

2022

Journal of MEDICINAL PLANT CONSERVATION

A United Plant Savers Publication

*Steven Foster and
Sustainable Herbalism*

*At-Risk Trees in
Tropical Hardwood Trade*

*Step Into Spring With Delicious,
Nutritious Real Root Beer*

The Tropicalist Trust in Kargil

Herbal Adventures in China

*Ten Days on Kythera:
Remembering Juliette de Bairacli Levy*

Trading Medicinal Plants in the Ancient World

Ending the Trillium Trade

IUCN World Conservation Congress in Marseille

The Perils of Postcolonial Medicine in Madagascar

Rising Fawn Gardens Botanical Sanctuary

The John Staba Holistic Arts and Science library



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2022

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THE OZARK VERNAL WITCH HAZEL

By Susan Leopold

I was in complete disbelief this January when I heard that Steven Foster had suddenly passed away, and I remembered vividly reading his last post on Facebook because I, too, was already anticipating spring and intrigued to learn that there was an endemic fragrant witch hazel. There is no adequate way to give tribute to Steven Foster's dedication to United Plant Savers, but having said that, it seemed one of his lasting photographs, which is featured on the cover of this issue, could convey what mere words could not.

*"The best part of winter is the first sign of spring. Depending on where you live exactly, vernal witch hazel (*Hamamelis vernalis*), an Ozark endemic might be considered the latest or the earliest blooming plant. Vernal witch hazel blooms are usually tinted orange to red toward the center. And they have a divine fragrance."*

– Steven Foster

Carroll County, Arkansas, 13th January 2022

It was a bittersweet moment for United Plant Savers to be awarded the inaugural "ABC Foster Botanical Conservation and Sustainability Award." How do we encourage botanical conservation and sustainability? It is going to take creative ideas that have not yet been explored as well as mentorship to bring in the next generation of game-changers. Perhaps that game-changer is you reading this Journal!

This year's Journal call for articles was loosely themed around At-Risk Plants in Trade. This theme came to mind in part because I was taken aback by the article published in the *New York Times*, "Global Cactus Traffickers are Clearing out the Deserts" in May 2021. As far back as 2016 it was reported that cactus is the fifth most threatened group of living things. At-risk plants in commerce extend to many different types of trade beyond medicinal plants such as cactus collectors, flora, perfume, incense, beauty, food, entheogens, and more. In this Journal these topics are not covered, so you can imagine what might be featured in future journals.

This year's issue highlights changes to the plant savers "At-Risk" List, which will continue to be an ongoing process. United Plant Savers contributed to a section of the IUCN publication and listing of all the North American trillium species and is advocating for the end of wild-harvested trilliums in commercial herbal products. We have officially updated our mission and vision statements to include fungi and to take on a more international role in advocating for plants. This issue brings to light many international stories along with sharing the ways our members are making a difference with their sanctuaries, podcasts, zines, publications, schools, and businesses.

The Conservation Status of *Trillium* in North America

Clayton Meredith, Anne Frances, Amy Highland, Leah Oliver, Aaron Floden, L.L. Gaddy, Wesley Knapp, Danna Leaman, Susan Leopold, Tara Littlefield, Robert Raguso, Edward Schilling, Alfred Schotz, Anna Walker, and Kirsten Wayman



The Conservation Status of Trillium in North America

TABLE OF CONTENTS



Images from *Werde* magazine article

A few highlights from this past year include being featured in *Werde*, a natural health magazine in Germany, the *Journal of Veterinarian Care*, and Herbal Reality, a blog based out of England featuring stories on endangered herbs for women’s health and goldenseal conservation. United Plant Savers was twice quoted in *The New York Times*, one article featuring a new beauty company and the other on the International Herb Symposium keynote speaker, Diana Beresford-Kroeger. We are making waves and giving a voice to plants!

