The Relevance of Research
Poaching Concerns in the National Forest
Cohosh Research on Sustainable Harvesting
Update on Butternut Canker
Lomatium “Big Medicine”
Understanding Goldenseal’s Genetic Diversity
The synergy of Goldenseal’s Chemistry
UpS as a Vehicle For Social Change
Historical Overview of Research at Goldenseal Sanctuary
The boxes on the front of our cover page this issue are images of what you would have found in your general store in the early 1900s. Dried plant material packaged in cardboard boxes reminds us of some of the earliest herbal companies. Crude Drugs is how they were often referred to, for herbs most certainly were the foundation to most basic healthcare. Cyprus Sage, produced by S.B. Penick &Co. with its logo “The initial source of supply”, had an interesting message on the back of the box. It read, “The source of supply for the genuine DALMATIAN SAGE has been closed to this market for many months. We have used all of our resources in an effort to secure a product near the Dalmatian variety as possible. The contents of this package is genuine Cyprus sage which is the best available grade today”.

What this indicates is that even in the early days herbal companies sourcing wild materials lead to problems with overharvesting. In this journal issue we tried to highlight a variety of current research that provides insight into how we can source wild material sustainably, and ask the question of how to define a sustainable harvest. This can mean that sometimes it is important to research adequate alternatives. Anne Stobart talks about how a European substitute for cramp bark could take the pressure off American highbush cranberry, since it is being wildly harvested for export and is at-risk in some states. Jim Chamberlain provides an overview of his three-year successive study of harvesting various amounts of black cohosh (Actaea racemosa) and how he is systematically in the process of documenting its ability to regenerate after these harvests have taken place. Janet Rock and Nora Murdock of the National Park Service and Gary Kauffman of the US Forest Service summarize various research efforts to determine the effects of poaching and legal harvesting of medicinal plants, especially the highly valued American ginseng in our National Parks and Forests. Their findings are highly alarming. They have documented dramatic decreases in populations due to massive poaching. Ginseng is especially vulnerable because old plants that are critical to reproduction are being taken irresponsibly. Certainly the fear is that in this time of economic downturn and increasing price demands, not just ginseng, but several species are in dramatic decline. Understanding and exposing what is happening to native wild populations in regard to harvesting is critical to ensuring future populations of native medicinal plants. If we are to save forests, we need to know how to manage non-timber resources, especially valuable medicinals.

We also need to be aware and proactive concerning the health of our native trees. Steve Byers provides an insightful update on the disease that is decimating the butternut (Juglans cinerea). Many trees in our forests are dealing with diseases, blight, infestations, and fungal infections that are not fully understood. Steve’s update highlights new insights and stresses the importance of genetic diversity to find disease resistance. Celle Rikwerda’s research on Lomatium highlights its history and use demonstrating why it is referred to as “Big Medicine”. She highlights the logging and construction that is taking place in the northwest and how this can be an opportunity to save or harvest important medicine. Regional insights are important to our journal. Going forward UpS will be investing energy into creating a more regionally based website and journal so that we can adequately address and represent local concerns.
In regard to goldenseal, two very different but interesting research projects highlight the importance of why we should be saving these plants. Nadja Cech provides radical insights into the synergistic understanding of the chemistry of goldenseal. The research she has been working on demonstrates how we are just beginning to understand the complexity of plant medicine as documented by science. Jennifer Torgerson and Laura DeWald’s research looks at genetic diversity within various populations of goldenseal, indicating that sexual reproduction is creating genetic diversity within populations. This further supports the need to protect various populations if we want to conserve genetic diversity of goldenseal, a plant that has powerful indications for fighting MRSA infections. As we build immunity to antibiotics, we may be looking to goldenseal, and diversity could be the key to just the right synergy for new medicines to save those fighting infections for which we have no cure.

“The outstanding scientific discovery of the twentieth century is not television, or radio, but the complexity of the land organism.”

Aldo Leopold, Round River
From a small acorn the mighty oak doth grow!

This wisdom, and variants upon it, strike a chord with peoples and cultures worldwide. It’s a saying that’s been around for a long, long time. Chaucer caught the gist of it in 1374 when he wrote “as an ook cometh of a litel spyr.” The word “spyr” is old English for “sapling.”

Here at Horizon Herbs we really like to play with seeds, are in love with the lithe form of the sapling, and find that there is no shade on Earth like the shade of a tree that we have planted with our own hands, whispering to the seed that the tree to come should be a gift of life to be shared by all beings. With this giveaway, we’re supporting UpS’ers to plant lots of tree seeds, and to find homes for the saplings wherever appropriate. As you well know, trees provide not only shade, but soil, oxygen, food, water and habitat. Our homes are made of trees, and the home of the thrush who chortles at daybreak is also made of trees. The trees give all this to us without asking anything in return. Would that we could be more like the trees, supporting all life in peace, beautiful and solid, asking nothing in return. May we all be like the trees.

Our choices for this giveaway represent the cream of world tree resources, some of the most beautiful, useful and, of course, medicinal of all plants on earth. The seed is newly harvested, and planted with care, it will give great results. Full cultivation instructions for each species are printed directly on the packet. This year’s giveaway consists of one packet each of:

**English hawthorn (Crataegus laevigata)**
Makes the wonderful red-tinged flowers that give way to the plump medicinal fruits.

**Cedar of Lebanon (Cedrus libani)**
A tall and stately evergreen, which is mentioned more times in The Bible than any other plant.

**Witch hazel (Hamamelis virginiana)**
One of the most commonly used herbal over-the-counter medicines and our hat tip to Native American species.

**Black Elderberry (Sambucus nigra)**
Provides the potently medicinal berries that can be made into delicious syrup for treating the common cold and flu virus. If you’d like more information on how to make elderberry syrup (that will even tantalize the discriminating palate of a 2-year-old) then check the photo-recipe residing at my blog “The Seed Screen.”

**Big love for the new year from all of us at UpS!**
Here on the western coast of BC, we have a lot of logging and new construction going on. This leaves large areas of upturned soil and plants, making it easy to organize a medicinal plant hunt in these areas. Most will give you permission to enter these sites, which are being bulldozed and are great places for harvesting roots of medicinal plants. I have found many Oregon grape roots and osha roots and, of course, the great Lomatium dissectum. We pulled around 50 pounds of the giant root from an area being clear cut. The plants couldn’t be saved, but we did get the amazing root to make medicine. Plants can even be found in a neighbor’s backyard that is being renovated or excavated for new building. Since they have already been up-rooted, many roots can be saved and replanted for future generations. I think that this is an amazing source for medicinal plants and should not be overlooked; it is possible to protect the species if you are well informed in plant identification.

Lomatium dissectum was historically one of the most important medicinal plants of the western United States. Once called the Indian consumption plant or biscuit root, Lomatium dissectum was used by the Native Americans to survive the influenza epidemic in 1918. The Washoe Indians ate the root to battle viral illnesses such as influenza. During the Spanish flu pandemic in 1918, not a single member of the Washoe Indian tribe died from influenza or its complications, while other tribes living in the Nevada area where the plant is not native experienced a number of deaths, according to Dr. Ernst T. Krebs, a Nevada physician writing for the Bulletin of the Nevada State Board of Health.

This herb was considered “Big Medicine” by the Native Indian Tribes of Nevada for colds. Percy Train, co-author of Medicinal Uses of Plants by Indians Tribes of Nevada made a significant statement in reference to lomatium: “Of all the ailments to which the Indian is heir, probably there is none which has not been treated in one way or another by remedies prepared from the root of this plant.” The Indians inhaled the fumes of the root, which was left burning in a bed of hot coals, for asthma or congestion of the lungs. It was also common to chew a piece of raw root for a sore throat. The root was also the basis for a number of antiseptics; the decoction was used as an external wash for smallpox, skin rashes, cuts and sores. The oily sap from sliced fresh roots, when available, was used on cuts and sores.

Lomatium has been used as a modern herbal medicine for coughs and upper respiratory infections, including tuberculosis. Its actions are antifungal, antibacterial, antiviral, diaphoretic and immunomodulator. It acts as a bronchial, intestinal and urinary antiseptic and diuretic. The active constituents of the root are essential oils, gums, resins, glycosides (coumarins and saponins), carbohydrates, protein, fatty acids and ascorbic acid. The furanocoumarins and pyranocoumarins in Lomatium dissectum have significant antimicrobial activity. Lomatium contains volatile oils, which have been used as antiseptics. The root contains much carbohydrate, suggesting the presence of immune-stimulating polysaccharides.

Lomatium dissectum is found from Vancouver Island, southern British Columbia and Alberta, south to Southern California, Nevada, New Mexico, and Colorado, ranging from sea level to the Cascade foothills and up to an altitude of about 2500 meters in the Rocky Mountains. It is currently on United Plant Savers’ “At-Risk” plant list.

Celle is a chartered herbalist inspired by her mother’s use of herbs. She is also passionate about the ethnobotany of plants found in the northwest. She owns Stark Natural Herbs Farm on Salt Spring Island, BC, which is the first registered United Plant Savers Botanical Sanctuary for Medicinal Plants in BC. Celle propagates and sells a large number of rare and endangered herbs on her farm to conserve the species.
**Sourcing Cramp Bark Through Medicinal Agroforestry in the UK**

by Anne Stobart

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**A Case Study of the European & American Cranberry**

Some medicinal herbs are sourced many thousands of miles from the location of their ultimate use. Dry powdered cramp bark is one such example. This medicinal herb is widely used in Europe and valued for its anti-spasmodic effects. However, much of the supply can be traced to the United States partly derived from wild-crafting the native American highbush cranberry, which is a threatened species in some states. I am involved with a medicinal agroforestry project in southwest England exploring ways of sustainably cultivating and harvesting medicinal trees and shrubs.

Cramp Bark has longstanding use in a range of cultures with indications for muscular cramps and painful or heavy periods. Some sources describe this remedy as both the European cranberry and the American highbush cranberry without distinguishing the species used. The *British Herbal Pharmacopoeia* (1983) listed the ‘official’ version of cramp bark as the dried bark of the American highbush cranberry, *Viburnum opulus* var. *americanum*. This American species, also known as *Viburnum trilobum*, is a small tree or large shrub indigenous to northern United States and Canada. The stem bark contains valeric acid, coumarins and tannins, giving spasmylytic, sedative and astringent actions. The European cranberry, *Viburnum opulus*, is another species widely found in Europe, as well as northern America and has similar constituents. The European cranberry can be used medicinally instead of the American species.

