbal tradition of Northern Spain and speaks to the role of women in the traditional ecological knowledge of native plants.

Women who become immersed in the history of Spain cannot escape the time of the inquisition. It is a painful history, where the most horrific torture devices were designed specifically for women, especially those who

practiced with rituals and had a deep relationship with nature. It is in many ways incomprehensible what this time period was like for those who had to live through it. Rosa told me that the iconic concept of the black pointed witch's hat perhaps has its roots in the women who wore tall hats that depicted the mountain formations from which they came. Even today, despite this horrific history, there still survives the ancient celebration of the Day of San Juan, June 23rd, near the equinox. This is a day when people would burn the herbs that had not been used in the previous year. It is also a time when people go out into the countryside to engage in the collection of over 100 different herbs to make the traditional Catalanian Ratafia. This is an anise-based liqueur with many wild herbs to which a few green walnuts is added for color. This digestive aid and overall tonic is then consumed throughout the year. This practice also reminds me of the Dominican Republic's Mama Juana, another famous regional herbal elixir made with rum, red wine, honey, and several medicinal tree bark and herbs.

Rosa, who is also a beekeeper allowed me to taste two unique honeys. The first was made of the green pine cone that had been sliced and soaked in honey for many months. This honey, used to treat coughs and colds had a unique citrus taste. The second honey was made with the "oreja de oso" (*Ramonda myconi*), a wild herb of the forest that is also used to treat coughs and colds.

The one plant that I work with intensively on my farm in Virginia that is also found in this area of northern Spain is elderberry. In Spain black elder (*Sambucus niger*) is the native species, and they use primarily the flowers to make various remedies and the bark for teas. Though I know the flowers are medicinal as well, I primarily use the berries to make syrup from American elder (*S. canadensis*). The berries of *S. niger* are only used to make jams and not perceived as medicinal. It is always fascinating to learn how similar species from various regions are perceived and to think about how European and American herbalism have cross-pollinated not only in the sense of which parts of the plant are used but also how they are used in various cultural contexts.

The next day we wandered up into the hills behind Rosa's house, and it turned out to be true that a wild forest of rosemary did indeed exist. We foraged for wild chanterelles, found an old abandoned



Tiled image of a Botica/Pharmacy Cordoba, Spain



Rosa Boyero in her apothecary



# “AT-RISK” & “TO-WATCH” LISTS

## Statement of Purpose

For the benefit of the plant communities, wild animals, harvesters, farmers, consumers, manufacturers, retailers and practitioners, we offer this list of wild medicinal plants which we feel are currently most sensitive to the impact of human activities. Our intent is to assure the

increasing abundance of the medicinal plants which are presently in decline due to expanding popularity and shrinking habitat and range. UpS is not asking for a moratorium on the use of these herbs. Rather, we are initiating programs designed to preserve these important wild medicinal plants.

### “At-Risk”

**AMERICAN GINSENG**  
*Panax quinquefolius*

**BLACK COHOSH**  
*Actaea (Cimicifuga) racemosa*

**BLOODROOT**  
*Sanguinaria canadensis*

**BLUE COHOSH**  
*Caulophyllum thalictroides*

**ECHINACEA**  
*Echinacea spp.*

**EYEBRIGHT**  
*Euphrasia spp.*

**FALSE UNICORN ROOT**  
*Chamaelirium luteum*

**GOLDENSEAL**  
*Hydrastis canadensis*

**LADY'S SLIPPER ORCHID**  
*Cypripedium spp.*

**LOMATIUM**  
*Lomatium dissectum*

**OSHA**  
*Ligusticum porteri, L. spp.*

**PEYOTE**  
*Lophophora williamsii*

**SANDALWOOD**  
*Santalum spp. (Hawaii only)*

**SLIPPERY ELM**  
*Ulmus rubra*

**SUNDEW**  
*Drosera spp.*

**TRILLIUM, BETH ROOT**  
*Trillium spp.*

**TRUE UNICORN**  
*Aletris farinosa*

**VENUS' FLY TRAP**  
*Dionaea muscipula*

**VIRGINIA SNAKEROOT**  
*Aristolochia serpentaria*

**WILD YAM**  
*Dioscorea villosa, D. spp.*

### “To-Watch”

**ARNICA**  
*Arnica spp.*

**BUTTERFLY WEED**  
*Asclepias tuberosa*

**CASCARA SAGRADA**  
*Rhamnus purshiana*

**CHAPARRO**  
*Castela emoryi*

**ELEPHANT TREE**  
*Bursera microphylla*

**GENTIAN**  
*Gentiana spp.*

**GOLDTHREAD**  
*Coptis spp.*

**KAVA KAVA**  
*Piper methysticum (Hawaii only)*

**LOBELIA**  
*Lobelia spp.*

**MAIDENHAIR FERN**  
*Adiantum pendatum*

**MAYAPPLE**  
*Podophyllum peltatum*

**OREGON GRAPE**  
*Mahonia spp.*

**PARTRIDGE BERRY**  
*Mitchella repens*

**PINK ROOT**  
*Spigelia marilandica*

**PIPSISSEWA**  
*Chimaphila umbellata*

**RAMPS**  
*Allium tricoccum*

**SPIKENARD**  
*Aralia racemosa, A. californica*

**STONEROOT**  
*Collinsia canadensis*

**STREAM ORCHID**  
*Epipactis gigantea*

**TURKEY CORN**  
*Dicentra canadensis*

**WHITE SAGE**  
*Salvia apiana*

**WILD INDIGO**  
*Baptisia tinctoria*

**YERBA MANSA**  
*Anemopsis californica*

## Ramps Now on the “To-Watch” List

by Susan Leopold

### Time to Ramp Up Conservation Efforts

Last spring trespassers dug trash bags, laundry baskets and buckets full of ramps (*Allium tricoccum*) from the woodland ravine of Goldenseal Sanctuary neighbor, Diane DonCarlos. Fortunately police responded to a call from Diane, and they were able to track down the ramp thieves. When the police returned some of the stolen ramps, Diane was able to replant them back in the holler further from the road in hopes they would be protected next spring. Diane's rich ramp holler has been targeted each spring, and she says over two acres of her land have been completely poached of all ramps. Though we know there are many ethical harvesters, there is also sadly an epidemic of drug use and poverty that has plagued rural Appalachia, and ramps (like ginseng) provide a means to an end. Sadly this was the case in Diana's story, and the police were able to track the poachers because they were already multiple offenders. This is just one story of many coming from the craze for ramps in rural Appalachia. At this time there is no way of knowing where ramps are being harvested, and no efforts are in place to track ramp populations, except for a few unique studies looking at regional populations.

Ramp festivals are a rich cultural and economic component of rural areas, as well as a wonderful celebration of a spring medicinal plant, as are other wild greens that are important for cleansing the system after a long winter's diet of what was traditionally meat and

stored foods. The recent increased interest in wild foods has created an unsustainable demand on a vulnerable native medicinal species that is being predominately harvested from the wild. Lawrence Davis-Hollander, ethnobotanist wrote back in 2011 that at least two million plants of wild ramps were harvested that year based on average harvests of various ramp festivals and online sales through wholesalers.<sup>2</sup> Many botanists and ecologists from various conservation organizations and state and federal agencies were reporting on the declining population of ramps.<sup>3</sup> These concerns prompted the New York State Department of Environmental Conservation back in 2012 to work on a plan that would monitor wild ramp populations, develop guidelines for plant conservation practices and further fund initiatives that would find solutions to ramp conservation to ensure protection from over-harvesting and also work to develop a supply for restaurants and festivals.<sup>4</sup> The following recommendations were made after the completed study: that the harvesting of wild ramps should be limited through a harvesting permit program, cultivation should be encouraged, and educational programs must be put in place to make people aware of the issues created by over-harvesting and to expose them to the basics of plant conservation.<sup>5</sup> Thus, it makes sense that the Ramp Fest of the Hudson has pioneered a wonderful solution –



[www.rampfesthudson.com/images/pdfs/Glynwood\\_flyer.pdf](http://www.rampfesthudson.com/images/pdfs/Glynwood_flyer.pdf)  
2015 Ramp Fest will be on May 12

## Sustainable Harvesting Practices:

**1) ONE LEAF PER PLANT:** Harvest only the leaves, and leave some ramps fully intact. Rather than cutting off all the leaves from a bulb, take only one leaf per plant. This will leave a leaf for photosynthesis, allowing the plant to continue to grow and reproduce (without any leaves, the plant could go into dormancy). Digging up whole ramps not only reduces ramp population and prevents reproduction, but a disturbance to the soil disrupts its ecology and lets invasive plants become established.

**2) LEAVES ONLY PLEASE:** Maintaining our ramp supply will require a transition to a “leaves-only” approach. Ask your ramp vendor to consider changing their practices to those described above so that ramps will grow for years to come.

Also, consider that we need to compensate responsible harvesters fairly for maintaining the growth of ramps in their region by paying a price for the leaves as if the root is still attached.

**3) GROW THEM:** We can continue to enjoy ramps while allowing them to proliferate in the wild. Ramps can be cultivated, either by growing plants from seed or by transplanting bulbs.

It is important to highlight that the Cherokee have used the method of only harvesting the leaves for centuries and that it has been documented that Europeans also use this method of only harvesting the leaves for the *Allium ursinum* native to Europe and Asia.<sup>7</sup> Native Americans used the leaves to treat colds and only used the bulbs as a purge, and a tonic was used to treat intestinal worms.<sup>8</sup>

In New York *Allium tricoccum* var. *burdickii* is listed as endangered, and harvesting is forbidden. The status of ramps in Tennessee is that they are of special concern and considered commercially exploited. In Maine and Rhode Island they are also given the status of special concern.<sup>9</sup> Ramps are protected in Quebec and are legally protected in Gatineau Park since 1980;<sup>10</sup> they even have a toll-free hotline for people to report theft of ramps. In spring of 2002 the Great Smoky Mountains National Park banned the collection of ramps after a 5-year study indicated a decline in the park’s ramp populations.<sup>11</sup> The study provided insight that once a patch was extensively harvested it could take up to 20 plus years to recover.<sup>12</sup> The observations from the study documented that ramp harvesters collect their quotas from one patch, leaving a few individuals to provide seed to regenerate the patch.

Last year United Plant Savers used its “At-Risk” Tool to evaluate the conservation concern in regards to ramps.



Stolen ramps that were returned to Diane DonCarlos

it is the first leaf-only festival, meaning that only the ramp leaves, not the bulbs are sold and cooked at the festival. This ensures the most sustainable harvesting method possible. If other ramp festivals were to also take notice of the success of the Hudson Ramp fest, this effort could have a huge impact on ramp conservation while still supporting rural economic benefits.

United Plant Savers supports three key components to protect ramps and ensure future viability of populations that the Hudson Ramp Festival has pioneered.<sup>6</sup>

# 2014 AWARD

Dr. Lisa Castle

— Recipient —



Kelly Kindscher (KU) & Lisa Castle, recipient of 2014 Medicinal Plant Conservation Award. Photo ©Erika Galentin

*Dr. Lisa Castle receives the 2014 Medicinal Plant Conservation Award in recognition of her work in launching the United Plant Savers “At Risk” Assessment Tool*

Dr. Lisa Castle, was formally recognized as the recipient of United Plant Savers 2014 Medicinal Plant Conservation Award at our Planting the Future Conference in Lawrence, Kansas. We are indebted to her and eternally grateful for her work and her critical role in the publication and launching of United Plant Savers “At-Risk” Assessment Tool.

Lisa Castle, a plant ecologist, currently teaches biology at Southwestern Oklahoma State University. A lifelong lover of plants, her official interest in medicinal plants started in fifth grade when she wrote a school research paper on “Medicinal Uses of Herbs in Colonial America” at about the same time she planted a perennial herb garden in her parents’ backyard. Her work with United Plant Savers began in 2000 when she started working with Dr. Kelly Kindscher at the University of Kansas to develop an assessment tool used to compare medicinal plants based on their vulnerability to overharvest. Over the next fourteen years, she worked with herbalists, herb growers, the UpS board, biology students, and other ecologists to create, test, refine, and publicize the tool.