United Plant Savers has joined the Center for Plant Conservation based out of San Diego. We collaborated with other groups in the IUCN to ask U.S. President Biden to take action against the loss of biodiversity with a full-page ad in *The New York Times*. We joined three coalitions to stop deforestation—the Forest Carbon Coalition (working to network grassroots organizations), the Climate Forest Campaign (to end logging of old-growth forests), and a group with the intention to stop proposed logging in the Pisgah National Forest in North Carolina. Across the country there are numerous grassroots groups fighting pipelines, fracking, biomass, deforestation, developments, and industrial pollution, and we honor and embrace the various ways each one of us can make a difference in our local communities.

The Ozark Vernal Witch Hazel 2

FEATURE ARTICLES

Steven Foster and Sustainable Herbalism 5

At-Risk Trees in Tropical Hardwood Trade 7

Substitutes for Select At-Risk
Northeastern Woodland Species 10

Medicinal Plants and Ants
Symphony No. 1 12

Sustainability in Veterinary
Herbal Medicine 13

Herbal Adventures in China..... 15

Trading Medicinal Plants in
the Ancient World 18

Sweetgrass..... 19

Receiving vs Taking 21

Ending the Trillium Trade..... 23

Ten Days on Kythera: Remembering
Juliette de Bairacli Levy 25

Overview of Changes to the At-Risk Lists..... 28

Jackass Bitters — An Ode to
Mr. James A. Duke (PhD)..... 30

Step Into Spring With Delicious,
Nutritious Real Root Beer 31

The Tropicalist Trust in Kargil:
An Introduction to Our Work With
Medicinal Plants 32

Sharing Voices of The American Chestnut,
Pawpaw, and Milkweed Through Art,
Games, and Stories at Antinanco 35

Plant Stewardship 39

Women’S Herbs in Appalachia 40

United Plant Savers at the IUCN 43

Goldenseal Cultivation 47

Seed Carrier 48

Five Finger Medicine 49

What Might We Find in Those Old Books? 51

The DJ and The Miracle Cure:
The Perils of Postcolonial Medicine
in Madagascar 54

BOTANICAL SANCTUARY NETWORK

Rising Fawn Gardens Botanical Sanctuary..... 63

Weeds and Weather—Adapting to Climate
Change—Advice Fromcommon Plants..... 64

Robert Eidus: Ginseng Farmer 66

DEEP ECOLOGY ARTIST FELLOWSHIP

Message in a Dream 67

UpS Artist Residency..... 68

If You Listen... Notes From a
Deep Ecology Artist Fellowship 69

**2022 ANNUAL MEDICINAL PLANT
CONSERVATION AWARD 79**

ON THE COVER:

This year’s cover is a beautiful photograph of Vernal Witch Hazel (Hamamelis vernalis) by Steven Foster – www.stevenfoster.com. Printed with permission by his estate.

FOREST DEFENSE IS CLIMATE DEFENSE.

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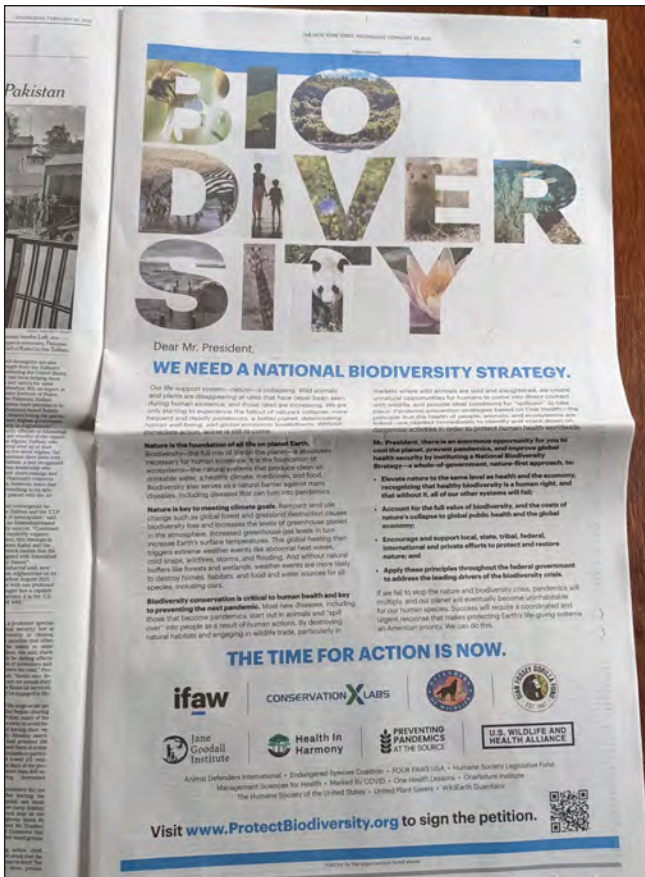
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Biodiversity ad taken out in the *New York Times*