Neither the European cranberry nor the American highbush cranberry is actually a cranberry, although the bright red shiny fruits, or ‘drupes’, do look a bit like cranberries. The American highbush cranberry has a range which stretches from British Columbia east to Newfoundland, south to Washington state and east to northern Virginia. It grows in lowland fens, marshes, and moist woodlands. According to Nellesen (2006), increases in habitat loss, pesticides, herbicides, livestock and pollution may all have contributed to reducing populations of the American highbush cranberry. These general threats have occurred alongside the gathering of the plant for medicinal uses.

The introduction of the European species to the wild has also resulted in competition and hybrid formation with the American species. Indeed the American highbush cranberry has been reported as ‘endangered’ in Indiana, ‘threatened’ in Ohio, and ‘rare’ in Pennsylvania.

The European and American species can be hard to distinguish. Both are deciduous, grow up to 4 or 5 metres tall, have opposite maple-like leaves, and produce attractive white flowers, red fruit and autumn foliage. The fruit of the American species is said to be more palatable than the European; the berries of the latter are extremely bitter and distasteful and are often left on the bushes by birds till late winter. A more reliable botanical difference is given by Dirr (2011) who says the form of the warty glands on the petiole at the base of the leaf differs between the species. In the European species, *Viburnum opulus*, these glands are sessile and concave, whereas the American species, *Viburnum trilobum*, has convex and stalked petiolar glands.

Cramp Bark is sold worldwide and is often listed as *Viburnum opulus* without further specifying the species or place of origin. Some suppliers state that this herb is sourced by wildcrafting from the United States, and so they could be selling the American highbush cranberry. In Europe supplies may also come from a variety of countries including Romania and Croatia, and these are most likely to be sourced from wildcrafted European cranberry. It is rarely possible to be sure whether the European or American species are being sold, as pictures of the bark or shrub do not provide sufficient identification. If populations of the American highbush cranberry are well-established, then there should be no reason to object to sustainable harvesting, but this would need to be effectively monitored. However, given concern about threats to *Viburnum trilobum* in its natural habitat, there is a good rationale for promoting the use of the European species, and the Holt Wood project shows that it can be readily cultivated.

Holt Wood is a small agroforestry project in southwest England. It was established with the aim of promoting sustainable cultivation and harvesting of medicinal trees and shrubs. I co-founded and have been involved with the project since 2005 when the site was cleared of conifers and replanted with medicinal native and introduced trees using a permaculture design. One year old *Viburnum opulus* whips, 40-60 cm tall, were
locally sourced and planted in an area close to the River Torridge, which is prone to flooding. At least 20 other kinds of medicinal trees were planted including several varieties of willow. Spacing of the plants varied but averaged approximately 1.5 to 2 metres apart. This close spacing is desirable for use of coppice management techniques, cutting close to the ground every 5 to 6 years, to produce an on-going supply of stems for bark. In April 2011, a selection of well-grown cramp bark shrubs was harvested. Each shrub, having reached a height of approximately 2 metres, provided at least five to six stems, which were cut at a height of about 20 centimetres from the ground. Leaves, and side shoots of less than a pencil thickness, were removed and the cleaned branches were then stripped of bark using a curved blade. The bark pieces were dried at room temperature for three to four weeks and then cut and powdered in a heavy duty grinder. Our experience has shown that it is important to make sure that the bark is totally crisp and dry or it does not powder readily. The coppiced stumps have since resprouted vigorously and will regenerate over the next five years enabling us to take further harvests.

So far this project has shown that it is feasible for at least one herbal practitioner to be self-sufficient in cramp bark with a relatively small planted area of a few square metres. The Holt Wood project has recently been recognised as part of a UK network of Permaculture Land demonstration projects, and I am aiming to encourage other herbalists and growers in the UK to consider establishing more herbal supplies through similar projects.

In Europe it seems that sustainable cultivation of the European cranberry is a real option for growers. The Holt Wood project in south west England demonstrates that it is possible to be self-sufficient in supplies of cramp bark using coppice management and medicinal agroforestry. Thus the production of cramp bark from cultivated sources can provide an alternative to using supplies from unspecified wildcrafted sources. Back in the United States, if wild sources are used, then collecting guidelines and clearer labelling are needed so we can be sure, if we are using the American cranberry, that it comes from sustainable and well-established populations.

Anne Stobart is a member of the National Institute of Medical Herbalists based in Devon, England. She joined the UpS Botanical Sanctuary internship program in autumn 2010. She uses the herbs harvested at Holt Wood in her clinical practice and is exploring further possible coppicing approaches to the sustainable sourcing of medicinal trees and shrubs. You can read her occasional blog at http://herbaid.blogspot.com/

References
Renee Davis is a community herbalist with the Olympia Free Herbal Clinic and a researcher currently finishing an M.A. in Whole Systems Design at Antioch University, Seattle, WA.

United Plant Savers is an organization that I have a lot of respect for. Since their founding in 1995, they’ve shifted the culture of American herbalism to be more respectful, mature and sustainable about the use of wild plants. It was a joy and honor to work with them. They’ve helped broaden my understanding of their structure and function as it relates to systemic change.

I. Brief History of United Plant Savers & Methods of Research

United Plant Savers (UpS) was founded in 1995 in East Barre, VT. Their mission is to protect native medicinal plants of the United States and Canada and their native habitat while ensuring an abundant renewable supply of medicinal plants for generations to come. They have a wide variety of programs to support their mission, including internship programs, conferences, botanical sanctuary networks, community grant programs, maintaining a botanical “At-Risk” list, medicinal plant conservation awards, educational publications, and others. As a result, they engage many diverse groups of people involved with plant work: herbalist practitioners, herb schools, product manufacturers, students, environmental consultants and landowners.

My research question was: By what means has UpS affected this change in our society? To gather the necessary information needed, I carried out an extensive literature review. I read Planting the Future: Saving our Medicinal Plants by Rosemary Gladstar and Pamela Hirsch, Herbal Voices: American Herbalism Through the Words of American Herbalists by Anne Dougherty, From Little Acorn: A History of UpS by Ann Armbrecht and watched Numen The Nature of Plants, produced by Ann Armbrecht and Terrence Youk in association with UpS. Additionally, I engaged in email discussions about UpS with Executive Director Susan Leopold, PhD and Office Manager Betzy Bancroft.

II. Findings

From the literature review, I was able to get a grasp on the major issues affecting the American herb field. These include concerns over licensing and certification, research methods, trends in the herb product industry, herb education and threatened plant species. I honed in on the issues surrounding endangered native medicinal plants. With the rapid expansion of the herb and natural product industry in the 1990s came new market-driven herb “fads”. Certain plants (such as American ginseng, black cohosh, echinacea, goldenseal, etc.) would gain popularity as a result of heavy marketing, creating a consumer demand for more product and plant material. These plants would often be gathered from wild stands in great amounts, decimating those ecological communities. United Plant Savers was formed in 1995 to create awareness and educate people on the matter and to curb practices that harm native plant communities.

From my conversations with Betzy Bancroft and Susan Leopold, I learned of the history of the organization. I was specifically interested in the difficulties encountered in its founding. The founder, Rosemary Gladstar, had been very active in the herbal community for decades. She was able to rally support from fellow wildcrafters and practitioners, but there were some obstacles.

One of the difficulties expected was the diversity of the herbal community. However, Gladstar recalls: “Several people told me there was no way it would work because there was too much diversity. But the diversity worked. People came together in a very heartful way. They were all very committed. We found that people had been asking this question; they were already concerned. And with this concern they brought this heartfulness and that was the key.” (Armbrecht)

Gladstar continues on the issues surrounding the founding of UpS and its mission: “Most people involved in the herbal world are there because of an interest in herbs, not necessarily because they are interested in conservation. And many people who had herb programs also sold herbs, so they didn’t really want to raise questions about conservation. So UpS had to be very thoughtful as we wanted to include people who were involved in all aspects of the herbal world, not just those interested in cultivating and conserving herbs.”

We kept saying, “No, this isn’t about ‘not wildcrafting’, that’s one of our great arts as herbalists.” We did ask the herbal and manufacturing community to realize that it was very bad business practice to pull up the things you depend on for your business. But it’s deeper
than just being bad business. It’s not ethical. That’s really the bottom line of it. So it wasn’t really about not wildcrafting; it was about identifying plants that were sensitive that we needed to be mindful of for their sake as much as our own.” (Armbrecht)

These excerpts sum up a core value of the work of UpS—care for the plants for their own sake. It also points to a restraining force in the work of UpS: the market-driven forces of the commercial herb industry. Betzy Bancroft notes “I would say it is primarily the herbalists’ community that has taken UpS’s mission to heart. There is still poaching, overharvesting and destruction from development going on in the larger ‘herb industry’...but we have made tremendous headway.” (B. Bancroft, personal communication, November 5, 2010).

Bancroft and Leopold point to the educational materials and conferences as key to getting the message out, with the conferences hailed as being the most effective. They also issue and regularly update “At-Risk” and “To-Watch” lists. Product manufacturers can become members and, to display their commitment to sustainable plant practices, display the UpS logo on the product itself. They cite a new challenge of UpS as engaging the younger generation in their mission.

They also promote “At-Risk” plant cultivation and educate practitioners on alternatives to the over-popularized herbs through their workshops, presentations, books and quarterly publications.

III. Interpretation & Analysis
My interpretations of these findings are many. What strikes me is that UpS has created a new standard for working with herbs that spans the field. UpS aimed to be a “wake-up call” for the herb community. Rosemary Gladstar put it well: “I would say that American herbalism is really based on what the plants can do for us. We’re a very self-centered community and species because we are very young. You know with babies, it’s all about what they can get. It takes a lot of maturity, a maturity that the human species is still working toward, to see that we’re here to give out as much as we receive. And so I think that what’s happened is the herbal community has matured and is now considering what can we give back? And our first calling was to go to the plants directly.” (Armbrecht).

UpS is really aiming to shift the cultural pattern of human separation from and domination over the natural world, emphasizing that the plants are there for their own sake.

The American cultural pattern of problem-solving can be seen in the mission of the organization. They have identified a clear problem and have come together as an organization to bring about the solution. They are providing feedback and measurements to the system in the spirit of the implied agent, conveying information in a way that guides behavior. As an organization, they embrace Americans’ value of clear and measurable facts, as well as their orientation to action. Finally, I’ve recognized that UpS gains support from the larger conservation movement and the American herb community.

IV. Key Conclusions, Questions & Reflections
My learning in this assignment has been deep and enjoyable. I embraced and focused on grounding my understanding of American cultural patterns in this assignment—a task both challenging and rewarding. I drew from my coursework in systemic thinking, research methods and social change at the Center for Creative Change in my analysis.