The tool, now called the UpS “At-Risk” Assessment Tool, is a way of “comparing echinacea to dandelions” with a numerical score indicating how vulnerable a species is to overharvest. Scores are based on answers to questions about a plant species’ life history traits, reaction to harvest, population size, as well as distribution, habitat, and demand. The United Plant Savers will use species’ scores to update the “At-Risk” and “To-Watch” lists. The tool is transparent, making it easy to learn why a plant is vulnerable and to make appropriate conservation measures (e.g. a species with an unusually high demand will require different strategies than one with a particularly imperiled habitat). The tool is adaptable, and scores can be modified as conditions change or new information is learned. Other users can use the tool to assess local vulnerability or to model how a species score might change if demand, habitat, or land use changes. Working with scientists from the University of Kansas and United Plant Savers, Lisa Castle authored the paper describing the tool, reporting the scores of the first forty plants scored, and describing case studies of plant scores, published in May 2014 in

*Ethnobiology Letters*. We encourage you to view and download the free PDF of the publication and visit the interactive tool and documents online: [www.goldensealsanctuary.org](http://www.goldensealsanctuary.org)

Beyond helping UpS and other conservation organizations set priorities, Castle sees great value in using the tool to raise awareness about medicinal plants and plant conservation and as a teaching aid. Over 60 undergraduate students in her Botany and Plant Taxonomy classes at Glenville State College and Southwestern Oklahoma State University have individually scored plants using the tool. They’ve reported being surprised at how many plants are used medicinally, about how little is known about basic population biology of many plants, and about how much craziness they can find on the internet. The students have gone on to create scientific posters presented at West Virginia Academy of Sciences, Oklahoma Research Day, and Society of Ethnobiology Annual Conference. Lisa has presented about using the tool to teach botany at meetings of The Society for Economic Botany, The Society of Ethnobiology, and Planting the Future: Prairie Medicine and Botany 2014. Some of the education posters continue to circulate, having been seen at the American Council for Medicinally Active Plants Meeting and at the 11th International Herb Symposium, as well as the walls of the Kansas Biological Survey and webpage of UpS.

Outside of the tool, Lisa Castle’s interest in plant conservation is both academic and personal. She has studied population dynamics of prairie turnips, a native edible legume, in order to determine a sustainable level of harvest. She’s helped count *Echinacea angustifolia* following harvest and has introduced students to the under-studied world of plant populations as they monitor populations of invasive trees and native vines with medicinal potential. She spent four summers on the Crow Reservation in Southern Montana helping Crow Healer Alma Hogan Snell write her plant use book, *A Taste of Heritage*. Castle believes strongly that increased awareness will lead to better information and knowledge, which can lead to better decision making that helps both plants and people.

UpS is honored by the commitment to medicinal plant conservation as demonstrated by Lisa Castle and her work on the “At-Risk” Assessment Tool, and we are grateful for her citizenship to the community of medicinal plant conservationists.

Ramps scored a high 50 (see our master score sheet in the article on the "At-Risk" Tool). Because ramps are a long-lived perennial that is slow to reproduce from seed, taking more than seven years to reach maturity, their life history makes them extremely vulnerable. The effect of harvest is also high because when harvesting the bulbs, you are taking the entire plant out of its population and creating fertile ground for invasive species. The abundance of ramp populations is unknown in most areas, but its range is wide, spanning throughout Appalachia, and therefore they received a moderate score on our Tool.

Although in the wild they are mostly found in damp wooded hollers among other sensitive at-risk plants, they do have the ability to grow in a variety of soil conditions, therefore the habitat and abundance scores were relatively low. The final category that looks at demand in the marketplace was high since we can track the increase in demand from the festivals, farmers markets, grocery stores, and restaurants. In June 2015, United Plant Savers Board of Directors voted to place ramps on our "To-Watch" List, and we will continue to gather additional data and then re-evaluate for potential listing on our "At-Risk" List.

Most evident in using our assessment tool is that we can greatly reduce the vulnerability of ramps being overharvested if we use the leaves instead of harvesting the entire plant. We cannot change the life history of ramps, but we can change the way we harvest them, and we can support those land owners who would like to grow ramps in their woods. Forest farming ramps to sell seeds, harvesting the greens, and selling the bulbs in small quantities for specialty foods and for replanting stock could make a huge difference in ensuring a rich cultural and ecological heritage is preserved for future generations.

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## UpS Welcomes Two New Board Members!

United Plant Savers is very pleased to welcome two new members to our Board of Directors, Todd Lynch of Ecotropy LLC and Melanie Carpenter of Zack Woods Herb Farm.



Todd Lynch is the principal of Ecotropy LLC, a design studio that integrates medicinal plants, ecology, and art to create outdoor healing spaces in order to strengthen and illustrate the connections shared by human and ecological health, and to empower people to take a more active part in their surroundings and their own well-being. Todd has collaborated on health and landscape restoration projects across the US and Canada, has won several design competitions and grants for environmental art installations, and is trained in landscape architecture, health care garden design, and community herbalism. He blogs about landscape, wellness, and medicinal plants on his website, [www.ecotropy.net](http://www.ecotropy.net), and his Twitter feed [@ecotropy](https://twitter.com/ecotropy).

Melanie Carpenter is the co-founder and co-owner of Zack Woods Herb Farm, a 10-acre organic medicinal herb farm in central Vermont. Melanie grew up at Sage Mountain. It was there with Rosemary Gladstar that Melanie started her first business, Sage Mountain Herb Products. Over the last 25 years she has continued her work as a medicinal herb farmer, mother, educator, and community healer. After serving as teacher and principal in the public school for the last 15 years, Melanie now applies her background in education, administration, and farming to develop and lead workshops on medicinal herbs and their production. With her husband Jeff Carpenter, Melanie is co-authoring *The Organic Medicinal Herb Farm* to be published by Chelsea Green Publishers in the spring of 2015. To find out more about Melanie and Zack Woods Herb Farm check out their website: [www.zackwoodsherbs.com](http://www.zackwoodsherbs.com) You can also follow them on Facebook: [www.facebook.com/zackwoodsherbs](https://www.facebook.com/zackwoodsherbs)



## 2014 EVENT STORIES

### Planting the Future: *Prairie Medicine*

by Erika Galentin

*“I was born on the prairies where the wind blew free and there was nothing to break the light of the sun. I was born where there were no enclosures.”*

– Geronimo

United Plant Savers couldn't have asked for a better venue to hold our Summer 2014 Planting the Future event. Hosted by the incredible efforts of the Kansas Biological Survey and the University of Kansas Field Station in Lawrence, Kansas, we were surrounded by innovation and dedication not only to preserving an ecosystem that is rapidly going extinct, but to a tradition of medicine that is also struggling to stay alive.

The University of Kansas Field Station, the biological field station of the University of Kansas, was established in 1947. The field station is composed broadly of 3400 acres in ten tracts that represent diverse habitats, such as tallgrass prairie, forests, and wetlands. Laboratories, gardens, and large-scale field studies on field station lands provide the platform for research and educational programs. Large tracts of native tallgrass prairie are being managed by fire, grazing, and haying that provide an interesting contrast of cause and effect, a mosaic of management outcomes. These tallgrass prairies support many prairie obligate species that

also have a long history of medicinal use, such as *Asclepias tuberosa* and many *Echinacea* spp. To learn more about the Kansas Biological Survey and the University of Kansas field station and how you can support their critical research, please visit: <http://kufs.ku.edu>

We were fortunate to invoke the wisdom and whimsy of Steven Foster, whose talk on the Human Impact on Medicinal Plants was wonderful and inspiring as usual. It had been many years since Steven had taken part in a United Plant Savers event, so we were more than thrilled to have him attend. In line with the topics of habitat and human impact, there were presentations on creating pollinator gardens (Jennifer Hopwood), prairie plant walks (Kelly Kindscher and Frank Norman), and a wonderful historical lecture on the pioneer gardens in Lawrence, Kansas (Laurel Sears).



Stephen Foster in action for the perfect shot

Rosemary Gladstar's keynote speech, regarding honoring traditions and maintaining a voice for traditional herbalism, rang the bell of a common theme for the event. Herbal medicine is 'the people's medicine', but it has also become 'the people's responsibility'. Where there is demand for medicinal plants, there will always be pressure on viable wild populations, and as consumers we must always be mindful and vigilant. She also spoke of preserving habitat and United Plant Savers Botanical Sanctuary Network Program.

There was a splendid component of local knowledge from presenters who have endowed themselves to the greater Lawrence, Kansas community as leaders in traditional medicine. Frank Norman, Ocoee Miller, Kahla Wheeler-Rowan, and Mehdi Khosh all presented on the medicinal use of prairie natives and invasives. There was also a brilliant and thorough lecture on medicinal plants of the prairie by Bevin Clare of the Maryland University of Integrative Health.

With over 200 participants, miraculous yet windy weather, and the steadfast support from our sponsors, Frontier Natural Products Co-Op, Herb Pharm, The Merc Co-op, and Lawrence Integrative Health, we could not have asked for a more fun, engaging, and fulfilling event. Photos have been posted on our Facebook page. We encourage you to check them out.



# Planting the Future Stewardship of Sanctuary

by Erika Galentin

The weather was literally 20 degrees warmer with full sun the day before our big event at the Goldenseal Botanical Sanctuary in Rutland, Ohio. We were still in set up mode the evening before as the grumpy cumulus clouds moved in and hoarded the sky, vowing cold, hard rain. But all hope was not lost on the incumbent weather, for when the temperature and rain both began to plummet, interspersing promises of sunshine were also breaking through, highlighting the autumnal mosaic like flecks of gold in stone and lifting our sense of hope with arching rainbows across the hollow.

The morning of the event brought our first hail of the season, but that was no match for the steadfast queue of visitors lining up at the registration table. One can only apologize for the weather so much, until it becomes clear that weather has never really stopped those who want to learn from the fields and forests (albeit it can be quite the deterrent).

Our morning session began with classes covering myriad topics including cultivating ramps (*Allium tricoccum*) with Tanner Filyaw of Rural Action and Herbal Beer Brewing, Medicine Making, and Landscape restoration with Todd Lynch of Ecotropy, LLC. One of the highlights of the morning was the 'Big Herbs Expedition' with Paul Strauss of Equinox Farm, who journeyed the meandering trail system of the Goldenseal Botanical Sanctuary with attendees to practice identifying trees by their winter characteristics and learning about their wildlife value and traditional medicinal uses.

Tim Blakley of Frontier Co-op was our keynote speaker and presented the most fascinating photographic narrative of his journeys around the planet in search of sustainably sourced raw materials for the herbal products industry. We learned so much about what 'sustainability' really means within the international marketplace, how to ask the right questions in regards to sustainable sourcing, and how to think critically about the products that we purchase as well as the ingredients within those products.

Our afternoon session was dazzled by a workshop on growing American ginseng (*Panax quinquefolius*), led by Eric Burkhart of Shavers Creek Environmental Center and Penn State during which attendees

had the hands-on opportunity to learn about 'wild-simulated' American ginseng and how to grow the species by identifying proper planting sites and planting techniques. While planting ginseng in our woods, they were also able to discuss some of the larger issues within the industry in regards to disease and pests, return on investment, trade regulations, and even illegal harvest. American ginseng seed used in the workshop was donated to United Plant Savers by Larry Harding of Harding's Ginseng Farm.



A prairie garden at Goldenseal Sanctuary

Ian Caton of Enchanter's Garden, a native plant guru based out of West Virginia, also led an incredible workshop on seed collection, seed saving, and preparing seed for overwintering and spring propagation. Ian led attendees around the prairies of the property teaching them native plant identification and seed collection techniques. Participants of this workshop were able to collect seed to save and plant on their own properties in the spring.