WHY DEFORESTATION AND EXTINCTIONS MAKE PANDEMICS MORE LIKELY?

In the age of climate change and covid the relationship between the health of the planet and human health is becoming increasingly apparent, yet this topic gets little coverage. Research in One Health (an approach to research that recognizes that the health of people is closely related to the health of animals and our shared environment) is showing that while some species are going extinct, others thrive. These include bats and rats, which are more likely to host dangerous pathogens that can make the jump to humans. Medicinal plants are playing a unique role in these times, and I was very intrigued to present to the Global Ethnobotany Research Webinar series that is hosted by the University of Transdisciplinary Health Science (TDU) based in India. This online seminar series is on YouTube! It was at this lecture that I was reminded that in 2015 Professor Youyou Tu was awarded the Nobel Prize for her contribution to the discovery of artemisinin which has saved millions of lives in the treatment of malaria.

We could not be more thrilled with the outpouring of support from our members who helped to make the Jim and Peggy Duke library and archives a reality. It is with deep gratitude that I thank outgoing president, Eleanor Kuntz, and introduce our new board president, Helen Metzman, who was the manager of the Green Pharmacy Garden for many years. Her role as president comes at the perfect time to help launch the Duke

Ethnobotanical Archives (DEA). It is such an amazing gift and opportunity for United Plant Savers to be able to host plant researchers and share medicinal plant knowledge in a time when plants are our greatest allies and solutions for navigating the present moment and into the future. ■

STEVEN FOSTER AND SUSTAINABLE HERBALISM

By Ann Armbrecht

I first met Steven Foster at a workshop he offered at a Green Nations Gathering in the early 2000s called Sustainable Herbalism. It was a small group. Sustainable Herbalism wasn't and still isn't a very sexy topic.

Steven brought an international perspective to the discussion and an understanding of the intricacies of the industry that I had not heard about before. He talked about the work of WHO, IUCN, and WWF around medicinal plant conservation, the genetic erosion of plants from habitat destruction and over-extraction, and about the importance of gathering scientific information on the biology of plants. This research must be done on a species-by-species basis because there is such variation. What is the reproductive biology of each plant? Who are the pollinators? What are the genetic differences throughout the range of the plant?

This information mattered, he said, because it meant that claims about plants being threatened or endangered could then be based on specific information about what constitutes a sustainable yield for individual species.

Steven was the first herbalist I met speaking about the herbal industry at an herb conference. Herbalists then, and to some extent still today, looked down on the industry as having compromised their values and integrity. Those in the industry considered herbalists to be naïve, with little understanding of what it took to source and produce herbal products on the scale needed to reach a growing population. Steven did neither. He stood with the plants. He stayed connected to them and, through his photographs, talks, and writing connected to the herb community. And he worked with the American Botanical Council to hold the herb industry to its claims.

That workshop inspired my journey to follow herbs to their source. When I launched the Sustainable Herbs Project (SHP) Kickstarter, Steven reviewed what I wrote about the industry, making sure what I said was accurate. Once the Sustainable Herbs Project became a program

at the American Botanical Council, I found myself working closely with Steven 18 years after that initial workshop.