It was an honor to learn from an organization that has been so successful in bringing about positive systemic change. As a young herbalist, I highly respect their work. It has shaped my own practices in the field and with people, and no doubt they will continue to inspire, inform and educate others on sustainable herbal practices.

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Biodiversity & The Eastern Deciduous Hardwood Forests of the United Plant Savers Botanical Sanctuary

There is a scarce, although growing body of knowledge regarding the ecology of the herbaceous layer of the deciduous forests of eastern North America. While it is the herbaceous layer of these forests that account for the majority of their biodiversity, this layer, or stratum, houses many plant species that have historically and modernly been harvested for their medicinal and economic value. Unfortunately, these populations are now declining due to habitat loss and fragmentation, invasive plant establishment, over-harvesting, and herbivory. These medicinal herbs are a crucial aspect of culture and economy within Appalachia, the bioregion that surrounds the United Plant Savers Botanical Sanctuary.

UpS Sanctuary, Meigs County Ohio

Increased research and knowledge about these medicinal plants, their population ecology and life histories can lead to sustainable harvesting, monitoring, and conservation protocols. In turn, trends in forest management are now attempting to incorporate conservation and sustainable harvest practices of non-timber forest products in acknowledgement of the effects of traditional timber harvesting upon these invaluable resources. Albeit extractive in its approach, these practices rely upon a greater understanding about the ecology of the herbaceous layer, notably its medicinal species and their response to disturbance, in order to pave a golden road towards the balance between conservation and economy. United Plant Savers with its botanical sanctuary in Meigs County, Ohio is in a poignant position in this regard. Not only does the sanctuary lie in the heart of the above-mentioned hardwood forests, the land ethic and ‘hands off’ management practices have enabled this land to flourish and heal, and in doing so contribute full-heartedly to the biodiversity of the region and serve as a unique resource for education and research.

History of Research on the Sanctuary

There is much to be said about previous research ventures on the sanctuary. Due to the unique nature of the landscape, its previous land use history, land management practices, and the biodiversity it encapsulates, United Plant Savers Botanical Sanctuary has captivated the research interests of many academics, notably from the neighboring Ohio University, as well as various organizations such as the US Fish and Wildlife Service and Rural Action, a non-profit operating in Appalachian Ohio promoting economic, social and environmental justice. A wonderful example of these previous alliances is highlighted in the contribution from United Plant Savers to the establishment of regulations for the sustainable harvesting and trade of American Ginseng (Panax quinquefolius) for the state of Ohio.

Within academia, the earliest published qualitative study conducted was an Ohio University Masters of Science in Environmental Studies thesis (Zanski 1997), which investigates some of the principal land management practices that underlie the establishment and ethos of the United Plant Savers sanctuary. In her thesis, Zanski (1997) approaches Paul Strauss, one of UpS’s forefathers and founding members, and his Equinox Farm, as a land management model to apply to a wider context of private land ownership in ‘boom and bust’ coal mining regions such as Meigs County, Ohio. Goals of this research included the exploration of what the author calls an ‘extractive reserve’ as a viable conservation strategy, which incorporates not only relying upon natural resources as an income source but which also includes ecological restoration and sustainable forestry practices.

Another qualitative Masters of Science in Environmental Studies from Ohio University (Hoffman 2006) also addressed the definition of sustainable land management, focusing on the United Plant Savers sanctuary and surrounding 2000+ acres of contiguous land owned by like-minded individuals. In the course of her analysis and definition of sustainability, Hoffman concluded that although intentions were geared towards sustainable outcomes, this region was still in the embryonic stages of sustainable land management.
This is, of course, one of the many issues surrounding the definition of ‘sustainability’, especially when those definitions are applied to specific communities out of context of land use history and current land use practices.

Invaluable quantitative research has also been conducted on the sanctuary – most notably an Ohio University floristic study (Martin 2002), a systematic documentation of all flora within the forested sections of the sanctuary. Martin’s (2002) results documented 358 species in 238 genera and 97 families. These totals also included two species, Corallorhiza wisteriana, spring coral root, and Juglans cinerea, butternut or white walnut, which were at the time state-listed ‘potentially threatened’ species. Documentation of invasive non-native plants on the sanctuary was also carried out. Populations of species such as Rosa multiflora, multiflora rose, Lonicera japonica, Japanese honeysuckle, and Elaeagnus umbellata, or Autumn olive, amongst others were noted. Monitoring of invasive species presence and abundance is paramount in maintaining a functioning and healthy forest, as invasive species have the ability to crowd out native species, reducing suitable habitat and biodiversity and in the case of the sanctuary, compromising the mission of conservation and provision of ‘safe haven’ for its beloved threatened and medicinal herbs. In the course of her research Martin (2002) also located and documented populations of 4 medicinal plant populations using GPS coordinates including Hydrastis canadensis, goldenseal, Actaea racemosa, black cohosh, Panax quinquefolius, American ginseng, and Sanguinaria canadensis, bloodroot. Inputting these coordinates into a modern Geographic Information System (GIS) has revealed interesting patterns amongst and between the four medicinal plant populations (Guthrie 2011, unpublished data) alluding to habitat preferences in regards to soil types, topography, and land use history. Having GPS coordinates like these allows for the monitoring of spatial movement of populations through time. This is exceedingly important information for preserves and sanctuaries to document as herbaceous plant populations are rarely spatially static, especially when faced with modern disturbances and migration caused by climate change.

In 2009, as part of the Ohio Breeding Bird Atlas II, a survey of bird populations on the sanctuary was conducted. The surveyor, Steve Ritt, documented 77 species in the survey block of United Plant Savers and concluded it was by far the highest count he had tallied out of any blocks he had surveyed in the state of Ohio. In an email to Chip Carroll, intern coordinator for the sanctuary, he attributed this high species diversity to the wide variety of suitable and protected habitats, such as deep, rich ravines, ponds, woody understory, and old agricultural fields. As both resident and migratory birds rely upon many of the plants in the sanctuary as a food source, they serve as invaluable dispersers of seed thereby contributing to new populations of herbs, shrubs, and trees in the region and beyond. Therefore, in providing safe habitat not only for plants, but also for birds, the UpS sanctuary is also continuing to contribute to the biodiversity in this region.

“The perennial nature of the herb layer and its complex responses within the forest community often require years, if not decades, to observe.”

How to Move Forward
One of the most difficult aspects of studying ecology is that it is multi-variant, an interweaving web of factors from soil biota and nutrient cycling to light infiltration, water balance and topography, and the list grows longer the more ecologists learn about this forest stratum. Adding to this difficulty is the issue of time. The perennial nature of the herb layer and its complex responses within the forest community often require years, if not decades to observe. In addressing this issue many conservation and monitoring strategies have enlisted the use of permanent plots, or areas within the landscape that are subject to change temporally, where their spatial boundaries have been held constant.

This type of monitoring has become increasingly important, especially in regards to the effects of climate change on the herbaceous layer and forest ecosystems at large. In order for conservation organizations like United Plant Savers to continue their work and their mission, strategies must begin to incorporate monitoring regimes. This can take place in hopes of continuing to protect our precious forest resources as we learn more about their evolution, adaptation, and migration within the inevitable parameters of global warming.

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Harvesting of Medicinal Plants in the Southern Appalachian Mountains
by Janet Rock, Gary Kauffman & Nora Murdock

Is harvesting it a threat to the long-term viability of wild American ginseng populations in the National Parks and Forests, and the Southern Appalachians in general - the core of the species’ distribution?

The Southern Appalachian Mountains are well known for their diversity of native medicinal herbs. Federal land-managing agencies (National Park Service, US Forest Service) operate under different legal mandates, with the National Forests allowing controlled commercial harvest of some plants, and the National Parks not allowing such harvest. However, all land managers are working to maintain viable populations of native plants. Managers and biologists from different agencies are expressing concern over the increasing level of harvesting (and poaching) occurring on public lands. In the National Parks, poachers are penetrating deeper into the most remote backcountry, as more accessible populations of target species are disappearing.

No species has as rich a history of commercial harvest as American ginseng (Panax quinquefolius), which has been wild-harvested for over 250 years. Native to eastern North America, ginseng is a long-lived perennial herb that typically requires a minimum of 5-9 years before it produces viable seed in the wild. Due to sustainability concerns the species was included on the CITES (Convention on International Trade in Endangered Species - Appendix II) list in 1975. With the recent economic downturn, in combination with rising export prices, increases have been observed in both legal collections from National Forests and private lands, as well as illegal harvest from National Parks and other protected lands. During the last two years, the Nantahala and Pisgah National Forests have issued a historic number of permits to harvest ginseng.

This article details three different studies that have been conducted recently to assess the potential vulnerability of ginseng to current levels of harvest, both legal and poaching. Also included are notes on several other heavily harvested species. The three studies used different approaches to the question: 1) National Park Service – Blue Ridge Parkway – a landscape-level survey of ginseng occurrence and population structure at 200 sites; 2) National Park Service – Great Smoky Mountains National Park – a detailed demographic study, tracking all individual ginseng plants in multiple wild populations across several years; and 3) US Forest Service-National Forests in North Carolina – an 8-year study measuring recovery, following a single controlled harvest.

Blue Ridge Parkway

The National Park Service’s Appalachian Highlands Inventory & Monitoring Network (APHN) is monitoring several plant species known to be significant poaching targets, including galax (Galax urceolata), black cohosh (Actaea racemosa), bloodroot (Sanguinaria canadensis), several trillium species (Trillium spp.), and ginseng.

The early results of monitoring are alarming, especially for ginseng: over the past two years, 200 sites predicted to be suitable habitat for ginseng have been visited and evaluated, with only 42 ginseng populations being found. Virtually all of these have shown signs of heavy poaching, even in remote areas that were miles from the nearest roads or trails. Population age structure was skewed toward younger, non-reproducing plants, in all populations. In the wild, plants are usually at least 5-9 years old (often much older) before they add the 3rd prong (leaf) and begin to produce berries (with seeds). Since ginseng reproduces only from seeds, this is a critical life stage in any population. In protected ginseng populations (no harvesting), 3 and 4-pronged plants are usually the dominant size classes. At 93% of the APHN sampling sites, there were no 4-pronged plants, and three-pronged plants were uncommon; 30% of the populations had no reproductive plants left. Only one of the 42 populations contained more than 30 plants, and the vast majority had less than a dozen plants remaining.

Great Smoky Mountains National Park

Great Smoky Mountains National Park (GSMNP), at over half a million acres, is the largest fully protected reserve for wild ginseng in the US. Even though the park has been protected for 75 years, ginseng poaching has always occurred at some level.