The afternoon also hosted workshops from Dawn Combs of Mockingbird Meadows; Eclectic Herbal Institute presenting on sustainable herbal medicine and rediscovering common native medicinal plants; and Amanda Duren of Ohio Bird Conservation Initiative who presented current research regarding forest management techniques for improving habitat conditions for native forest birds of Ohio. Attendees listened to bird song recordings and then toured through the woods to explore prime bird habitat at the Goldenseal Botanical Sanctuary.

United Plant Savers would like to thank our gracious and generous sponsors: Herb Pharm, Frontier Co-op, American Herbalists Guild, [LearningHerbs.com](http://LearningHerbs.com), Rural Action, and the National Forest Foundation. We would also like to thank Chelsea and crew from Chelsea's Real Food of Athens, Ohio for the amazing lunch, dinner, and breakfast and for having hot tea and coffee on a cold, dreary morning. We would also like to thank The Hammond Trio of Athens, Ohio for enchanting our campfire with lovely and uplifting melodies of good ol' Appalachian bluegrass music! We would also like to thank Chip Carroll, our intern coordinator, and our Fall 2014 interns for their incredible support and assistance in preparing for and coordinating the event.

# UpS Botanical Sanctuary Interns

## Creating Change Throughout the World

submission from UpS Fall Interns, 2014

We came from Savannah, Philadelphia, New York City, and Texada Island, BC. We brought with us some knowledge and basic experience in the making of herbal medicines. Most importantly, we all came with a keen desire to absorb whatever the Sanctuary had in store for us. Almost by definition, one needs to be at a crossroads in life to embark on an adventure such as the six-week United Plant Savers internship program: to take time off work schedules and rent payments, or to leave loved ones and brimming gardens in the August harvest. There are times in life that avail themselves for such things. As the continent from where we each came is wide and varied, so were the sights, sounds, and feelings we were to share in for the next six weeks.

Each of us, in one way or another, had a deeply meaningful experience at the Goldenseal Sanctuary. We learned about plants and plant conservation; about community through working with and depending on one another; and about ourselves by indulging our curiosities and embracing individuality. The "green spark", acceptance, and gratitude were the underlying themes of the transformative time we spent in Rutland, Ohio.

The Sanctuary is a truly awesome landscape of hills and hollows, meadows, gardens, and ponds. Having rebounded from years of strip mining and extractive practices due to the vision and hard work of Paul Strauss and others, the land has a particularly special resonance due to this community of folks dedicated to preserving the indigenous flora and fauna, which make the region unique. The Sanctuary, laced with trails that wind around and even through a great variety of deciduous trees, also boasts a fabulous, diverse understory of plants. We spent many happy hours wandering with teachers, each other, or simply ourselves, occupied with identifying, learning from, and listening to the life all around. We had the good fortune to learn from several members of the community, but especially from Chip Carroll, the intern coordinator of UpS and our leader, who is both a kind person and natural teacher. He brought us through the trails of the Sanctuary, led work projects, introduced us to the community, made sure that we were taken care

of, and encouraged us to try new things—always with a story to tell or something to teach us. We learned that jewelweed (*Impatiens capensis*) blocks the receptor sites for poison ivy (*Rhus toxicodendron*); that buckeyes have "plaity" bark, and shagbark hickory is a home of bats. Black cohosh (*Actaea racemosa*) has a three pronged stem and



Interns getting lost in the woods at Goldenseal Sanctuary

can tolerate some sun if there is lots of water; the yellow stem of blue cohosh (*Caulophyllum thalictroides*) persists after she has found her way back to ground. The red oak family boasts pointy leaves while white oak leaves are round; the tulip tree is the straightest tree in the woods, and peanut butter removes sap. We learned that it takes seven to ten years until wild ginseng (*Panax quinquefolius*) can be harvested and about the large amount of fungicides needed to maintain the intensive ginseng monocrop operations in North America. Hornbeam is a lever wood used to yoke oxen together. Pawpaw (*Asimina triloba*) leaves smell like diesel and look like a dog tongue; and slippery elm (*Ulmus rubra*)

has hairy Velcro leaves. There is a ghost hiding in the bloodroot (*Sanguinaria canadensis*). We learned about wide vision and how to fox walk in the woods and to put passionflower (*Passiflora incarnata*) in our red wine and the intense relationship one could have with a single herb.

We watched the beauty of a percolation cone and the "setting up" of salves. We learned glycerin keeps some phytochemicals from precipitating; we weeded, raked, dug rocks, planted flowers to be, and harvested food the spring interns had planted. We collected seeds of ramps (*Allium tricoccum*), Indian grass (*Sorghastrum nutans*), rattlesnake master (*Eryngium yuccifolium*), and grey coneflower (*Ratibita pinnata*). We walked in the Hocking Hills caves and planted goldenseal (*Hydrastis canadensis*) in Wayne National Forest. We collected leaves, dug roots, and dried herbs. We learned that we are responsible to the plants we use and to share their teachings with our own communities.

Because of our mutual respect, flexibility, patience, and non-verbal agreement to share in the responsibilities of cooking, cleaning, and "taking care of business," the four of us formed a unique



bond throughout our time together. With the motto "You can do whatever you like" established early and repeated daily, we shared delicious food, assisted each other in learning, worked on the Sanctuary, swam in Heart Pond, and laughed a lot together. We built trust, which enabled us to have passionate and controversial discussions without taking offense at the differences in our opinions. We all felt that the opportunity to live well together was every bit as valuable as all of the many other things the Sanctuary had to teach and share with us.

Plant conservation is an important consideration of our time. Raising awareness, spreading education, and supporting conservation groups and botanical gardens are all great ways to participate. Everyone can create his or her own way to play a part. For us, our internship at the Goldenseal Sanctuary was a deeply meaningful experience that has encouraged us to both keep learning and to keep doing what we can to enrich our lives – directly or indirectly, large or small – through plant conservation work.



Interns keying out plants at Goldenseal Sanctuary

We take with us a wide description of herbalists and healing, an encouragement to be playful with knowledge, an increasing ability to be patient and to listen carefully with an open heart. We offer so much gratitude to the many teachers who gave so willingly and unselfishly of their time and knowledge, and to Susan and Erika for all of their work and magic behind the scenes. Thank you all.

We are most grateful to Chip Carroll, the intern program manager for his gentle and playful stitching together of the multifaceted quilt of plants, people, and community beside this small rural Ohio town of Rutland. With his gracious help, we are all now an intimate part of the web of life at this special Sanctuary. Not only has it woven its way into each of our hearts, it has bound us all together in a unique experience we will forever treasure.

*Katelyn Melvin, Leslie Goresky,  
Carly Amarant & Jessica Finizio*

*...United Plant Savers'...*

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## Meet Some of our New BSN Members!



United Plant Savers' vision is to see UpS Botanical Sanctuaries established in people's backyards, farms and woodlands, creating a living greenway of native medicinal plants across the landscape of America. A sanctuary isn't defined by size or magnitude, but as sacred space, a place where one can find protection and the peace and renewal of nature. Nor is a sanctuary necessarily designated or defined by government agencies or large organizations, though often we think of it as such. We can all create sanctuary on the land we care-take. As our Sanctuary Members are demonstrating, Botanical Sanctuaries can be created in small backyards as well as on large plots of wilderness, in towns as well as in the country. As you well know, it takes attitude,

willingness, and a desire to transform the way we value land, our assumptions about land use, and the way we design our gardens and farms. If we want to preserve wilderness and the wild populations that thrive there, we can't look to others to do it for us. We need to be willing to actively participate in the preservation and restoration effort, and as good a place to start as any, is in our backyards. And that is what you're doing. That is what the Botanical Sanctuary Network program is about.

Thank you to all Botanical Sanctuary Network members for being part of this vision and for your efforts to help preserve and restore the native landscape and our treasured medicinal herbs.

### MAGMELL FARM Landrum, SC Sanctuary Stewards: Alison Strever & Lindsay Strever

Forests are the focus in landscape management at MagMell Farm. Located in the gentle foothills of the botanically rich Appalachian Mountains, MagMell is currently a 57-acre mixture of forest, fields, wetlands, creek, and river. However, invasive non-natives, the innately high maintenance and low sustainability of mowing, and erosion issues from pummeling rainfall led us to decide this year to "let" much of the fields "go". With the exception of small areas where pleurisy root (*Asclepias tuberosa*) and passionflower (*Passiflora incarnata*) still maintain the upper hand, we are selectively allowing reforestation.

The old gardeners joke, "Q: When is the right time to plant a tree? A: 20 years ago" also applies to this more passive approach. It is rewarding to know that the emerging seedlings and saplings will make a forest in a couple of decades, providing a sheltering home for many creatures – and shade loving medicinals!

For although we have been inundated by noxious field invasives, our native and planted populations of endangered medicinal herbs have taken off with equal fervor! Pipsissewa (*Chimaphila umbellata*), partridgeberry (*Mitchella repens*), and rattlesnake plantain (*Goodyera pubescens*) have doubled in

a year, while plantings of goldenseal (*Hydrastis canadensis*), bloodroot (*Sanguinaria canadensis*), stoneroot (*Collinsonia canadensis*), Virginia snakeroot (*Aristolochia serpentaria*), and wild yam (*Dioscorea villosa*) have acclimatized nicely.

Studying the plants' natural processes of regeneration—where they self-sow, which ones seem to thrive together, etc.—has helped immensely. We follow their lead at every opportunity.

Our propagation areas and approaches reflect our focus upon the forest medicinals. The little greenhouse is now a shade house with new areas for cuttings and transplants, and we are experimenting with semi-raised beds by the creek. In a few very shady places we have thinned saplings and reduced understory for more light.

Similarly, we are tweaking our fertilization/composting methods to be more made-in-the-shade, with less emphasis on animal compost and more emphasis on composted forest material, such as leaf mold, composting leaves, and woody debris. Our two worm bins, however, remain pots of gold!

Finally, our year's goal of creating medicinal paths through MagMell is complete with very little human effort. We merely followed the paths the deer have made! Natural river stones bearing the names of the medicinal herbs are now along the paths, awaiting our spring workshop visitors!



# EDEN HYLL SANCTUARY

Natural Bridge, NY  
Sanctuary Steward:  
**Diane Tait**

In June of 2014, a very dear friend of mine and I had a drive near my sanctuary through a recent selectively logged woods. To our delight and amazement we came upon a patch of 23 pink lady's slippers (*Cypripedium acaule*) in bloom! They were gloriously reveling in the wonderful sunlight let in from the thinning of the forest canopy. I had noticed in Eden Hyll how these flowers in bloom always seemed to be in a spotlight of sun. It is no accident. These particular members of the orchid family can live to be a hundred years old and only ever flower five or six times. It all depends on the light.

For the past few years I've been diligently and carefully weeding out the tree saplings and seedlings in my woods, leaving the mature ones, thus opening up the forest floor. I'm thrilled by the results. Where I had maybe five trilliums in total when I first bought the property, in just seven years I now have three species of them blooming all across the slopes leading down to the pond. I did not plant them; they just came. The partridge berry (*Mitchella repens*) has spread, goldthread (*Coptis trifolia*) thrives everywhere, wild sarsaparilla (*Aralia nudicaulis*) abounds, and my imports of bloodroot (*Sanguinaria canadensis*), goldenseal (*Hydrastis canadensis*) and black cohosh (*Actaea racemosa*) are holding their own and starting to spread. Elder (*Sambucus* spp.) bushes have arrived and are already producing fruit. I noticed a staghorn sumac (*Rhus* spp.) down by the water this past year, and the blackberry (*Rubus* spp.) patches are thriving. Where I had only two mature cedars, I now have many four-seven foot cedars. The babies were there all the time, gasping for breath and struggling to find light. Luckily, I found them and gave them the room they needed. Oak trees are also appearing and growing quite quickly.