Since 1991, GSMNP law enforcement rangers have confiscated over 13,000 wild American ginseng roots from poachers. Resource Management staff have aged these roots and replanted undamaged ones back into the park. The average age has increased in
the last decade from 9 years to 11 years, suggesting that poaching is occurring in more remote locations. In 2010, rangers intercepted two poachers with over 800 roots that they had removed while camping for several days in the park’s most remote backcountry. 116 of these roots were 20 years old or older; the oldest root was 45 years. In 2011, the average age of ginseng roots in two poaching cases was even greater, 13.5 years, because these seizures contained roots up to 50 years old.

A 4-year American ginseng demographic study was conducted in GSMNP from 1998 to 2001 to determine whether populations were declining, increasing, or stable. Data was collected on almost 900 plants from 6 wild populations (seedlings to 4-pronged plants), including number of leaves, stem height, flower count, and seed set. Dormancy in ginseng was confirmed for the first time during this study with 8% (average) of all plants entering dormancy in any given year. Most dormant plants emerged after 1 year of dormancy with a decrease in size, but 12% remained dormant for 2 years. Seed production was very low (ginseng reproduces exclusively by seeds), compounded by a seedling mortality rate of 90%. Larger plants, 3 and 4-pronged, contribute the most to population growth, because they are the only ones that produce any appreciable seed. Population projections (a simulation of population growth) for various harvesting scenarios indicate that the Smokies’ populations are currently barely maintaining themselves and cannot tolerate any harvesting, either annually repeated or a one-time large harvest of 3 and 4-pronged plants. Based on detailed demographic data from Smokies populations, the estimated minimum viable population size (to ensure long-term survival), in ideal climate conditions, is between 200 and 500 plants, which is larger than most existing populations within or outside the park. In less than ideal conditions, particularly during periods of drought, the minimum number of plants needed for long-term population survival is even higher.

Very few controlled harvest studies have been done across the range of American ginseng. In 2003, US Forest Service botanists in NC began a simulated harvest study within a remote population of 168 plants on the Pisgah National Forest. All fruiting three- and four-pronged plants, 46 in total, were harvested. The average age of the harvested ginseng was 13.8 years for the 3-pronged plants and 22-23 years for the 4-pronged plants, with one of the 4-prongs being 45 years of age. All mature seeds were carefully planted two centimeters deep during the initial harvest and during each subsequent monitoring in 2004-2006, 2008, and 2011. No further harvesting was conducted and no evidence of poaching was seen. Prior to the harvest, non-flowering one- and two–pronged plants represented 63% of the population. By comparison, in 2004 and 2005, these individuals represented 93% of the population. After 8 years, less than half the original number of 3- and 4-prong plants were present, compared to pre-harvest conditions, indicating a very slow recovery rate, even from this conservative, one-time harvest of 28% of the population.

Individual ginseng plants are very long-lived (plants over a century old have been documented), but are slow to reach maturity and reproduce in the wild, which intensifies the impact of heavy or repeated harvesting on populations. For populations that are already dropping to dangerously low numbers in the wild as a result of heavy harvesting, the effects of severe consecutive drought years (like 2007 and 2008), added to harvesting impacts, could result in annihilation of the species in some areas.

Within the core of the species’ range, the Southern Appalachians, on lands where the species is legally protected from any harvest (the National Parks), or from unsustainable harvest (the National Forests), monitoring data from the three separate studies described above is indicative of a disturbing trend of widespread decline in this species in the wild.

Janet Rock, Botanist, National Park Service, Great Smoky Mountains National Park
Gary Kauffman, Botanist, US Forest Service, National Forests in North Carolina
Nora Murdock, Ecologist, National Park Service, Appalachian Highlands Inventory & Monitoring Network

“Kauffman, a botanist and ecologist from the National Forest Service, tracks the dwindling populations of Panax quinquefolius, or American Ginseng—the most heavily traded wild plant in the United States. Up to 85,000.00 pounds of fresh ginseng roots are legally dug each year. Much of it comes from the Southern Appalachians, and the vast majority ends up in Hong Kong for use in traditional Chinese medicine, where it has replaced Panax ginseng, its Asian cousin, virtually extinct in the wild. Botanists such as Kauffman are working to make sure the same doesn’t befall American ginseng.”

(Quoted from “Buried Treasure” by John Kessler published in Garden and Gun, 2011)
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
Aleuris farinosa

VENUS’ FLY TRAP
Dionaea muscipula

VIRGINIA SNAKE ROOT
Aristolochia serpentaria

WILD YAM
Dioscorea villosa, D. spp.

“Synergy in Botanical Medicines; Goldenseal as a Case Study
by Nadja B. Cech

Synergy is the underlying principle that drives traditional plant based medicine. The concept is that the multiple constituents of a complex mixture work together such that their combined activity is greater than the sum of their parts. As a mathematical equation, it can be expressed as 1 + 1 > 2. Physically, this means that when two chemical compounds with moderate activity are combined, something exciting and unexpected may happen. The traditional approach to scientific study of plant medicines has been to purify them down to single active compounds, which can ultimately be developed into pharmaceutical drugs. The limitation of this approach is that synergistic interactions are overlooked. To their credit, scientists are not ignorant to this conundrum. It is widely recognized that the behavior of mixtures can be completely different than that of single, isolated compounds. However, like the proverbial man who looks for his keys under the lamp post even though he dropped them somewhere in the dark, reductionist science has continued to be applied in the scientific study of botanical medicines because it is really hard to do it any other way. Complex botanical mixtures vary so greatly in composition that research with such mixtures is often not reproducible and, therefore, not science.
In the past several decades, there has been increasing interest in developing strategies to effectively study the complex interactions of mixtures of compounds in botanical medicines. The Cech laboratory is one of many engaged in this pursuit. With recently published results [1], Dr. Cech and coworkers describe a new approach, synergy-directed fractionation, which enables active components from a mixture to be isolated while still accounting for synergistic interactions. The key to this approach is to test the biological activity of the fractions in combination with the crude extract throughout each step of the isolation process. This approach is laborious, requiring as many as 5,000 biological assays to come up with the identities of the synergistic compounds. However, it works. The Cech paper describes the application of synergy-directed fractionation to identify two flavonoids from goldenseal (Hydrastis canadensis), 8-desmethyl-sideroxylin and 6-desmethyl-sideroxylin. These compounds are involved in the synergistic antimicrobial activity of goldenseal. Alone, the flavonoids have no effect on bacteria. However, goldenseal contains another constituent, berberine, which is toxic to bacteria such as the notorious Staphylococcus aureus (responsible for MRSA infections). Berberine alone is only effective at very high dosages, but the newly identified flavonoids from goldenseal cause it to accumulate in bacteria cells, making it effective at much lower concentrations. This is an example of synergy. Interestingly, goldenseal roots are very high in alkaloids, while the synergistic flavonoids are found at much higher levels in goldenseal leaves. Although this prediction has yet to be tested in vivo, the results of the Cech research suggest that the most effective goldenseal preparations may be prepared from the whole plant (root and leaf).

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References:
Certainly an amazing aspect to working for UpS is being able to travel, and the insight that comes from traveling often helps to inform and or validate our path as an organization. Geographically speaking, UpS covers North America, including Canada and Hawaii. Many requests over the years have been for UpS to expand. This would be a difficult task for such a small organization, and already we struggle to adequately cover the geographical range we currently encompass. That said, I was fortunate this fall to travel out to the Traditions in Western Herbalism Conference at Ghost Ranch in New Mexico. For those of you who have been there, you know it is a landscape like no other. Since I was a teenager, Georgia O’Keeffe’s artwork from her time at Ghost Ranch inspired my desire to see flowers in a different perspective. The opportunity to go there was a pilgrimage I had been dreaming of for a long time. It is like no other place I had ever been—the red hills and vast vistas seemed like a virtual reality. At Ghost Ranch there is a small museum of fossils found in the area. Intact dinosaurs were found at the property presumed to be well preserved in what could have been a mudslide. One species, named Vancleavea, when recreated looked like a beautiful dragon with its small armor plates called osteoderms, but it is actually related to both crocodile and dinosaur. Additionally, we know what the flora was like due to plant fossils that were found that reveal cycad-like trees and conifers. Hard to imagine that at one time the landscape looked more like a tropical forest you would find in Hawaii with its immense tree ferns, not the barren red hills they are today. From the geological time scale we know that plants were around long before us adapting and crafting the landscape we now call home. As my daughter reminded me in her presentation of the Story of Human beings at her Montessori school, “Remember, the picture of human beings is at the end of the Time Line of Life.”

The synergy from herbalists gathering in such a sacred landscape made the trip all the more epic. Georgia O’Keeffe often said in regard to her flower paintings, “Nobody sees a flower really; it is so small. We haven’t the time, and to see takes time—like to have a friend takes time”. To build an intimate, deep relationship with plants we have to stop and observe, take in a different perspective. At the conference that Friday night, Jesse Wolf, with background ambiance from the sisters of Appalachia Rising, used his storytelling to wind us down the path of following our inner voice so that we end up at just the place we need to be. Herbal gatherings, internships, apprenticeships, and schools are all critical to building a network of those who are drawn to reconnect with plants in a time when our society has drifted away. This you can read about in the two testimonials by UpS members—Katie Euliss connecting with plant people in the Kansas prairie and Jennifer Heinzel’s story of what she learned as an intern at Goldenseal Sanctuary.

Georgia O’Keeffe did not go to herb conferences; instead, she was born in a different era, with her family living close to the land on a farm in Sun Prairie, Wisconsin. She developed a close connection to nature that fed her soul and encouraged her to follow her heart, at a time when the role of women was changing, due in large part, to her courageous path. She loved to grow her own food. At her house that she restored not far from Ghost Ranch, her wonderful garden, irrigated by an ancient water system, was still in place, masterfully maintained by the O’Keeffe Museum.

This winter as I flew to the Big Island, I picked up the airline magazine, and there on the cover was Georgia O’Keeffe and her artwork from her trip to Hawaii in 1939. Instead of a 6-hour plane ride she spent 6 days on a boat to reach the islands. She had been offered a trip by Dole to create commercial art to promote a new fruit being marketed to Americans, the pineapple. Dole had refused to let her see the plantations, preferring her to stay in the city where they sent her a pineapple to paint. This infuriated her, and she aborted her contract with Dole and went off exploring the exotic islands. I felt like I was following in her footsteps, except I was there to investigate the logging of endemic sandalwood on the Big Island. Upon her return to New York, she did end up painting a pineapple that was mailed to her, and it was used in the first national campaign introducing what was then an exotic fruit.

I learned many things from this trip, but there is one thing I would like to highlight. United Plant Savers is a completely unique organization; no one else is out there giving voice to native medicinal plants in jeopardy. Native plants are already under a great deal of pressure due to loss of habitat, invasive species, and dramatic climatic changes. That said, medicinal plants that have significant economic value are at an even greater risk. The heartwood of sandalwood and its roots are distilled for essential oil; its wood is valued for beads and carvings. The genus, Santalum, meaning sacred, has been highly valued in trade going back thousands of years. Medicinally, the active santalol has
antiseptic and antimicrobial properties; additionally, the oil is used in skin lotion for its cooling properties for burns. I met a wonderful local herbalist in Hawaii who made a lip balm and a skin salve for sunburned skin that included iliahi (Hawaiian for sandalwood). The scented wood, because it is so dense, is often crafted into the tools necessary for making the culturally significant and artistically made kapa cloth and also used to scent the cloth.

Sandalwood is deeply ingrained in Hawaiian history due to the intense harvesting and trade that took place during the reign of Kamehameha I. In 1926, C.A. Judd’s manuscript on the natural resources of Hawaiian Forest regions and their conservation, stated that “...the damage to the forest consequent to the trade... was insignificant in comparison with the damage to the native forests wrought with cattle.” This aspect of my trip was hard to digest, and no one could prepare me for Parker Ranch. Founded in 1847, it is one of the oldest cattle ranches and among the nation’s largest. Yes, it’s true that an island rich in endemic species was deforested for grazing cattle. The extreme loss of habitat makes the small fragments of forest extremely precious when you consider how valuable trees are to a water system on an island in the middle of a vast ocean. This is why United Plant Savers has stepped in to bring awareness to the logging that is currently taking place and has added the 6 endemic species of Hawaiian sandalwood to its “At-Risk” list. I might add that in every country in the world where sandalwood grows there is legislation regulating its harvest except for Hawaii. The Chinese, who named the islands “Than Heung Sahn” (meaning the sandalwood mountains), depict a landscape that was once forested by an unusual tree that was essential to a landscape covered in endemic plants. We do not even fully understand the implications of such habitat loss or the ecological role that sandalwood, being a hemi-parasitic species, plays in establishing a community of plants in such a fragile ecosystem. A hemi-parasitic plant is one that can photosynthesize but derives water and some nutrients through attaching its roots to those of other species. Could this adaptation play a role in drought resistance or as a means to withstand periodic fire? Sandalwood as a species has much to teach us in regards to how community dynamics work, as well as how plants connect and communicate to each other. Restoration of the “dry forest ecosystem” landscape must take place by planting sandalwood along with host species. It requires a paradigm shift; it cannot be planted in a plantation but in a way that mimics natural succession by planting it in conjunction with its native allies.

Here are some facts about Hawaii from the US Botanical Gardens: 91% of all flowering plants on the islands are endemic. Although Hawaii represents only two tenths of 1% of the total landmass of the United States, it has more than 30% of the nation’s rare and endangered species. Eighty-five out of 150 distinct ecosystems are critically endangered chiefly due to habitat destruction and invasive species.

Hawaii has one of the highest percentages of endemic plants found anywhere in the world. This is because it is a very isolated land mass, and plants (before humans started to inhabit the island) evolved on their own and are thus found no where else. Because of its high rate of endemic flora, sadly it also has the highest rate of extinction due to habitat loss and invasive plants, animals and humans. United Plant Savers is working with Danica Reynaud, PhD, founder of the International Sandalwood Foundation, to bring like minded folks together to figure out how to promote conservation through propagation and encourage restoration of deforested lands once covered in sandalwood. The upcoming Sandalwood Symposium to be held in October at the University of Hawaii, will bring together Hawaiians, students, land-owners, native plant propagators, historians, ethnobotanists, foresters, permaculturists, farmers, federal and state botanists, local universities, and non-profit organizations focused on sandalwood.

This brings me back to Georgia O’Keefe’s quote about how to see takes time; her quote resonates with me now in a deeper sense. This is because I realized when we take the time to look at just one species, we can then discover solutions to save an entire habitat. I understood on this trip that many state and federal agencies and environmental non-profits are so overwhelmed trying to address massive complex issues that it’s easy to lose the ability to be effective in the process. United Plant Savers’ focus on sandalwood, I believe, brings a fresh perspective. By focusing on one plant, we can be a force for change even as a small organization. Our “At-Risk” list has had a major impact in the herbal industry, and going forward I intend to do other events focused specifically on individual plants on our “At-Risk” list. Georgia O’Keefe’s message is that to see takes time; to build a friendship takes time; to understand the complexity of why plants are on the “At-Risk” list and what we can do about it takes time and focus. Stay in the loop. I will be writing regular updates on the website as our upcoming conference in Hawaii builds momentum.
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.

Meet Some of our New BSN Members!

EDEN HYLL
Natural Bridge, NY
Sanctuary Steward: Diane Seufert Tait

After years of checking real estate pages wherever I went, looking for that perfect piece of land and cabin, it was hard to believe the hunt was over when I purchased Eden Hyll in 2007. It comprises a solar-powered cabin and almost five acres of Precambrian shield overlooking an eight acre pond.

My intent was to enjoy a getaway, a haven, a relaxing oasis far from the Toronto area where I live. The land had another agenda.

I had bought my special place in early April, so I had no idea what I would find when the season’s growth began. In that first June as I walked through my woods of white pine, Eastern hemlock, cedar, young oak, maple, cherry, yellow birch, elder and beech, I became aware of some wonderful plant residents. Spread before me as a feast to my eyes were partridge berry, goldthread, clintonia, wild sarsaparilla, pink lady’s slipper and other smaller orchids, three kinds of St. John’s wort and blue flag iris, to name a few. The pond itself has a healthy population of frogs and fish, a wealth of wildlife, including a family of minks along my shoreline and a diverse variety of bird inhabitants. It seems that every time I visit, I’m shown another treasure.

I determined not to engage myself in too much gardening, since I already have extensive herb gardens at home. Nevertheless I was soon enthusiastically thinning out hundreds of young trees, leaving only the larger, more mature ones. This has allowed the plants on the forest floor more space and light. What a difference that’s made in only a couple of years. And it’s allowed new plants, such as cardinal flower and snakeroot to show up!

Later, while walking the surrounding roads, I found bloodroot, eyebright, bluets and Deptford pinks, which have transplanted well and begun to spread. I’ve introduced goldenseal, wild ginger and black cohosh into the woods and made three small trails. Eventually conceding that once a gardener, always a gardener, I’m content to see Eden Hyll as just a wilder kind of garden.

My land and I are still getting to know one another, but now that we are a bona fide Botanical Sanctuary, I’m starting to think about the educational component of my commitment. I think it’s a good time for the local people to learn about the treasure they live on. I don’t preach; I chat and weave my message in as I go. I take people as they are, respecting them for their beliefs, and then I’ve found they usually respect me for mine. A lot is accomplished with a light hand and a friendly smile.

This coming year I’m hoping to bring some of my students to help me in the various projects. It’s so different to work with and around the herbs in their chosen natural habitat and learning by doing is always more effective and life-changing. I’m blessed to have been called to White Pine Pond as steward to this little parcel of the woods and look forward to helping the green folk spread, thrive and endure for those who come after.
Fern Hollow lies on an 18-acre woodland in the Driftless Region of NE Iowa. It is a magical place, rich in all seasons with native plant and animal life.

We have lived here for 31 years. For 15 years our family of four lived in the rustic and beautiful log cabin that was built by my great-great-great grandparents, which is now a B&B enjoyed by people from around the nation. We have found that there is an abundance of people who are glad to stay in the woods in a cabin with cold running water, a composting toilet, and limited electricity made by solar panels.

Throughout our 31 years we have nurtured relationships not only with the land and the plants, but with the neighborhood and wider community through the regular hosting of events and tours which bring people onto this land. Some examples include:

- We host plant walks and foraging events. (Let me know if you’d like to lead one next year!)
- I am the coordinator for a local intergenerational education organization, and for 20 years have hosted annual events that bring children and adults into these woods. These include May Day festivals, wildflower walks, play days in the woods for children, adult rituals that revolve around the turning wheel of the year through the natural world, and good ol’ campfire sing-alongs.
- As part of our garlic mustard eradication campaign, we host an annual garlic mustard pulling party in the springtime—we have live music and call the event ‘Dig and Jam!’
- Our daughters planted and tend a medicinal herb garden, and their upbringing in these woods has served them well as they continue, at ages 19 and 21, to seek knowledge and experience about plants. Recently they organized a skill share here in the valley which brought in 60 people, both locally and from elsewhere.

We are fortunate to live in a community which has become a destination for many who seek knowledge and support in recreating sustainable community living practices through gardening and orcharding, foraging, herbalism, simple technologies, old wisdom, and creative arts. We are surrounded by these wonderful neighbors:

- The Pepperfield Project (PP) is a nonprofit educational organization started by our next-door neighbor, David Cavagnaro. This is an educational homestead where classes are offered on seed starting, plant propagation, seed saving, food preservation, and cooking, among other things.
- Seed Savers’ Exchange, located four miles from Fern Hollow, is a destination for many who come to Decorah and many who stay at our cabin, SSE has played a huge role in the gardening and land protection ethic that has been part of the foundation of our community these past decades.
- Many people in our rural neighborhood are involved in creative and sustainable projects with their land: CSAs, organic cropland, hunters, anglers, conservationists, and a commercial organic hops yard.

Species that grow here and are included on the UpS “At-Risk” and “To-Watch” lists:

- trillium, echinacea, bloodroot, blue cohosh, wild yam, snakeroot, lady’s slipper, labelia, maidenhair fern, cream gentian, and mayapple.

Here are some other plants that live here:

- honewort, Solomon’s seal, Joe Pye weed, Culver’s root, white avens, buttercup, twisted stalk, choke cherry, germander, yarrow, burdock, belladonna, blue vervain, meadowsweet, St. John’s wort, wild mints, elder, shepherd's purse, celandine, skullcap, nettle, prickly ash, many ferns, sweet woodruff, chicory, bergamot, wild carrot, agrimony, boneset, cleavers, juniper, motherwort, catnip, false Solomon’s seal, self-heal, purslane, black cherry, sumac, goldenrods, meadowsweet, chickweed, mullein, plantain, rosehips, anise hyssop.

Here are some of the spring ephemerals that grow here:

- rue anemone, spring beauty, trout lily, snow trillium, nodding trillium, Jack-in-the-pulpit, bloodroot, hepatica, bellwort, Dutchman’s breeches, squirrel corn, buttercup, Virginia bluebell, violet, columbine, wild geranium, sweet William, wild ginger.