Seems like a small thing, sunlight and space, but it is quite a lot of work which requires persistence and diligence. Trees such as white pine, yellow birch and maple are bound and determined to have all the light and all the room. It's amazing what I find every spring as I do my few days of tree weeding and pruning, which I do again midsummer, as the suckers appear from the cut off trunks.

With this simple method I'm inviting more diversity of plants, shrubs, and trees into my sanctuary. I leave brush piles for the critters and I try to work within the rhythm of what is happening naturally. A human with tools, eyes to spot what needs to be done

and a stubborn, persistent nature can fast forward many good things. Gaia is always the master gardener; I'm the minion, paid in the beauty we are creating together. Being only 67 years old, I have many great years left to enjoy my sanctuary, but let's face it. Mother Nature can work faster with a little help from her friends, the two-leggeds. What a great team!



Lady's slipper (*Cypripedium acaule*)

*Diane Seufert Tait is the steward of Eden Hyll Sanctuary in Natural Bridge, New York. She has been a practicing herbalist since 1997 and also has extensive herb gardens, growing over 60 different medicinal plants, at her home in Greenwood, Ontario. Diane grew up in New York State and is very pleased to be back in the North Country, working and learning at the sanctuary. Diane can be reached at [dianeseuf@rogers.com](mailto:dianeseuf@rogers.com)*

## Goldenseal Sanctuary Update

by Susan Leopold



The Goldenseal Sanctuary (GBS) in Rutland Ohio has launched a unique website ([www.goldensealsanctuary.org](http://www.goldensealsanctuary.org)) and Facebook page.

This website features information about how to plan a visit and has information on the herbs, birds, trees, and trails; the internship program; news and events. The website is highlighted by two amazing short videos. The first is by Ryan Gebura of Canopy Creations, a Senior at Ohio University who filmed and edited this overview of the GBS. The second video is a look at our Internship/Medicinal Plant Conservation Certificate Program that was created by Genn and Marjolaine Axford of [www.our-common-roots.org](http://www.our-common-roots.org). We are hosting two programs with Rural Action: Birds and Herbs, May 9th and Growing American Ginseng: Insights, Methods, & Opportunities with Bob Beyfuss on August 8th. We will be doing a fall event TBA as well, so stay informed through our website and Facebook page.

# GAIA'S PEACE GARDEN

Iowa City, IA

Sanctuary Steward:

**Blair Frank & Mary Kirkpatrick**

I am Blair and I am rooted in Iowa City, Iowa in the heartland of the USA. I am married to Mary, who has visited Findhorn, Scotland—a place of beauty and enchantment that has deeply influenced Gaia's Peace Garden. Gaia's Peace Garden has unfolded from the inspiration of Mary's visit to Findhorn in 2008.

Gaia's Peace Garden is a member of United Plant Savers and designated as a Botanical Sanctuary and Monarch Way station. We are also so very happy to recently receive Herman's Garden Seed from Seed Savers in Decorah, Iowa. We envision Gaia's as a safe place for plants and people of all ages. This magical space allows visitors and co-creators to reconnect and learn about Gaia (mother Earth) as we learn to live sustainably and regeneratively with her. Mary and I live about 2 miles away and call our home the Rainbow Urban Homestead with gardens in front and back.

Presently at Gaia's there are medicinal and culinary herbs and flowers, indigenous prairie, annual vegetable areas, and a small orchard with berries and nuts and about 26 fruit trees. I am inviting people from a variety of backgrounds with an array of transition and co-creative gifts and talents to lead workshops for people of all ages.

There are several herbalists beginning to hold Herb Walks, and we intend to have regular fire pit gatherings to build community in 2015. A new community-building set of workshops entitled "Growing Food, Growing Together" will also be offered. We will begin to participate in Seed Savers Community Seed Resource Program and use their K-12 Lesson Plans!

Gaia's Peace Garden includes several benches and seating areas with a picnic area, a children's area

with many rocks and crystals, a 5-circuit labyrinth, and a fire pit. There are bluebird and bat houses that will soon be joined by our first bee hives this spring. There are many critters who are finding Gaia's to be a safe place for them. We operate on a sacred economics and gift resource economy with no commoditization or monetization of resources there. We are open for donations, and it is our intention to become a nonprofit organization.

We are happy to have a pre-school garden within our larger garden, and this has made our garden known to many local schools. The children are able to develop a personal, intimate relationship with growing food and herbs in a natural, playful setting. They experience great joy when biting into a snap pea or strawberry they grew with their own hands.

We use organic and permaculture gardening principles in all we do. I especially enjoy integrating healing with our gardens and co-creating gardens and alternative energy systems in urban areas. Come visit Gaia's Peace Garden sometime...where healing happens.

# WILDFLOWER SCHOOL BOTANICAL SANCTUARY

Austin, TX

Sanctuary Steward:

**Nicole Telkes**

We were excited to join the United Plant Savers Botanical Sanctuary network in the fall of 2014. Although the school has been in existence for almost 12 years, we joined the network only 6 months after acquisition of our new property for the school. The Wildflower School Botanical Sanctuary is situated on 8.5 acres, 30 minutes east of Austin, Texas. Rapid development in the area and use of surrounding land for ranching make the protection and stewardship of this particular property even more important for all of the wild creatures that now have safe harbor.

While we are still in year one, we have already implemented many plans and can begin to see the Earth responding to us. Director Nicole Telkes has a formal background in Environmental Resource Management she is eagerly applying. The plan for the sanctuary is to increase native biodiversity, construct permanent paths, and create permaculture zones of various activities from the house outwards. We are also creating some limited gardens using many bioregionally relevant techniques to deal with the 8 months of sun, heat, and regular drought. Another factor is the pumping of groundwater away from the area.

The property consists of .5 acre or so developed and about 8 acres raw and wild which open like a fan



Gaia's Peace Garden

south of the homestead. The land has a pond-like area near the houses that currently struggles to hold water in the sandy loam soil. There wild area drifts between open prairie and wooded areas mainly dominated by blackjack oak, elms, and some cedar, as well as lots of mesquite. Some of the interesting understory natives include holly, beautyberry and agarita. Interestingly, there is not much in the way of non-native invasive weeds, though some native plants like greenbriar, dewberry, cactus, and mesquite can be quite “weedy”. Again, the plan with the wild area is to increase diversity, to hold the weedier species in check. So far I have spread seed this winter of native chile peppers (*Capsicum* spp.), prickly ash (*Zanthoxylum americanum*), poke berry (*Phytolacca americana*) (limited areas), beautyberry (*Callicarpa americana*), goldenrod (*Solidago* spp.), gumweed (*Grindelia* spp.), horsemint (*Monarda punctata*), violet (*Viola* spp.), nettles (*Urtica* spp.), and a pound or more of native wildflower seeds into grassy disturbed areas. We are about to tag some of the natives and do species counts and pressings with students this spring.

On the developed area my husband and I have planted about 7 fruit trees so far and installed about 500 square feet of gardens. The gardens are both raised beds and sheet mulched. This spring we will be adding in wicking beds and bees. Our first gardens – winter ones consist of poppies (*Papaver* spp.), cilantro (*Coriandrum sativum*), sage (*Salvia* spp.), basil (*Ocimum* spp.), rosemary (*Rosmarinus officinalis*), fennel (*Foeniculum vulgare*), honeysuckle (*Lonicera* spp.), passionflower

(*Passiflora incarnata*), calendula (*Calendula officinalis*), thyme (*Thymus officinalis*), dill (*Anethum graveolens*), many types of food, and much more to come this spring. It is an exciting first year, and we will share photos as it develops.

Our little family friends and students happily share this space with owls, hawks, songbirds, woodpeckers, deer, raccoon, possum, armadillos, hogs, roadrunners, scorpions, walking sticks, frogs, toads, wild turkeys, rabbits, bobcat, coyote, and snakes. A mountain lion was also spotted in the area last summer.

## WINDSONG FARM

Honor, MI  
Sanctuary Steward:  
**Cindra Moore**

My land is family land. Acquired over 150 years ago, it sits high on a hill overlooking a lake in the Sleeping Bear Dunes National Lakeshore, one mile away.

I am the land steward of this very special and spiritual piece of property, once a native summer encampment. Honoring the land and its history, I am of Anishinawbeg descent and am the keeper of root medicines (badger medicine) that I grow on my farm.

I named my farm Windsong after an ancient native grandmother, who traveled from village to village and healed with her voice. Her presence is in the wind that comes over the farm every day.

I live comfortably in the house my great grandfather built, and in 2012 I turned a 100+ years old building into a rural clinic where I practice healing arts in the summer. ([www.joiedevivrearomatherapy.net](http://www.joiedevivrearomatherapy.net))

In 2014 I received a LLC for my farm as a center for learning ([www.windsongcenter.net](http://www.windsongcenter.net)) and held the first year of Medicine Women Gather circles/ meetings, May thru October. We gathered on the new moon or the Wednesday prior to share seeds, plant knowledge, wisdom, medicines, and stories. I have created an information guide ([www.medicinewomengather.net](http://www.medicinewomengather.net)), and my dream is to have Medicine Women Gather circles all over the world.

Being a medicine man or woman is a gift from spirit. Like being a natural born leader or teacher, one is born a healer and it's natural to live this truth. It's time to unite, support each other, our sacred Mother Earth, and her medicines.

I am honored to have my farm and work recognized and chosen as a valuable tool for learning through United Plant Savers as a Botanical Sanctuary.



Wildflower School: Front of House Winter Year One:  
Sheet Mulched Wildscape, 3 months old

# NATURE CARES NURSERY & BOTANICAL SANCTUARY

Colton, OR

Sanctuary Stewards:  
Jian Shi & Derun Ren

Nature Cares Botanical Sanctuary is located at the foothills of the Cascade Range near Mt. Hood National Forest. The property is bordered by Canyon Creek, which drains the green mountain slope to the south. Bee Creek intersects the northeast corner of the property. This 40-acre, square shaped piece of land originally was a private timberland, which was being clear-cut a few years ago. It was surrounded by rural residential development and Christmas tree farms. Despite its recent traumatic experience, this corner of the planet just became a living laboratory of building and learning the diverse and symbiotic relationships between plants, microorganisms, insects, animals, and people. We are thrilled to be a facilitator and an integral part of that interaction. It is a place to respect, honor, appreciate, reconnect, and savor nature.

As a small tract timber land, Douglas fir seedlings have been replanted on most parts of the Sanctuary. But nature has put bandages on this new wound with scotch broom (*Cytisus scoparius*), blackberry (*Rubus fruticosus*), St John's wort (*Hypericum perforatum*), mullein (*Verbascum* spp.), burdock (*Arctium lappa*), wild carrot (*Daucus carota*), plantain (*Plantago* spp.), and cleavers (*Galium aparine*). These invasive medicinal plants will not only heal the earth but also humans. We are planning to teach workshops regarding identifying and use of these plants as food and medicine so that we could efficiently and effectively manage these species without using chemical and mechanical interventions. A small patch of mature forest was not logged, probably due to its aesthetic shapes. We rejoiced for their precious

shade under the blazing summer sun. The shade is also appreciated by native species such as native elderberry (*Sambucus* spp.), huckleberry (*Vaccinium* spp.), trillium (*Trillium* spp.), Oregon grape (*Mahonia aquifolium*), and salal (*Gaultheria shallon*).

In order to control erosion and reduce soil compaction caused by prior heavy logging equipment, we are allowing weedy pioneer plants to grow on sites prone to erosion. Small scale swales are dug and logs are strategically located to lessen the impact of heavy runoff from the steep slope. We plant all our plants in fall and early winter to reduce transplant shock. After planting, we start composting with dead plant material on site around each cultivated plant. This practice will last from winter till mid-spring. Weeds are then cut from mid to late summer again to mulch cultivated plants. The goal of this practice is to reduce the need for irrigation as well as eliminate fire hazard during late summer to early fall. We are also inoculating the soil around plants with a diverse mix of bacteria and fungi, which will naturally help the plant to develop a strong root system, just like fermented food for our digestive systems. With the help of these beneficial microorganisms, just as for humans, these plants will strengthen their immune systems and increase nutrient uptake and ability to resist diseases and various stressors.

In conjunctions with weed control, we have been planting native species, such as western red cedar (*Thuja plicata*), Oregon ash (*Fraxinus latifolia*), Oregon white oak (*Quercus garryana*), Pacific dogwood (*Cornus nuttallii*), red alder (*Alnus rubra*), blue elderberry (*Sambucus cerulea*), evergreen huckleberry (*Vaccinium ovatum*), salmonberry (*Rubus spectabilis*), and Oregon grape. We plan to add more native medicinals in our landscape next year, such as cascara sagrada (*Rhamnus purshiana*), kinnikinnick (*Arctostaphylos uva-ursi*), tall Oregon Grape, yarrow (*Achillea millefolium*), and yellow monkey flower (*Mimulus guttatus*). We will also add American ginseng (*Panax quinquefolius*), goldenseal (*Hydrastis canadensis*), slippery elm (*Ulmus rubra*), and trillium as the first group of "At-Risk" herbs in our Sanctuary. We will keep working on increasing the biodiversity with a focus on introducing "At-Risk" North American native medicinal plants. We want to gradually introduce in our Sanctuary all "At-Risk" and "To-Watch" North American herbs that will adapt to our climate. Our goal at the Sanctuary is to establish a seed and plant depository for our nursery and UpS, as well as a local resource for our line of nutritional, medicinal, and functional produce and products.

As a Chiropractic and Clinical Massage clinic, the main focus of our practice is manual therapy. Through practicing, we noticed that our current scope of practice is so limited. Most of the time, we



View of Mt. Hood from the Sanctuary

are treating symptoms instead of the source of the problem. We started realizing that human health is the reflection of the health of our ecosystem. As Gaia theory has suggested, the forest (lungs of earth), the wetland and bogs (liver of earth), and the springs, streams, and rivers (circulatory system of earth) are under serious attack with modern industrial, agricultural, and forestry practices. Now, the lungs of earth are weakened by diseases, the liver of earth is loaded with toxins and slowly disappearing, the circulatory system of earth is clogged and contaminated, and the body of earth is suffering. We see the same thing happening with ourselves as the result of practices of modern medicine, as well as the explosive expansions of modern industrial and agriculture activities all over the world. By implementing responsible plant medicine such as conservation through cultivation, we believe that we are not only taking care of our patients, but also taking care of the planet as well, as all living beings call her home. Nature cares about lives big or small as well as ecosystem with plant medicine, and so do we. We have faith that with efforts guided by the wisdom of nature, we can remedy the continuous destruction of our own health and the health of our planet.

We are planning to provide workshops at least once a month either through our clinic, our nursery, educational institutions, community center, library, or field trips to the Sanctuary. We plan to add our own line of herb products in the future, and provide educational workshops on the conservation and use of native medicinal plants, use of invasive medicinal plants, natural health, nutrition, permaculture, organic gardening, etc. When opportunity arrives, we would like to collaborate with educational institutions on research regarding cultivation of "At-Risk" native medicinal plants in the manner of providing a field laboratory and necessary resources. Since the Sanctuary will be managed based on permaculture principles, we are hoping that the resulting growing conditions will mimic that of the wild population. We hope that the plants growing on the Sanctuary will be able to serve as a repository for native plant germ plasma.

Eventually, we would like to see our Sanctuary, nursery, and clinic spread the seeds, plants, knowledge, and philosophy of rebuilding the ecosystem of our planet and in our own bodies. We will strive to be a testimony that we and everything else in our perception are just one being, and we can only be healthy when our planet is healthy.

When we found the UpS Botanical Sanctuary network, we felt that we found a group of sensible, thoughtful individuals who are willing to make a difference. We are so proud to become part of the team. We have innately known for a long time that there is an intimate connection between nature and



Oregon grape (*Mahonia aquifolium*)

ourselves. However, we have been pulling further and further away from that sacred connection by a force called modern life. For a certain period in our life, we can only vaguely feel this longing deep in our heart. The calling from nature seems buried deeper and deeper in the noisy life. By joining the UpS Botanical Sanctuary network, we felt that longing and the calling are finally touchable again. The vision of UpS Botanical Sanctuary network provided us a sound framework for our lifelong passions in this transitory life of ours.

We believe as BSN members of UpS, we are little green sparks that will eventually produce a momentum of real change. These changes will serve the only viable medicine for our sickening planet and all the living beings depending on her including ourselves. We are always intrigued by a quote from eastern philosophy, "The cosmos encompasses one seed. One seed encompasses the cosmos". Maybe by starting a seed, and caring for a plant with a kind and pure heart, we can finally behold cosmos without illusions. That must be a beautiful moment.

*“ To sit in solitude, to think in solitude with only the music of the stream and the cedar to break the flow of silence, there lies the value of wilderness.”*

~ John Muir

# AVENA BOTANICALS BIODYNAMIC GARDENS

West Rockport, ME  
Sanctuary Steward:  
Deb Soule

Eight miles from the sea, in the small town of West Rockport Maine, is the 30-year-old herbal apothecary Avena Botanicals. Situated on a south-facing ridge, Avena's thirty-two acre farm borders 6000 acres of land that is undevelopable. In summer the farm is home to dozens of birds including rufous-sided towhees, six to seven species of warblers, and several rambunctious ruby-throated hummingbirds. In 2014, we hand-harvested over 1200 pounds of medicinal herbs from Avena's farm. These herbs are either tinctured immediately in Avena's certified kitchen or dried for later use in our salves, oils, crèmes, and tea blends.

Twenty years ago I began designing and planting Avena's medicinal herb gardens, incorporating the old New England stone walls and hedgerows of the farm into my design. In amongst the production gardens we planted various native medicinals, including black cohosh (*Actaea racemosa*), true Solomon's seal (*Polygonatum biflorum*), wild ginger (*Asarum canadense*), maiden hair fern (*Adiantum pedatum*), pleurisy root (*Asclepias tuberosa*), bloodroot (*Sanguinaria canadensis*), spikenard (*Aralia racemosa*), and slippery elm (*Ulmus rubra*) trees. In 2001, with the help of permaculturist Julia Yelton, we planted a woodland garden with over 100 goldenseal



Deb Soule in Avena Botanicals' Medicinal Herb Gardens

(*Hydrastis canadensis*) plants, 30 blue cohoshes (*Caulophyllum thalictroides*), and 20 black cohoshes. Today a lovely bench in the woodland garden invites visitors to pause, observe, and consider the significance of these "At-Risk" medicinals and their eco-systems.

Black cohosh is the main herb we have begun to plant in different shade gardens and hedgerows around the farm. All of these plants are thriving, and many are reseeding and creating young seedlings. We are expanding our black cohosh beds in the woodland garden with these young seedlings. In late July the flowering black cohosh plants are covered with at least 4-5 different species of native bees and an occasional honeybee. Black cohosh appears to be happiest when planted in community with other black cohosh plants. It is both a "community-minded" plant and an essential flower for pollinators.

I am very fortunate to be working alongside Denise De Spirito, who was a United Plant Savers intern four years ago. She has a great love and devotion for the "At-Risk" medicinals and enjoys sharing her knowledge with visitors and students. In the next two years we are planning to expand our goldenseal and true Solomon's seal beds and create a garden for a few dozen false unicorn (*Chamaelirium luteum*) plants, something I have wanted to do for years.

Avena's gardens and herb shop are open year-round, Monday-Friday from noon-5 pm. The mission of the garden is to be a sanctuary for pollinators, birds, and native medicinals, a peaceful and healing garden for visitors, a living classroom for students, and a production garden for Avena Botanicals apothecary. At the entrance to Avena's garden is a UpS Botanical Sanctuary sign, a pollinator habitat sign from The Xerces Society, a large map of the garden, and information about biodynamics. Avena's gardens are the first in Maine to be certified biodynamic by Demeter. We are also certified organic by the Maine Organic Farmers and Gardeners Association.

“When one tugs at a single thing  
in nature, [s]he finds it attached  
to the rest of the world.”

~ John Muir



# PIE: Partners in Education

United Plant Savers Partners in Education program is designed to enrich school programming and students' education through instilling awareness and ethics in regards to the conservation of our native medicinal plants. Schools and apprenticeship programs that have enrolled in the Partners in Education program have provided their students the opportunity to receive all of the benefits of membership at a discounted 'student-friendly' price. These schools and programs are also given educational resources and curricular support as well as provided the opportunity to promote classes and workshops on our website and social media channels. For more information about our Partners in Education program, please visit our website: [www.unitedplantsavers.org](http://www.unitedplantsavers.org). United Plant Savers holds a special place in our heart for our Partners in Education Schools and would like to **thank the following participating 2014-2015 schools and programs:**

## **ArborVitae School of Traditional Herbalism**

New York, NY

## **Bastyr University Herbal Sciences**

Kenmore, WA

## **Blue Otter School of Herbal Medicine**

Fort Jones, CA

## **Botanica**

New River, AZ

## **Centro Ashé Herbs & Education**

Bryans Road, MD

## **Chestnut School of Herbal Medicine**

Leicester, NC

## **Dandelion Herbal Center**

Kneeland, CA

## **Earth Angel Herbs Plant Medicine & Earth Wisdom Apprenticeship**

Brattleboro, VT

## **Florida School of Holistic Living**

Orlando, FL

## **David Winston's Center for Herbal Studies**

Washington, NJ

## **Green Comfort School of Herbal Medicine**

Washington, VA

## **Green Turtle Botanicals**

Nashville, TN

## **Greenwood Herbs**

Limerick, ME

## **Heartstone Center for Earth Essentials**

Van Etten, NY

## **Herbal Academy of New England**

Bedford, MA

## **Hocking College School of Natural Resources**

Nelsonville, OH

## **Living Awareness Institute**

Grafton, CA

## **Maryland University of Integrative Health**

Laurel, MD

## **Milagro School of Herbal Medicine**

Santa Fe, NM

## **Misty Meadows Herbal Center**

Lee, NH

## **Mockingbird Meadows Eclectic Herbal Institute**

Marysville, OH

## **Northwest School of Botanical Studies**

McKinleyville, CA

## **Owlcraft Healing Ways**

Scottsville, VA

## **PrairieWise Herbal School**

Leavenworth, KS

## **Sacred Plant Traditions**

Charlottesville, VA

## **Thyme Herbal**

Amherst, MA

## **Twin Star Herbal Education**

New Milford, CT

## **Vermont Center for Integrative Herbalism**

Montpelier, VT

## **Yerba Woman Herbal Apprentice Program**

Willits, CA

# American Herbal Pharmacopoeia in Collaboration with UpS Embarks on Osha Monograph & Therapeutic Compendium

by The American Herbal Pharmacopoeia (AHP)

The American Herbal Pharmacopoeia (AHP), in collaboration with United Plant Savers (UpS) as well as noted research botanist Kelly Kind-scher of the University of Kansas and other acknowledged experts, is in the process of developing an AHP Monograph and Therapeutic Compendium for the North American native botanical osha (*Ligusticum porteri*). A historically important and environmentally sensitive plant, osha has been one of the most neglected in terms of research without any known monograph. As with all AHP monographs, a suite of scientifically valid identification tests will be provided, which is critical as adulteration with potentially deadly species from the Apiaceae family can occur. Furthermore, as the use of osha as a dietary supplement is trending upwards, a delicate balance must be struck between commercial use and conservation.

According to AHP President Roy Upton, "We are hoping the monograph, which will address identification, adulteration, and sustainable harvesting practices, along with formal population studies, will help strike an appropriate balance between its use and availability so we may approach the use of this plant safely and very consciously."

The genesis of the monograph arose from prior studies partially funded by the American Herbal Products Association (AHPA) ERB Foundation and the United States Forestry Service. So far, AHP has received positive response from industry regarding the development of the monograph, along with initial seed funding even before formal announcement of the project. According to Upton, "We hope this will underscore the importance of this monograph to other industry members and encourage further financial support for this important work."