We are excited to connect with United Plant Savers through this designation as a Botanical Sanctuary and proud to be one of the dots on the map that’s creating the national network. We look forward to exchanges of knowledge with UpS members, and to passing along that knowledge to the many people of our region who are hungry to connect with the wild plants around us. Come visit!
When arriving at Tai Sophia Institute for the first time, you may wonder about the juxtaposition of a school of holistic healing in a business park. But walk through the doors – and especially the lush garden – and you notice right away that something different is happening there.

Often considered a place of “great energy,” Tai Sophia is a haven for the holistic healing education, including acupuncture, herbal medicine, nutrition, health and wellness coaching, and transformative leadership programs.

The two jewels of Tai Sophia are the quarter-acre medicinal herb garden and the wild lands of the neighboring Patuxent woodlands and river area.

Its campus is situated among thousands of acres of preserved natural woodlands that surround the middle Patuxent River and lead to the Middle Patuxent Environmental Area. Tai Sophia is proud that their students have the unique opportunity to learn and practice in the midst of Maryland’s natural beauty.

Students and faculty at Tai Sophia have been involved in planting native medicinal plants (American ginseng, black cohosh, goldenseal and Virginia snakeroot) in the adjacent forest, and an array of common botanical remedies in the Institute’s herb garden.

On hot summer days, Tai Sophia students wander in the hardwood forest for a cool retreat from rigorous studies. Often you can see a group of herbal medicine students congregating, laughing, and eating lunch among the many plant allies of the medicinal gardens, fragrant with tempting tastes and colors.

Tai Sophia is grateful to be part of the United Plant Savers Botanical Sanctuary Network. The Institute has a long-standing commitment to education about “At-Risk” medicinal plants and conservation and is passionate about sharing ecologically important values with students and visitors, alike. For more information visit www.tai.edu.

Happy harvest time to all the earth workers out there. Here at Sudarshan we are in the process of harvesting some of our second year roots from astragalus, echinacea and marshmallow. We have yet to make it to the elecampane, and it may be that it goes into year three. We also harvested a beautiful volunteer crop of self-seeded ashwagandha. We could not have done this without the help of the folks and volunteers at HAALo, Health Alternatives for All Locals. HAALo, www.haalo.org, is an amazing nonprofit resource and apothecary located here in Nevada City, CA. We sell some of our herbs to HAALo and are working to come up with ways to make farming medicine on a local level sustainable. Volunteer power is the strong link in our quest to helping Nevada County become less dependent on imported medicine and food.

My wife, Laura, and I are blessed with the arrival of our daughter, Emma Alyka Mahina. With any luck she has plants in her stars. In an effort to move toward a financially sustainable farm, we are looking toward becoming the plant hub for our new nursery and greenhouse/farm supply store, Forever Flowering, www.foreverflowering.net, that we are starting here in Grass Valley. We are excited about our first year-round crops with the help of our greenhouses and our new radiant floor heating system being installed this fall. In the search for new innovative ways to farm we are diving into the world of aquaponics with its promise of efficiency, sustainability and abundance of food crops. 2012 is sure to be an adventurous, educational and abundant year for us here on the farm and within our community.

Thanks to UpS for all the work they do to help keep the local farming movement rooted and growing!
The realtors couldn’t believe their eyes. I wasn’t interested in how many baths the house had, or how recently the kitchen had been remodeled (though I did give the views a glance) during my search for land in 1977-78. Instead, I was checking out the plants. When realtors took me places, I looked outside first, then inside; I wanted to walk in the woods and the fields, not see how many closets there were. What was growing there was more important to me than what had been built there. I wanted a woodlot, preferably with a sugar bush. I wanted water, running, if possible, on the land. And, most of all, I wanted to find a place already rich in medicinal herbs.

I envisioned a sanctuary for plants and a safe place for women who needed to be wild, to discover and love all parts of themselves. I imagined I could cherish that place and protect it into the future beyond myself. I dreamed of safe space for growing plants and people. I wished to create a place where the plants could nourish people on many levels: physical, psychic, emotional, artistic, sensate, intellectual, historical, indigenous, storied, and connected—something wild, yet within reach of New York City.

My journal of plants at the for-sale farms I visited lists plenty of useful invaders from Europe: burdock, chicory, dandelion, evening primrose, goldenrod, jewelweed, mullein, nettle, plantain, poke, Queen Anne’s lace, red clover, wild chives, yellow dock, and so much more. But it was the indigenous medicinals that I was really looking for.

My herd of dairy goats scatters fertilizer freely, encouraging many new plants, and I harness red worms to help me turn their bedding into rich compost, allowing me to build raised beds and add some cultivated herbs, such as comfrey, mug/cronewort, warmwood, black cohosh, blue cohosh, Solomon’s seal, Oswego tea, shiso, hops, marsh marigold, ginkgo trees (thanks to Stephan), schisandra, a chaste tree (from Jim Duke’s garden), goldenseal, and wild yam (thanks to United Plant Savers).

My gardens raise weeds: stinging nettle, purslane, lamb’s quarter, amaranth, garlic mustard, winter cress, wild chives, motherwort, cleavers, black nightshade, ragweed, catnip, lemon balm, thistles, ground ivy, self-heal and so many more. I can harvest wild salad greens year-round, except when the snow is deep. My students and I create wonderful medicines from them, too.

Laughing Rock Farm (55 acres, most of it wooded) is part of three conservancy organizations. In the late 1980s, I became a historical site in the Roundout-Esopus Land Conservancy. My deed is modified so no one can ever subdivide the land, create any roads, nor build any further structures here.

In the 1990s, I registered Laughing Rock Farm as a National Wildlife Conservancy property. Now, in the 2010s, this sacred and special land is a United Plant Savers Botanical Sanctuary as well. I am so honored. I am so glad to be more deeply involved with an organization that is helping me remind us all that herbal medicine is people’s medicine.

Laughing Rock Farm, in its guise as the Wise Woman Center, has been a teaching center for over thirty years. Most weekends find people on the land learning to identify, harvest, prepare, and use the wealth of weeds and medicinal plants that I protect here.

I feel great contentment. I have fulfilled the dream I had in the 70s. I do offer safe space to women and plants, and I have done so for 33 of my 66 years. With the blessings of the Goddess, I hope to be allowed to continue for another 33 years. I am so privileged to steward this beautiful piece of the Hudson River Valley, in the foothills of the Catskills, a magical space where the plants heal minds and hearts. Green blessings.
Over the past two years while I was birthing my children it seemed that our work with the land had stalled. This spring I found that that assumption was very wrong. I have meant to sit and write about our sanctuary a thousand times, and it seems that only now is it really the right time to do so.

Just before my first child came into our lives, we had been encouraged to take the business focus in a different direction. When I began working with the land many years ago, I had a vision one day while seeking guidance and, I guess, collusion from the spirits that reside here. What I got was a resounding “YES!” and I began working toward a center that supported women’s balancing and couples’ fertility work through the plants. At that time we decided to name our farm “Mockingbird Meadows” after the mockingbirds that came every year to nest and raise little ones. They seemed to be giving us their blessing that first year by nesting above our very first bee hives. When it came time for my son Aidan to be born, we were changing our focus to the herbal infused honeys that I make, and I was being dissuaded more and more away from my initial end goal. Those two years were like wading through molasses in January! I was very busy with a new one and then I was pregnant again to boot, so you may say that is why things were so difficult. But there was more afoot. This year as I sat nursing my daughter in the doldrums of February, a plan for a medicinal herbs CSA popped into my head fully formed. I had been trying to figure out how to do it logistically for years, and here it was all laid out! My husband and I sat down and began to look back over our plans, and we found that our customers were voting with their dollars as to our farm’s direction. The things that people were coming to buy from us 9 times out of 10 were the healing preparations that I was making. That settled it. We decided to go full tilt back into the herbs and put everything else aside. What a difference!

Chamomile is the plant that has had the most to tell me over the past few years. This year as I picked the early blooms, she whispered to me of an observation that I hadn’t made. Over the past 2 years while we were taking the farm away from the original plan, the mockingbirds for which we’d named the land hadn’t stayed with us. We were so distressed during that time, watching for any sign of them! As I sat in the sun and picked that day, a pair of flirting mockingbirds was dancing in the grass nearby. They had returned along with our renewed commitment to what our land wants us to build together. At the time, I was planning to buy a drum to lead our medicine wheel dedication ceremony and had been learning about animal totems. I quickly went inside and looked up what the mockingbird has to teach us. Mockingbird is a teacher that helps in fulfilling your life purpose without fear.

It is now late summer, and our initial mockingbird pair is joined by their noisy, teenager children. They follow me through tending the plants, teasing me with the cries of my children and playing at being one of our stray chickens. Work this year has been so much easier—almost like we are in the stream, moving in concert with quickly flowing water. We are tired, we are sore, but the plants are growing, and the business is growing. We have launched our Women’s Herbal Resource Center, which I hope can be a beacon of hope and knowledge to women in all stages of their lives—from first moon through menopause, but especially for those struggling with fertility. We are attracting many other practitioners—reiki, massage, qi gong, chiropractic, hypnobirthers, midwives, doulas and many more! I have started my herbal practice and am helping clients learn to rebalance their bodies naturally. All of this is taking place in the middle of our teaching gardens where the herbs themselves can teach visitors as they walk the medicine trail, experience the labyrinth or meditate in our medicine wheel. What an amazing gift our land is giving us as we return to her and listen to her wisdom! What an amazing time to be doing this work!
How Plants Teach Us Many Things
by Jennifer Heinzel

Originally when I was thinking of a topic to submit, I almost chose to write my usual herbal profile, but after interning at Goldenseal Sanctuary, I knew it wouldn’t do the experience justice. Being a traveled person, I have to share my favorite Welsh quote: “Ni wyr dyn Nid, il O’i dy”, which in English means, “Those who stay at home learn nothing”. This excerpt perfectly states my heart-song, my reason for loving to learn, travel, and experience new things. So, if the Welsh quote is what my heart follows, including my great love of herbs, then my experience at the sanctuary gave a new meaning to learning things – even if it’s about myself.

When I arrived at the 360 acre sanctuary in the gorgeous Appalachian foothills in southeastern Ohio, I thought I had died and gone to heaven. Another thought I had was that this would be just another internship, but for the first time I opened up my mind, heart and soul to Goldenseal Sanctuary, my fellow interns, and numerous teachers, and my life most certainly did change. Within the first week, I learned about dozens of local medicinal plants, including American ginseng, black and blue cohosh and goldenseal, as well as how to identify them, their medicinal uses, and when and what parts to harvest, though we were also encouraged to take a spiritual path of getting to know these herbs. So, one day our intern-coordinator, Sasha, asked us to pick a native plant that we wanted to learn more about and go out and study it. Though, instead of taking a field guide out with us, she wanted us to just be with the plant. Sure, you can imagine what it has been used for and figure out the Doctrine of Signatures, but really see it, taste it, smell it, and breathe the plant. This way of experiencing herbal learning, compared to how I had originally been introduced to herbal medicine—via the scientific realm—put me quite out of my normal comfort zone of scientific studies and folk medicine. So I sat with my plant, the gorgeous yellow goldenrod, for what felt like ages. Though I did not hear it speak to me, something in me did shift, and I learned about this plant’s strong relationship with bees, which I understand, since I have similar characteristics (community oriented, always busy and creative).