For further information or to download an Osha Monograph and Therapeutic Compendium sponsorship form please contact: Roy Upton [herbal@got.net](mailto:herbal@got.net) 831-461-6317

Download Osha Monograph sponsorship form: [www.herbal-ahp.org/documents/mono\\_con- tents/Osha\\_Sponsorship8.12.14.pdf](http://www.herbal-ahp.org/documents/mono_con- tents/Osha_Sponsorship8.12.14.pdf)

# Mangroves: Medicine & Metaphor in the Anthropocene

by Amanda Vickers

Entirely South of the Pleistocene glaciation, the humid, temperate-to-subtropical southeastern United States is a hotbed of biodiversity, with high levels of endemic plant species throughout. Florida, including many unique ecotypes such as the Florida sand hills and coastal hammocks, is especially rich, boasting at least one endemic plant species in every county of the state, with 155 endemic to Florida alone!

In the southern part of the state, the Florida Mangrove ecoregion consists of three main species of mangroves, *Rhizophora mangle* L. (Rhizophoraceae), *Avicennia germinans* L. (Acanthaceae), and *Laguncularia racemosa* (Combretaceae), also known as the red, black, and white mangroves. This ecoregion in turn hosts many native and some endangered animal species such as the Eastern indigo snake (*Drymarchon corais*), the smalltooth sawfish (*Pristis pectinata*) and the key deer (*Odocoileus virginianus clavium*).

In recent centuries, agriculture and urban expansion have already led to the loss of around half of Florida's wetlands, and conservationists in the state struggle with a constant onslaught of invasive species. In inland waterways, aquatic floating plants like the water hyacinth (*Eichhornia crassipes* (Mart.) Solms (Pontederiaceae)}, once and still imported and cultivated for aquatic gardens, are causing ecosystem-level changes in the wild, reducing dissolved O<sub>2</sub>, phosphorus, and pH, while increasing dissolved CO<sub>2</sub>, turbidity, and shade. These changes in the fresh water systems reduce phytoplankton, and alter the chemistry of the fresh water that trickles down into estuarine environments, thus altering the aquatic food chain at its base. On the coasts, species such as the Asian *Casuarina equisetifolia* L. (Casuarinaceae) have been characterized as altering shoreline erosion by the steepening and reduction in width of the beaches. Hurricanes of increasing intensity cause widespread ecosystem disturbances, in some cases further benefitting opportunistic non-native species that aggressively colonize in the disturbed environments. As sea levels rise and ecosystems face the most rapid changes since the extinction of the dinosaurs, careful attention to the resource of certain medicinal, highly adaptive plants may hold at least a few solutions for human kind's adaptation.

Mangroves, forming a complete ecotype from above and below the high and low tide lines along coastlines, provide a protective coastal barrier and have been shown to help lessen the effects of climate change on coastal communities. Many are also medicinal. Species like the red mangrove (*Rhizophora mangle*) serve as a model of adaptation from a part of the world facing the drastic ecosystem change, where the harvest, subsequent valuation and expansion of this species go hand in hand, while providing a source of natural products for lung, joint, and skin care.

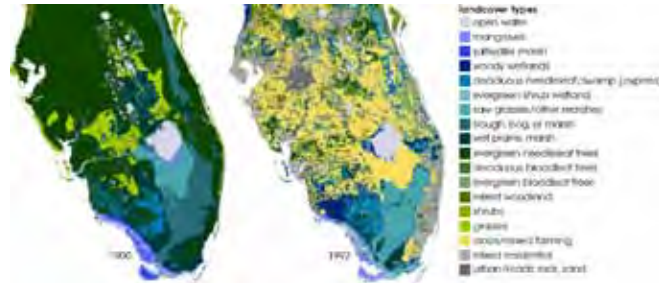


Figure 1. Image showing the human influence on the landscape of Southern Florida. Image: NASA @nasaimages.org (Maps adapted from data provided by Lou Steyaert, USGS and NASA GSFC)

## Historic Observations

The earliest literature reference to *Rhizophora mangle* or red mangroves may come from Nearchus, who was commander of Alexander the Great's naval fleets and who subsequently was sailing from the Indus delta to Susa, Persia in 325 BC. In his log book, he notes "Wherever the floodtide reaches, there are these trees... and the tree has a leaf like a laurel, but a flower like a violet both in color and in odor, and a fruit the size of an olive, and this fruit is also fragrant." He goes on to describe the characteristic prop roots, "Some have their roots always flooded by the sea as many as grow in hollow places whence the water does not flow away and nevertheless the tree does not perish at the hands of the sea."

In 1526, the explorer Oviedo gave the first account of red mangroves observed by European botanists in the western hemisphere. Due to the location, these red mangroves are thought to be synonymous with *Rhizophora mangle*, the original and dominant species in Florida and the Caribbean to this day.

Taxonomically speaking, the true species documented by early observers of the mangroves is difficult to impossible to decipher. The color-specific designations seem to wander from one true species to another, each being variously described as white, red, black, or orange. In this article, and consistent with common usage today, red mangroves will refer to species of the *Rhizophora*. Carl Linnaeus categorized mangroves of the genus of *Rhizophora* as having seven distinct species, condensing the more than 20 documented species of earlier description. The genus was later condensed again, only to be split again back into seven species, with only *Rhizophora*

*mangle* maintaining the Linnean designation. A thorough history of the taxonomic treatment of this genus can be found in H. Bowman's *Ecology and Physiology of the Red Mangrove*, available online at [archive.org](http://archive.org).

## Botany & Physiology

The habit of *Rhizophora* is a tree, up to 30m tall, with characteristic aerial stilt roots, highly branched, and in marginal habitats (Tomlinson 1994). The *Rhizophora* are viviparous, producing live offspring that develop into independent plants while still attached to the ends of the parent's branches. In 596, the Moorish botanist, Abou'l Abbas en-Nebaty while undertaking long expeditions to Arabia, Syria and Iraq, used in his journals the Arabic word *kendela* (candle) to describe the red mangrove, referring to the prolonged hypocotyl, which appeared like candles hanging from the ends of the branches of the trees. The seedlings are salt-water tolerant like their parents, accounting for the widespread occurrence of mangroves along tropical and subtropical coastlines thousands of miles from the species origin, with or without human aid in travel.

The salt-water tolerance of the mangroves beguiled many early observers, who conjectured about the chemical make-up of these strange plants.

In 77 A.D., Pliny the Elder wrote of the red mangroves, saying, "The trees in these regions are of a marvelous nature, for, corroded by the action of the salt, and bearing a considerable resemblance to vegetable substances that have been thrown up and abandoned by the tides, they are seen to embrace the arid sands of the seashore with their naked roots just like so many polypi. When the tide rises, buffeted by the waves, there they stand, fixed and immovable, nay, more, at high water they are completely covered, a fact which proves to conviction that they derive their nutriment from the salt contained in the water."

More recent science describes the mangroves along the lines of adapting to tolerate salt water by excreting it from their leaves, rather than relying on it for nutriment, but perhaps there is more similarity to the older descriptions than symantics first suggest, as recent research uses an "assimilation and excretion" model to describe the flow of sea salt through mangrove tissues.

## As a Source of Natural Products

The extreme characteristics of the mangrove's environment

(especially the red mangrove) also includes anaerobic soils, for which mangroves have evolved pneumatotrophic roots, high-force waves from ocean storms, which they withstand by their strong stilt roots, and shifting coastlines, which their viviparous, water-dispersed propagules are perfectly suited to colonize.

Mangroves, in general, have also been a subject of interest in recent research into endophytic fungi and bacteria as potential sources of novel medicinal compounds, including some chemotherapeutic agents. In general, plants which are known to be useful medicinally, and which grow in extreme environments are prime candidates for novel endophytic relationships. This group is likely to include plants that depend on their symbiotic relationships for survival. Indeed, many species of mangroves have already been shown to house endophytes that produce compounds with in vitro cytotoxic/ anticancer properties, as well as other, well-known and more common phenolic compounds. Chemical constituent profiles, indicate the presence of gallic acid, catechins, chlorogenic acid, ellagic acid, and quercetin, phytosterols, and long chain saturated and unsaturated fatty acids in *Rhizophora mangle*.

Red mangrove bark is also very rich in tannins, which explains the plant's widespread traditional uses in tanning leather and healing abscesses, ulcers, and diarrhea. Abu Hanifa, Ibu el-Beithar, described the red mangroves thus, "It is a plant that grows in the country of the Deibol (on the Sea of Oman) and which springs up in the sea. In that country it is employed in the tanning of hides, known under the name of leather of Deibol, which is red and thick. It furnishes also a red bark, which is used as part of medicaments for the mouth and those which are used to stop hemorrhages."

John Ray, in 1693, also wrote of traditional use of the bark. "The roots of the tree, which is soft and moist, is split and peeled and applied warm to the poisonous wound of the fish, Niquus. It quiets the pain and

restores the injured member, but although it may provoke pain in the forehead, it is really a splendid remedy first discovered by the fishermen and given to use by them." In 1678, Van Rheede documented the use of the bark in Malabar as a cure for diabetes.

## Red Mangrove in Fiji

In Fiji, the red mangroves (*Titi* or *Tiri* in the native dialects) are made up of two to three species (or subspecies) of *Rhizophora*, depending on whose designations are currently the taxonomical standard. *Rhizophora samoensis* (Hochr.)



Figure 3. Fijian villagers prepare to weigh harvest of *Rhizophora* drop roots for pounding, drying, and sale to Nature's Nurse. Vouchers accompanying this harvest have been collected at Viti-Levu by the University of the South Pacific, and now in duplicated storage at The North Carolina Arboretum Germplasm Repository (NCAM), and South Pacific Regional (SUVA) herbaria. Photo ©Rebecca Anders

Salvoza is accepted to be synonymous with *Rhizophora mangle* by many botanists, and is used to describe the subspecies or populations of *Rhizophora mangle* that exist in Fiji and the South Pacific, far removed from the North American groves on which the species type was first based. Tomlinson (1994) describes this species as “scarcely distinguishable in its morphology from *R. mangle*, but it has blunt (not pointed) flower buds and obscure (not obvious) bracteoles.” He goes on to suggest that much of the impetus for retaining the distinct species is based on geography, with *R. samoensis* being most aptly applied to species in New Caledonia, Fiji, Samoa, and Tonga.

*Rhizophora stylosa* Griff. is similar to *R. mucronata* which some older records may report being present in Fiji; however, slight differences in flower morphology have led to the taxonomic distinction between these species. *R. stylosa* produces typical Rhizophora-style prop roots, and may grow along shore-lines, estuaries, or in the ocean near a coastline, between China and Australia.

*Rhizophora x selala* (Salvoza) Tomlinson, a sterile hybrid of *R. stylosa* and *R. samoensis* that was first recognized by the botanist Guppy in 1906 in Fiji, is present where its parent species are also present.

*Rhizophora mangle*, whether from western genetic origin, or native to the islands, is also present. The red mangroves are an established traditional medicine in Fiji, the preparation of which is known, maintained, and practiced by the women in traditional village social structures. Today, in Fiji, naturally occurring Rhizophora species are being cultivated to support the needs of an increasingly urban global population, including respiratory support, anti-inflammatory joint relief, topical antioxidant and anti-inflammatory support for UV-exposed skin, and diabetes treatments.

Nature's Nurse International, led by a partnership between American psychologist, Dr. Ted Anders, and native Fijian researcher, Resina Koroi, has been working with native Fijian islanders to simultaneously cultivate, harvest, and protect red mangrove stands on the Fijian island of Viti Levu, with extensive and culturally sensitive methods of exchange.