Though my passion for herbs may have started as just a curiosity or scientific-based path, it grew into something that made me happy when I could help people heal themselves, and now a spiritual side has been added. This I could have never learned about and go out and study it. Though, instead of taking a field guide out with us, she wanted us to just be with the plant. Sure, you can imagine what it has been used for and figure out the Doctrine of Signatures, but really see it, taste it, smell it, and breathe the plant. This way of experiencing herbal learning, compared to how I had originally been introduced to herbal medicine—via the scientific realm—put me quite out of my normal comfort zone of scientific studies and folk medicine. So I sat with my plant, the gorgeous yellow goldenrod, for what felt like ages. Though I did not hear it speak to me, something in me did shift, and I learned about this plant’s strong relationship with bees, which I understand, since I have similar characteristics (community oriented, always busy and creative).

As my time at the sanctuary gave a new meaning to learning things, I became more and more interested in the medicinal properties that herbs have. This interest led me to take a course in medicinal botany at the Pilgrim’s Institute of Natural Medicine, where I was able to learn more about the uses of different herbs and how they can be used in modern and traditional medicine. Through this course, I was able to gain a deeper understanding of the scientific and traditional aspects of herbal medicine, and how these two can be used together to help people heal. I have continued to learn from different sources and have even started creating my own herbal remedies, using the knowledge I have gained.

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Jennifer Heinzel makes her own salve, tinctures and tea mixes and enjoys being an herbalist to friends and community members. She also enjoys finding creative ways in which to use herbs.
Who would have thought? Innovations on the prairie. There I was, just finishing up my correspondence course through Rosemary Gladstar, having mailed in my final exam, and I was off to the local farmers’ market. Feeling elated at having completed my course after three years and birthing two more babies during the time, I was ready to find some further extension of my beautifully cultivated inner world of herbal knowledge and the love and excitement I feel when working with plants. I wanted to find a way to have herbs as part of the relationships I had with people. I wanted to get my hands dirty with other fanatical naturalists and radical gardeners. Where better to finally come across this fantastic pioneering spirit than in the middle of a cornfield in Lawrence, Kansas.

After a brief conversation with Kirsten Bosnack and Kelly Kindscher, who were manning a small table at the farmers’ market with literature about the upcoming project about a native medicinal plant research garden they were spearheading with help from KU, I was jazzed. I was invited to volunteer after the initial groundbreaking ceremony to help plant the actual garden in question...fantastic.

I took my two oldest daughters with me that day, ages 9 and 6 at the time, and we knelt down in the dirt across marked rows planting tiny little starts of several different native herbs. There we were, bohemian musician mom with her two daughters, sweating with bioengineers and super botanists from other parts of the world, as well as students from Haskell Indian University, having a grand time, feeling like we were colonizing the moon! What a feeling.

Across the field is a little old school house where my two oldest children now attend called the Prairie Moon Waldorf School, a pioneering first of its kind in Kansas. They have a biodynamic farm-to-market garden they use as a classroom for the students there. At recess they run wild and are often collecting butterflies and other specimens from the KU Native Medicinal Plant research garden. My daughters notice the growth of the plants there and say to me, “Remember when we planted those?” I look at them and marvel at how they have grown.

The serendipitous connections I keep stumbling across are just reinforcement from the universe that plants are magic, and we are all invited in. Just the other evening my neighbor Tom invited me in for a cup of tea. I said, “Yes, I love mint tea.” As the water was boiling, he told me it was really good tea that he just gotten from the native medicinal plant garden. I had to laugh and took a deep breath enjoying every minute of it! I finished my tea and went home to put my 4 growing children to bed and kissed them all good night.

I drove them to school the next morning and smiled so big as a feeling of peace came over me looking across the field at the garden, growing just because that is what it is supposed to do.

Katie Euliss is a full time mother of 4, a touring musician and herbalist. She now lives in Lawrence, Kansas since hurricane Katrina washed her out of her lower ninth ward home.

Use every letter you write
Every conversation you have
Every meeting you attend
To express your fundamental beliefs and dreams
Affirm to others the vision of the world you want
You are a free, immensely powerful source of life and goodness
Affirm it, Spread it, Radiate it
Think day and night about it
And you will see a miracle happen
The greatness of your own life.

- Robert Muller, Former Assistant Secretary General of the UN
Sustainable Harvest of Black Cohosh
by Jim Chamberlain

Since European colonization of the eastern United States and subsequent commercialization of Appalachian medicinal and edible plants, millions of kilograms of plant material have been extracted from these forests, with little effort to manage these species as natural resources. Roots and rhizomes of black cohosh (Actaea racemosa), a native Appalachian forest herb, are extensively harvested and sold for treatment of menopausal symptoms. As nearly all cohosh sold commercially is collected from natural populations, the potential for harvest impacts is considerable. To better understand wild-harvest impacts and the likelihood of post-harvest recovery, we studied the effects of 2 to 4 years of experimental harvest on natural black cohosh populations in the George Washington-Jefferson National Forest in southwest Virginia. After 3 years of intense harvest (66% plant removal), we found significant reductions in foliage area, stem production, and mean and maximum plant height. The effects of moderate harvest (33%) were less clear, producing growth measures between, yet not significantly different from, control (non-harvest) and intensively harvested plots.

After 3 successive years of experimental harvest, treatments were terminated to assess population re-growth. Populations experiencing intensive harvest showed no evidence of recovery after 1 year. Results suggest that black cohosh is highly responsive to harvest intensity and that low to moderate harvest intensities and/or longer recovery periods will be necessary for prolonged and sustainable harvests.

While this study has increased our understanding of harvest impacts on black cohosh, we are continuing to monitor re-growth, and additional assessment is needed to determine the sustainability of low to moderate harvest levels and minimum recovery periods necessary for population reestablishment.

Results of this study should improve management of this important medicinal forest product. Managers will be better informed of how much cohosh can be harvested without detriment to natural populations. We are developing methods to assess harvest impact that will be useful on other species, as well. We are working on methods to inventory black cohosh roots based on above-ground biomass. This will provide forest managers a means by which they can determine the amount of product available for harvest. We are in the exploratory phase of undertaking research to estimate growth and yield for black cohosh, as well.

Jim Chamberlain is on the UpS Board of Directors.

Update on “Numen: The Healing Power of Plants”
by Ann Armbrecht & Terry Youk

This past year we received funding from the Kalliopeia Foundation with United Plant Savers as our fiscal sponsor. This support will enable us to launch an audience engagement campaign to bring the ideas at the heart of *Numen* to a larger audience. Particularly now when the national health care debate seems to have stalled or been diverted, our vision with this funding is to spark new conversations and debate about health and wellness and to inspire real, tangible actions from audiences. *Numen* bridges worlds that aren’t usually linked: spirit, ecology, and health. We hope to use discussions around the film and on our updated website to promote understanding of these links and to empower communities to build systems of health care based on care, responsibility, and respect for all life.

We need your help to succeed in this goal. No, not another plea for financial help—we need your activism and engagement.

*Tools for Engagement*
We have an updated website and blog: www.numenfilm.com. Please take a look at the site, forward it to others who might be interested, and help us spread the word!

*Blog to Connect*
Our vision for the blog is to create a place to share ideas about the incredible work being done across the country by herbalists, gardeners, medicine makers, nurses, doctors, activists and others working hard to create sustainable systems of health care in their communities. We need your help in making this a useful forum. Please take a look at what we have so far and then suggest projects and individuals we should profile and ideas to explore. Let us know what you think would be helpful in bringing greater awareness to issues relating to sustainability and healing. If you are interested in organizing a screening in your community, please contact us. We’ll help you link up with others in the area to help ensure the success of the screening.
Over recent decades, many herbalists using butternut root bark (*Juglans cinerea*) for its medicinal effects have learned about the disease decimating the butternut populations called “butternut canker” (*Sirrococcus clavigignenti-juglandacearum*). This fungus slowly infects butternut trees, often limiting their average lifespan to about 80 years. For decades, biologists and dendrologists have been confused by the disease’s unpredictable patterns and symptoms causing dead branches, discolored bark, and tree top dieback. No one knows how to inhibit the cankers from spreading except by removing infected wood, which only slows the infection but doesn’t stop it. Yet new phylogenetic DNA testing is shedding some light on this vulnerable population. A recently published study from the University of Guelph in Ontario has found that the butternut canker fungus is actually not a member of the genus *Sirrococcus* but rather the genus *Ophiognomonia*, and as such has been reclassified as *Ophiognomonia clavigignenti-juglandacearum*. Beyond academic interest, what does this mean for the future of butternuts? In an interview with Purdue forest geneticist, Keith Woeste, I asked him about the significance of this change. Woeste stated that, “Up until this point, little was known about the butternut canker because hardly any plant pathogens exist in the genus *Sirrococcus* and most don’t act like the butternut canker – it’s been a mystery.” It turns out that its pathogenic activity is similar to other *Ophiognomonia* fungi affecting black walnuts and Persian walnuts. This information gives clues about how the fungus operates, its etiology, and its life history. While pathologists know the fungus grows virtually all over the butternut tree, it is unknown what activates the dormant fungus to eventually infect the tree, usually starting at the top in small sections, slowly increasing tree stress, and then spreading throughout.

Many efforts have been made to identify canker resistant butternuts and cultivate genetically diverse, regionally adapted, and disease resistant seed orchards for future reintroduction. Yet these attempts have been complicated by the discovery that many resistant butternuts were not true butternuts but actually hybrids and backcrosses between butternuts and the Japanese walnut (*Juglan ailantifolia*) also known as Heartnut. These hybrid combinations of butternut and heartnut, now called “Buarts”, typically show resistance to butternut canker, perhaps because of its vigorous growth, which some believe allows it to “outgrow” the infection. Buarts look very similar to butternuts, so much so that they have been mistakenly identified as butternut survivors and later planted in yards, parks, and cemeteries by seed collectors who shared or sold the nuts to nurseries, conservation groups, and neighbors. It is still unknown how geographically expansive the spread of the butternut hybrids are, but researchers such as Scott Schlarbaum, from the University of Tennessee, have observed that in general, butternut hybrids are still more commonly found in disturbed soil areas like forest edges and near towns, while the true butternuts are almost always found in the forest.

For those interested in learning how to differentiate butternuts from buarts, a very helpful publication, Identification of Butternuts and Butternut Hybrids, can be accessed through the Purdue Extension online at [www.extension.purdue.edu/extmedia/FNR/FNR-420-W.pdf](http://www.extension.purdue.edu/extmedia/FNR/FNR-420-W.pdf). Also, if you would like to receive annual email updates on the most recent butternut research, contact Keith Woeste at woeste@purdue.edu.

Steve Byers is studying to be a clinical herbalist, currently as a 2nd year student at David Winston’s Center for Herbal Studies. He and his family have recently resettled to his home state of Vermont.

**Resources**


Phone Interviews with forest geneticists Keith Woeste & Scott Schlarbaum on 11/21/11

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**Ted Martello (aka TMello) finished hiking the Appalachian Trail just before Christmas.**

His “penny-a-mile” campaign was a huge success! Thank you to all that supported Ted in his efforts to hike the AT as a fundraiser for UpS.
Partners In Education

United Plant Savers offers a special student membership fee of $20 per student for all herbal schools, apprentice programs and training courses that enroll their students as a group. Each student receives a UpS membership package with all the benefits ~ informative Journals and Bulletins, Nursery & Bulk Herb Directory, plant/seed giveaway twice a year, membership discounts at UpS conferences and more. When your school/program joins Partners in Education you will receive our publications, the UpS Education Guide and the Take Action! Guide, a copy of the UpS book Planting the Future, free rental of the UpS “At-Risk” Slide Show & DVD, a listing in both the UpS Journal and on our website, guidance from experienced educators and the opportunity to make a difference – One Seed at a Time. PIE students are welcome to apply for the UpS internship program at Goldenseal Sanctuary in Ohio. With a recommendation letter from the PIE school, students can receive a $100 discount on the internship fee.

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Sheila Kingsbury
Kenmore, WA

Blue Otter School of Herbal Medicine
Sarah Holmes & Karyn Sanders
Fort Jones, CA

California School of Herbal Studies
Rebecca Maxfield
Forestville, CA

Chesnut School of Herbal Medicine
Juliet Blankespoor
Leicester, NC

Dandelion Herbal Center
Jane Bothwell
Kneeland, CA

Forest Bay Educational Center
Nancy Scarzello
Ticonderoga, NY

Heartstone Herbal School
Tammi Sweet & Kris Miller
Van Etten, NY

Herb Pharm Herbaculture Program
Germaine St. George
Williams, OR

Hocking College
Rebecca Wood
Athens, OH

Living Awareness Institute
Kami McBride
Davis, CA

Northwest School for Botanical Studies
Christa Sinadinos, McKinleyville, CA

Sage Mountain
Rosemary Gladstar
East Barre, VT

Southwest Institute of Healing Arts
JoAnn Sanchez
New River, AZ

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Bridget Owen
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www.unitedplantsavers.org
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“Beauty and grace are performed whether or not we will or sense them. The least we can do is try to be there.”

Annie Dillard
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 is appreciated. Great gratitude goes to the many in-kind donations of goods and services from companies and friends that support our work. We gratefully acknowledge the following long-time Green Angels, Leaders, Lifetime Members and Donations in 2011:

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Madishas & Andrea Reisen
Thomas Riley

Very special thanks to Rosemary Gladstar’s Apprentices at Sage Mountain for their significant donation in Rosemary’s honor! Great thanks to everyone who donated to UpS in support of Intern Ted Martello’s Appalachian Trail hike, and thanks to Ted for his dedication and support!! Great thanks to everyone who donated so graciously to UpS this year!
Many of our members have herb businesses and have created ways for their “money green” to support the UpS green! We want to highlight several companies whose contributions to UpS come as a percentage of sales of dedicated items. For example, The Herbal Sage Tea Company (www.herbalsage.com) makes a “UpS Tea”, and $1 of each sale of this tea comes to UpS. Another of our Partners, Woodland Essence, has been donating a percentage of sales of their “At-Risk” Flower Essence to us for years. You will see a section for Partners in the Green on the front page of the UpS website, and we’ve made it easy for you to link to these thoughtful businesses. By supporting these companies, you are supporting UpS!

Alchemilla Pure Skin Care – skin care trial kit
www.myalchemilla.com/Summaries-Kits/Summary-TrialKits.html

Dreamseeds Organics – avena soap
www.dreamseedsorganics.com

Elemental Herbs
www.elementalherbs.com

Empowered Herbals – Rachel Jean’s Green Drink
phone 360-301-3130

Herbal Lodge – herbal salves
www.HerbalLodge.com

Herbal Sage Tea Company
www.herbal sage.com/proddetail.php?prod=Ups or 740-594-5522

Happy Herbs Soap
phone 845-733-4577

LearningHerbs.com – Wildcraft! board game
www.learningherbs.com

Level Naturals, LLC – 100% vegan, gluten free, cruelty free soaps, bath bombs, scrubs, butters, and candles
www.levelnaturals.com

Old Ways Herbals – organic tinctures, salves and syrups
www.oldwaysherbal.com

Organic Bouquet – organic flowers and botanical gifts
www.organicbouquet.com/ups

Woodland Essence – flower essences & herbal goodies
phone 315-845-1515
woodland@ntcnet.com

Great appreciation is also due to Medicines from the Earth, Breitenbush, Rootstalk, NW Herb Faire, American Herbalists Guild, Madison Herb Fair, SE Women’s Herbal Conference, the PawPaw Festival and Traditions in Western Herbalism conferences for making UpS info available at their events. This is especially helpful because we meet many new members and have a lot of opportunity to let folks know about native medicinal plant conservation at these kinds of events. Special thanks also to UpS Interns Ashley Reiger and Kelsey Siekkinen for staffing tables for us! Many other people make UpS information available at farmers’ markets, workshops, Herb Day and other events. We are deeply grateful for all this support! If YOU know of a great opportunity for plant-lovers to connect with UpS, we are happy to provide you with brochures, newsletters and more!

No Journal would be complete without thanking the friends who make our publications possible – Liz Butler and Beth & staff at Accura Printing! We love you!

Planting the Future
Edited by Rosemary Gladstar & Pamela Hirsch

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

Selected by the Vermont Book Professional Association as one of the Twelve Best Books of 2000 by Vermont Publishers!

To order online please visit www.unitedplantsavers.org
or send $25 check or money order to UpS, PO Box 400, E. Barre, VT 05649
Herb Events 2012

March 23-25

FLORIDA HERBAL CONFERENCE
in the Ocala National Forest.
Rosemary Gladstar Keynote Speaker
www.floridaherbalconference.org

April 11-14

SOCIETY OF ETHNOBIOLOGY ANNUAL MEETING
to be held at the Denver Botanic Gardens in Colorado
www.ethnobiology.org

April 14-15

SOUTHWEST CONFERENCE ON
BOTANICAL MEDICINE
in Tempe, AZ
www.botanicalmedicine.org

May 4-6

SIXTH ANNUAL GAIA GATHERING
FOR WOMEN
Weaving the Web of Community in Charlottesville, VA
www.sacredplanttraditions.com

May 13

LOVE YOUR MOTHER AT
PLANTING THE FUTURE
Goldenseal Sanctuary, Rutland, OH
For more information or to register, please email
office@unitedplantsavers.org or call 802-476-6467

May 26

PLANTING THE FUTURE
Herb Pharm, Williams, OR (not to be missed)
For more information or to register,
visit unitedplantsavers.org or call 802-476-6467
(See Ad on opposite page)

June 3-7

ETHNOBOTANY OF MOUNTAIN CULTURES
Society for Economic Botany in Frostburg, MD
www.econbot.org
United Plant Savers is sponsoring the student gathering
and a panel discussion on “At-Risk” plants.

June 29-July 1

FIRST ANNUAL MIDWEST WOMEN’S
HERBAL CONFERENCE
at the Christine Center in Willard, WI
www.midwestwomensherbal.com

July 21

PLANTING THE FUTURE
at Sage Mountain, East Barre, VT
www.sagemountain.com
(See Ad on opposite page)

August 24-25

25th NEW ENGLAND WOMEN’S
HERBAL CONFERENCE
at Newfound Lake, NH
www.sagemountain.com

September 13-16

TRADITIONS IN WESTERN HERBALISM
in Coconino, Arizona
www.traditionsinwesternherbalism.com

September 30-October 5

ECO-SUMMIT
in Columbus, OH
www.ecosummit2012.org
Goldenseal Sanctuary will be featured as one
of the field trip destinations!

October 12-14

S.E. WOMEN’S HERBAL CONFERENCE
in Black Mountain, NC
www.sewisewomen.com

October 21-24

SANDALWOOD SYMPOSIUM
East-West Center, University of Hawaii, Honolulu, HI
A collaboration of UpS and the International
Sandalwood Foundation

For more information or to register,
visit unitedplantsavers.org or call 802-476-6467
(See Ad on opposite page)
PLANTING THE FUTURE

A Conference on the Conservation, Cultivation and Sustainable Use of Native Medicinal Plants

Saturday, July 21st, 2012

SAGE MOUNTAIN
East Barre, Vermont

TEACHERS:
Rosemary Gladstar
Nancy & Michael Phillips
Melanie & Jeff Carpenter
Larken Bunce
Guido Mase
Micki Visten
Amy Goodman-Kiefer
Betzy Bancroft

CLASSES:
Plant Medicine for Plants
Creating Sanctuary
Medicinal Herb Cultivation
Herb Walks & more!

REGISTRATION COST:
$55 for UpS members,
$65 for non-members
Vegetarian or Turkey lunch $10

FOR MORE INFO:
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Mountain Rose Herbs

International Sandalwood Symposium 2012

October 21-24
East-West Center,
University of Hawaii
Manoa, Honolulu, HI

Brought to you by International Sandalwood Foundation,
Secretariat of the Pacific Community & UpS.

Event Info: www.sandalwoodfoundation.org
Registration: www.unitedplantsavers.org

Artwork courtesy of www.gilmorearts.com
Love your Mother at Planting the Future!
Sunday May 13th ~ 9am to 4 pm
Goldenseal Sanctuary, Rutland, OH

- Herb Walks
- Creating Sanctuary
- Learn to make your own herbal salves, bath salts & more
- Plant Sale
- UpS Membership meeting

Teachers Include:
Rosemary Gladstar
Rebecca Wood
Paul Strauss
Diane DonCarlos
Emma Rose Huggins
Betzy Bancroft
Chip Carroll
Caty Crabb

For more info, or to register visit www.unitedplantsavers.org or call 802-476-6467