As red mangrove stands spread outward, new drop roots can be seen descending from the lateral branches of mature trees. These soft, dangling appendages are carefully harvested by the islanders, beaten by hand on large stones, and dried to a light, fluffy mulch-like mass, which is used both traditionally and commercially to treat respiratory ailments to great effect. The harvesting techniques used by the islanders have been observed to actually increase the spread of these mangroves, as from many drop roots that are clipped, multiple meristems emerge.

Bent Creek Institute, the US Botanical Safety Laboratory, and The North Carolina Germplasm Repository, in

Asheville, NC, have been working closely with Nature's Nurse International to commercialize extracts created from these harvests for global markets and to expand on the existing research into the unique chemistry of the Rhizophora.

Nature's Nurse's product, RespiGard, having already received world-wide acclaim for its ability to rapidly relieve the symptoms of and onset of upper respiratory ailments, is one of a short list of products being prepared for internet sale directly from the US to China, where urban populations are under deadly assault from air-borne pollutants. The adaptive nature observed in practice with RespiGard is similar to the innate immune response stimulated by other well-known botanical medicines, being very useful in early-onset of respiratory symptoms. As a result of these observations, the extracts are also currently being screened in cellular assays to determine if there is immune adjuvant potential in the extract. With pneumonia as the number one cause of infectious disease in many developing countries, and vaccine supplies lagging and expensive, vaccine adjuvants are recognized as a vital component of emerging strategies for countering infectious disease. Other plants have already yielded natural medicines that have been identified as capable of filling this role. Will mangroves, in their abundance, also have some role to play?

## Medicine for the Anthropocene

As with most species, human competition for resources represents the most pressing threat to mangrove habitat survival. In many parts of the world, the resource-intensive practice of shrimp mariculture, for which inexpensive tracts of mangroves are widely sought, is a short-term use of mangrove ecosystems, creating so much toxic silt that the large ponds must soon be abandoned. We believe there is a better way. Mangroves are one of the few plant species that are well adapted to rising ocean levels, and rising temperatures. They are protective against high winds and storms. They provide medicine.

The innate biological value of a species, while very real, is difficult to quantify, and difficult to weigh against the short term “profits” that are derived from its destruction, yet people are trying. With red mangrove, however, there is an example of potentially yet another economic model, where a harvest leads simultaneously to (a) an adaptive natural medicine, (b) the expansion of wild source populations, (c) growth of local economies, and (d) global ability to adapt to change. As we humans emerge from the dream of separation from our environment and into a period of healing, adapting, and damage control, species like the red mangrove may represent the new holy grail: a marriage of ecosystem services with human health. The sooner more of these species are recognized, the sooner we can get on in earnest with the work of intentionally adapting both ourselves and our planet.

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SPAIN continued from page 17

homestead with ripe pomegranates, and blissed out in the wild understory of rosemary that filled the landscape.



Cork oak (*Quercus suber*) tree

As I listened, observed, tasted, and inhaled the aromas, it deepened my ecological understanding of medicinal plants from various regions. Though I grow rosemary, lavender, and other aromatics in my garden in the eastern temperate forest, they do not have the same vitality as those growing in the wild. There is a certain mystery and magic about the wild plants from each region. I am from the land of wild root medicine: blue and black cohosh (*Caulophyllum thalictroides*; *Actaea*



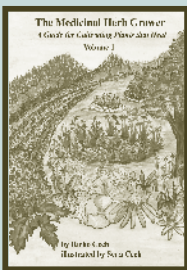
Elder (*Sambucus* spp.) flower infusion

*racemosa*), American ginseng (*Panax quinquefolius*), bloodroot (*Sanguinaria canadensis*), wild ginger (*Asarum canadense*), wild yam (*Dioscorea villosa*), goldenseal (*Hydrastis canadensis*), lady's slipper (*Cypripedium* spp.), trillium (*Trillium* spp.), and saffrafrs (*Sassafras albidum*). In Spain it is the oils and resins, the land of the olive, pine sap (*Pinus* spp.), saffron (*Crocus sativus*) and the plants that cover the hillside and fill the air with an aroma that is intoxicating as well as deeply healing. In the tropics it is the high concentration of medicinal trees and vines. Traveling is a window into patterns of medicinal plant concentrations. Each bioregion seems to highlight how the bioactivity finds its way into the tree bark, roots, leaves, and oils depending on the environmental energies of geology, climate, altitude, and latitude. This concept finds overlap with the work of Leslie Holdridge, who in 1947 classified the systems of natural vegetation patterns, that are applicable to tropical, Mediterranean, and boreal zones. One can imagine how this concept expresses itself in the alkaloid magic of plant medicine, and further makes us appreciate the bioregions of herbalism and the diversity of medicinal species.

## Books for Sale

### The Medicinal Herb Grower

by Richo Cech. Illustrated by Sena Cech



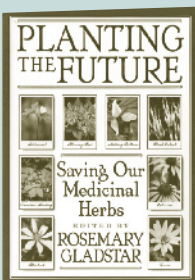
Using personal experiences & stories that are at once amusing and instructive, Richo covers principles such as observation in nature, windows of opportunity, creating plant habitat, benefits of diversity, rules of green thumb, soil, seeds, water, sun, trees, humans, and the forest community.

The second half of the book covers background, growth cycles of plants, preparing the ground, the greenhouse and the shadehouse, compost, potting soils (extensive!), planting seeds (also extensive!), making cuttings, and caring for plants.



### Planting the Future

Edited by Rosemary Gladstar & Pamela Hirsch



Land stewardship, habitat protection, & sustainable cultivation are of critical importance to ensure an abundant renewable supply of medicinal plants for future generations.

To order these titles online, visit [www.unitedplantsavers.org](http://www.unitedplantsavers.org)



## Planting Seeds of Hope

by Sandra Engle

As rates of Attention Deficit Disorder, Childhood Anxiety, and Childhood Depression soar in the U.S. population, so does the rate of Nature Deficit Disorder among youth, which makes one wonder if this is related. At an APA conference in May 2014 it was stated that approximately 26% of American teens play video games for six hours or more per day. A research study of male adolescents in China revealed those students with an Internet Addiction had atrophied gray matter in the brain and prefrontal cortex abnormalities. Another study at UCLA revealed frequent computer usage changes the neuro-circuitry of a brain to consume imagery and does not promote the usage of imagination.

On a positive note numerous research studies have demonstrated ADHD symptoms diminish, anxiety and depression are decreased, and creativity and working memory are increased when students are

outside in nature. One study indicated when hyperactive students walk in a forest for five minutes their ADHD symptoms significantly decrease. Research in England demonstrated the mental health benefits of being outside are enhanced when there is a greater biodiversity in the area.

Therefore, with the help of a generous grant from United Plant Savers, Northwest Middle School Students are creating a Nature Trail that will showcase medicinal plants at risk of extinction. In August 2014 a group of middle school students, the school psychologist, and the school art teacher collaborated to create a nature trail. However, they learned the proposed trail location was not on school grounds. The groundskeeper pointed out another wooded area even closer to the school that could be used for a nature trail. To get to the proposed area involved traversing through four foot tall thistle plants. Additionally the proposed trail was covered with a thick healthy mat of poison ivy! The groundskeeper used a skidster to bulldoze a trail through the thistles/poison ivy, but due to the thick underlying root structure from various trees and poison ivy, the students decided to build raised beds from cinder blocks that were donated by Fleming/Schubert Nursery.

The students learned that when native plants were reintroduced into an area in locations like Indianapolis and other cities, a greater variety of birds and amphibians emerged. Therefore, On October 11th five students participated in a Bird Sit-In, which required students to record the different types of birds they saw over a 3-hour period. The students are eager to participate in the 2015 Audubon's Bird Sit-In with the hope of observing a greater diversity of birds within their nature trail. The sixth grade students were astonished at the weight of the cinder blocks, so to ease the transport

of the cinder blocks they took turns using a sled to slide them from the school parking lot down to the center of their nature trail. The cinder blocks and topsoil did not arrive until mid-October, and therefore the students were only able to build two of their five raised beds by December. Thank goodness there was a warm day in December

so they could plant blue

cohosh (*Caulophyllum thalictroides*), black cohosh (*Actaea racemosa*), ginseng (*Panax spp.*), goldenseal (*Hydrastis canadensis*), lobelia (*Lobelia inflata*), bloodroot (*Sanguinaria canadensis*), and wild yam (*Dioscorea villosa*) within these two raised beds. In the spring and fall of 2015 they will proceed to build the additional raised beds. While creating this trail it has been inspiring to see how much calmer, focused, and enthusiastic these students have become.

The unexpected high cost of buying topsoil used up most of the grant money which was slated to purchase additional plants. However, this group of resourceful students organized a Plant Sale to raise funds to purchase more seeds/plants and to pay the \$100 application fee to be considered by United Plant Savers as a Botanical Sanctuary. A local greenhouse, Barco Son's Inc. in Medina donated a couple dozen poinsettias. The students rooted dozens of baby spider plants and then transplanted them, as well as some aloe plants. Their Holiday Plant Sale generated \$155! The students are looking forward to sharing their newly developed nature trail with the United Plant Savers staff and are hoping to be the first public school grounds in the U.S. established as a United Plant Savers Botanical Sanctuary.



NW Middle School Nature/Art Awareness Group

# Vermont Center for Integrative Herbalism

by Lisa Olson

The Vermont Center for Integrative Herbalism (VCIH) is a nonprofit herbal school and sliding-scale herbal clinic located in Montpelier, Vermont. In the summer of 2014, VCIH received a grant from United Plant Savers to create a medicinal herb display garden at the entrance to our clinic.

With funding from UpS and the help of experienced gardener and herbalist Joann Darling, VCIH was able to purchase plants for the project. Along with additional assistance from community members and VCIH students, VCIH converted two shaded, mulched beds adjacent to our clinic entrance into rich garden beds. Together, we weeded, added compost and soil and planted witch hazel (*Hamamelis virginiana*), bloodroot (*Sanguinaria canadensis*), blue cohosh (*Caulophyllum thalictroides*), maidenhair fern (*Adiantum* spp.), partridge berry (*Mitchella repens*), mayapple (*Podophyllum peltatum*), wild ginger (*Asarum caudatum*), wild yam (*Dioscorea villosa*), uva ursi (*Arctostaphylos uva-ursi*), trillium (*Trillium erectum*), Solomon's seal (*Polygonatum multiflorum*), Oregon grape (*Mahonia aquifolium*), and some other medicinal shade-lovers.



Wild yam (*Dioscorea villosa*)



Bloodroot (*Sanguinaria canadensis*)

Our beautiful sanctuary for "At-Risk" medicinals, highlighting Vermont natives, is highly visible and accessible. The plants greet each person who walks through the door, thus enriching the sliding-scale herbal clinic experience. Through the display garden, clients

have tactile experiences with the plants and have also found inspiration to grow these "At-Risk" plants in their own backyards. The garden also serves as an outdoor classroom for VCIH students and community members, highlighting plant conservation and sustainable herbal practice.

In the future, the herb garden will also contain an informational plaque detailing the importance of protecting native medicinal plant species and their habitat. This year, seeds will be harvested from the garden and given to students, community members, and UpS.

VCIH is so grateful for this opportunity made possible by United Plant Savers!

# Turtle Mountain Rockford, TN

by Crystal Wilson

Turtle Mountain Herbs began as a dream, twenty plus years ago. I was privileged to grow up in the beautiful mountains of southwest Virginia in the shadow of Mount Rogers. My earliest memories are of being toted all over the Appalachian Trail, learning the plants, trees, and animals from my Dad. After finally finishing college in 1994, we struck out to find "our" land. Work brought us to Tennessee, and that is where we found our little mountain. Being fresh out of school, there was no bottomland within our reach.



Crystal Wilson of Turtle Mountain Herbs, a UpS Botanical Sanctuary, receives 2014 Community Grant for planting project at Granny's Garden

Our first peek at our mountain was bleak. She had been bulldozed, filled with trash, and left to flounder. Not accustomed to resisting a challenge, we took her on. We started growing and selling medicinal plants on the mountain. Since there was no market back then here in Knoxville, we trekked across the mountain to Asheville. With the coming of our first baby and three more to follow, we had to give up. We continued to clean, plant, and nurture our little mountain. We begin to see natives return: black cohosh (*Actaea racemosa*) and partridge berry (*Mitchella repens*), as well as box turtles to name a few. Just last year, we reopened to the public at the urging of our children. This past year has been a wild ride here on the mountain, but we are looking forward to many more and watching our mountain grow and flourish.

We were honored to be awarded a Community Grant through United Plant Savers this past summer. Our vision was to plant Granny's Garden – a place where local people could see, touch, taste, smell, and learn about their medicine, Appalachian medicinals. Not only is the knowledge of these plants disappearing, but also the plants themselves. We chose a fairly level area deep in the woodlands. We cleared brush and undergrowth and laid out a trail. Our vision was to create a trail where the plants were laid out according to a key. Our intention was to give visitors a key with common names and botanical names of the plants, in hopes this would further engage them.

Once the trail was completed the last of August, the fun began. We ordered the following plants to be included in the garden: *Panax quinquefolius*, *Dioscorea villosa*, *Hydrastis canadensis*, *Actaea racemosa*, *Caulophyllum thalictroides*, *Sanguinaria canadensis*, *Podophyllum peltatum*, *Ulmus rubra*, *Sassafras albidum*, and *Lindera benzoin*. We chose

continued on page 43

# GREEN THANKS & GRATITUDE

## Thank You For Your Generous Contributions & Support



We extend a special thank you to all members of UpS who continue to support us with memberships and donations. Your support, efforts and concern are the only thing that can really make a difference in the protection and conservation of our important medicinal plants. All donations and help, whether it be organizational,

cultivating, educating or choosing medicinal herb products more consciously are appreciated. Great gratitude goes to the many in-kind donations of goods and services from companies and friends that support our work. Thank you to all our supporters and members who continue to rally for the plants.

### Founding Donors: \$50,000+

Judy & Michael Funk, Aveda, Paul Strauss

### 2014 Donations: \$5000+

Loess Roots  
New Chapter  
Northern Trust Charitable  
Giving

Program at the Chicago  
Community Foundation  
Sacharuna Foundation  
Sara Katz

The Racek-Dowicz Fund and  
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Mountain Mel's Essential Goods  
Mountain Rose Herbs  
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The Thalia & George Liberatos  
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The White Pine Fund  
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Traditional Medicinals  
Urban Moonshine Herb School  
West Virginia Herb Association  
Wise Woman Herbals  
Zack Woods Herb Farm  
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### American Ginseng Needs Your Help...

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To see what UpS has done to support Ginseng see:

<http://bit.ly/UpS-Ginseng>

To sign the petition please visit:

<http://bit.ly/american-ginseng>

*Donation In Honor of  
Lindsey Bagley*

*Donation In Honor of  
Maggie Philipsborn*

*Donation in Honor of  
Lucy Kahn*



# Corporate Members Program

Corporate members have a unique opportunity to educate their customers about issues surrounding the sustainable supply of our native medicinal plants. More information about the corporate member program is on our website.

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[www.21drops.com](http://www.21drops.com)

## Alkemist Lab

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[www.alkemist.com](http://www.alkemist.com)

## Ancient Order of Druids in America

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[www.equinoxbotanicals.com](http://www.equinoxbotanicals.com)

## The Farmacy Natural Foods

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[www.farmacynaturalfoods.com](http://www.farmacynaturalfoods.com)

## Frontier Natural Products

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[www.frontiercoop.com](http://www.frontiercoop.com)  
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## Herbal Sage Tea Company

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## Herbalist & Alchemist, Inc.

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## Housewerks Salvage

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## Kim Manley Herbals

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## Kroeger Herb Products Co.

Boulder, CO  
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## LearningHerbs.com, LLC

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## Loess Roots

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[www.landscapingrevolution.com/Loess\\_Roots/loess\\_roots.html](http://www.landscapingrevolution.com/Loess_Roots/loess_roots.html)

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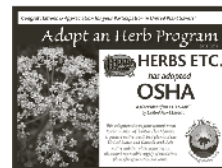
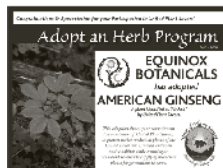
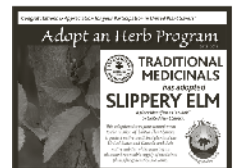
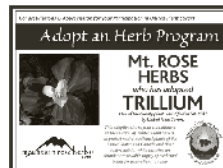
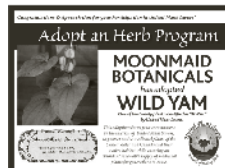
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Your company's adoption of a United Plant Savers identified 'At-Risk' healing herb demonstrates your commitment to protecting our native American herbs.





# UpS EVENTS & GREEN NETWORK

## Herb Events 2015

Check out our website to find more opportunities to travel and learn more about the world of medicinal herbs: [www.unitedplantsavers.org/travel-and-learning](http://www.unitedplantsavers.org/travel-and-learning)

**September 10th-13th**  
**BREITENBUSH HERBAL CONFERENCE**  
Detroit, OR  
[www.breitenbushherbalconference.com](http://www.breitenbushherbalconference.com)



**May 1st-3rd**  
**GAIA GATHERING FOR WOMEN**  
Charlottesville, VA  
<http://sacredplanttraditions.com>

**June 5th-7th**  
**MIDWEST WOMEN'S HERBAL CONFERENCE**  
Almond, WI  
[www.midwestwomensherbal.com](http://www.midwestwomensherbal.com)

**June 6th-7th**  
**HERB STALK**  
Somerville, MA  
[www.herbstalk.org](http://www.herbstalk.org)

**June 12th-14th**  
**INTERNATIONAL HERB SYMPOSIUM**  
*UpS members receive discount for registration*  
Norton, MA  
[www.internationalherbsymposium.com](http://www.internationalherbsymposium.com)

**August 27th-30th**  
**NORTHWEST HERB SYMPOSIUM**  
Whidbey Island, WA  
[www.nwherbsymposium.com](http://www.nwherbsymposium.com)

**August 28th-30th**  
**NEW ENGLAND WOMEN'S HERBAL CONFERENCE**  
*UpS members receive discount for registration*  
Newfound Lake, NH  
[www.womensherbalconference.com](http://www.womensherbalconference.com)

**September 26th-27th**  
**CHESAPEAKE HERBAL GATHERING**  
Nanjemoy, MD  
[www.centroashe.com](http://www.centroashe.com)

**October 2nd-4th**  
**SOUTHEAST WOMEN'S HERBAL CONFERENCE**  
Black Mountain, NC  
[www.sewisewomen.com](http://www.sewisewomen.com)

**October 15th-19th**  
**AMERICAN HERBALIST GUILD CONFERENCE**  
Granby, CO  
[www.americanherbalistguild.com](http://www.americanherbalistguild.com)

**SAVE THE DATE!!**  
**February 26th-28th**  
**FLORIDA HERBAL CONFERENCE**  
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## Isabella's Peppermint Flowers a book by Susan Leopold

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## UpS Provides Cost Sharing for Ginseng

Lee Rinehart, Director of  
Education & Outreach,  
Pennsylvania Certified Organic

Sustainable harvesting of wild-grown medicinal plants is becoming a major concern to reduce the threat to forest plant biodiversity. Wild ecologies can be fragile, and given the demand for medicinal plants, the industry is looking for ways to verify the conscientious production and harvest of wild-grown products.



In response to this demand Pennsylvania Certified Organic (PCO) has established a voluntary Forest Grown Verification Program for forest grown products that are sustainably and legally produced and harvested. The program currently focuses on American ginseng (*Panax quinquefolius*) products from private land, and PCO is currently working to add several other forest products to the list including black cohosh (*Actaea racemosa*), goldenseal (*Hydrastis canadensis*), false unicorn root (*Chamaelirium luteum*), slippery elm (*Ulmus rubra*), forest-farmed mushrooms, and forest farmed leeks. The program standards for ginseng were developed by PCO through research of federal and state regulations, consultations with industry professionals and PCO members, and information from scientific publications.

Getting more forest grown producers on board is the principle focus of UpS and PCO, evidenced by a new program designed to incentivize verification by reducing the costs to producers. The Forest Grown Cost Share program is a joint effort between UpS and PCO to offset verification fees for PCO Verified Forest Grown production operations. UpS has dedicated funds specifically for the program that will be administered by PCO, with the potential to continue the program on an annual basis.

"PCO is excited to work with United Plant Savers to encourage forest grown verification," says PCO's Director of Education and Outreach, Lee Rinehart. "The funds provided by UpS for the cost share program help reduce the financial burden of growers who harvest forest products with careful attention to the sustainability of forest ecologies. Third-party verification communicates to consumers that the products they purchase were stewarded and legally harvested in a manner that does not degrade the long-term regenerative capability of the wild population."

Interested producers and handlers of forest grown products can contact Adam Seitz, PCO Certification Specialist at (814) 422-0251 to obtain a Forest Grown System Plan, or visit [www.paorganic.org/forestgrown](http://www.paorganic.org/forestgrown) for more information and a downloadable *PCO Forest Grown Verification Program Manual*.

## Lockn' 2014 & UpS' Ultimate Tea House

by Erika Galentin

### Arrington, Virginia

United Plant Savers embarked upon the most epic experiment in publicity and raising awareness for our mission, most specifically our American Ginseng Petition on Change.org ([www.change.org/p/save-american-ginseng-panax-quinquefolius](http://www.change.org/p/save-american-ginseng-panax-quinquefolius)). We attended the Lockn' 2014 Music Festival in Arrington, VA to set up the 'Ultimate Tea House' serving iced tea during the hot days, talking to people about our organization, and having them sign our American Ginseng Petition. What a huge success! Thank you to our Tea House Sponsors: Herb Pharm, Mountain Rose Herbs, Mockingbird Meadows, Mountain Mel's Essential Goods, Sacred Moon Herbs, and Herbs America. We would also like to thank Peter Shapiro and the Lockn' Music Festival ([www.locknfestival.com](http://www.locknfestival.com)) for supporting non-profits, all the cool cats at Qello (<http://qello.com>) for sponsoring Participation Row, the lovely ladies of HeadCount ([www.headcount.org](http://www.headcount.org)) for organizing us so well, and most definitely Peggy Schadler of 1000 Faces Mask Theater ([www.1000facesmasktheater.com](http://www.1000facesmasktheater.com)) for loaning us those amazing masks to draw in the crowd! We had a blast...and we definitely left a lasting impression! We even made it into the Festival Newspaper a few times. United Plant Savers would also like to thank Angel, Laura, Randy, Lisa, and Jim for all of the support, laughs, and hard work to pull it all together. We couldn't have done it without you! [#lockn2014](https://twitter.com/lockn2014)



Susan & Erica at Lockn'

TURTLE MT. continued from page 39

an October planting date, as this is optimal for these plants. The plant sites were marked with local slate and painted numbers. This proved to be the best option, as this created the least environmental intrusion possible.

The morning of planting day proved to be a wet one with unrelenting showers and threatening thunderstorms. With the help of my herbal apprentices, we pressed through and got every single plant in the ground. A valuable lesson was learned that day: plant keepers do not get holidays or days off for inclement weather. Being a plant guardian requires commitment.

In two short weeks after planting, we hosted our first group at Granny's Garden. It was a homeschool group of children of various ages. Since the plants were "sleeping", we talked about how the plants had been used in Appalachian culture and read the story: "When I Was I Young in the Mountains". We ended our hike with some sassafras tea sweetened with local sorghum.

We are excited for spring and the first glimpses of the plants. We intend to build a shelter from downed trees at the trails end to function as an outdoor classroom. We have many classes we plan to offer to the community at Granny's Garden: My Daughter's Garden, Planting by the Signs, and Music in the Trees are just a few. We are so grateful to United Plant Savers for this opportunity.



## United Plant Savers

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