Steven was an incredible ally and mentor. He provided big picture advice and editorial input. He shared his photos (and we had plans to share many more of those) and resources. We had plans to share profiles of plants in commerce, sharing the type of information he outlined in that Green Nations workshop. Those profiles got held up in large part because of the depth of Steven's knowledge. He knew so much about any species and he had so many more articles and books on that species, that it was impossible to know where and how to begin. He was an active participant in the SHP Advisory Group, helped come up with speakers for the SHP webinar series, and several times a week he sent articles of interest or topics I should cover.



Camas spp. by Laura Torraceo

Steven would send me firm but kind messages when I was too impatient about missed deadlines. From the beginning, he said that the Sustainable Herbs Program was important for the way it touches on the heart of working with plants, on our connections with the plants, and through the plants, with each other. He reminded me to keep that at the center. And he reminded me when he sensed I needed the reminder that the work we are doing is making a difference.

Steven bridged worlds that too often stay separate. He dedicated his life to plants, and he followed his curiosity where it led him. And he dug deep, bringing a rigor that I relied on. He brought the same attention to the details of history or plant

knowledge that he captured in his photographs. And that attention helped me see each more deeply.

At that Green Nations workshop, Steven said that he became interested in echinacea because it is an especially beautiful wildflower. When he shut his eyes at night, he saw echinacea. He took that as a sign, he said, to pay attention.

In closing, Steven talked about what we could do. Ask where herbs are from, he said. And make sure you get the answer. And be aware. "Awareness is the seed that germinates whatever action that we later will take." ■

Ann Armbrecht, an anthropologist, is the director of the American Botanical Council's Sustainable Herbs Program. She is the author of The Business of Botanicals: Exploring the Healing Promise of Plant Medicines in a Global Industry that documents her journey following herbs from seed to shelf. She is also the co-producer of the documentary Numen: The Nature of Plants and the author of the award-winning ethnographic memoir Thin Places: A Pilgrimage Home, based on her research in Nepal.

Sustainable Herbs Program
AMERICAN BOTANICAL COUNCIL

<http://sustainableherbsproject.com/>

Images dedicated to Steven Foster, and the inspiration
his photography and love of plants offered the world.

Submitted by Laura Torraco
Sage Green Botanicals + Clearpath Herbals
<http://www.sagegreenbotanicals.me>



Beetle nudging into elecampane by Laura Torraco



Fuzzy motherwort in flower by Laura Torraco



Pulsatilla growing in gardens by Laura Torraco

AT-RISK TREES IN TROPICAL HARDWOOD TRADE

By Diana Sette

State of the World's Trees

In September 2021, Botanic Gardens Conservation International (BGCI) released a first-of-its-kind report on the state of the world's trees. The study involved 5 years of intensive collaborative research by a global network of over 60 institutional partners and over 500 experts to compile extinction risks for the world's 58,497 tree species. It found that 30% of tree species are threatened with extinction.¹ That equates to around 17,500 tree species at risk, a number that is twice that of threatened mammals, birds, amphibians, and reptiles combined.² The risk is likely higher as a further 7.1% were deemed "possibly threatened," and only 21.6% of tree species were labeled insufficiently evaluated. Only 41.5% of the world's trees were confirmed as safe from threats of extinction. The Global Tree Assessment (GTA), coordinated by BGCI,



Rare endemic saplings growing in the nursery

Trees represent the largest biomass on Earth, and they are at-risk from many threats with the top two being identified as deforestation for agricultural crops and logging timber.¹

The NGO Traffic states in their 2018 report, that in terms of volume, value, and environmental impact, "Timber is by far the most important wild plant commodity in trade." In fact, tree species make up half of Traffic's "Wild Dozen" list of wild-collected species important in trade for herbal products traditional medicines, cosmetics, and food and are also at-risk of over-harvesting.⁴

The Food and Agriculture Organization (FAO) of the United Nations estimates the annual global value of the timber trade as a whole in the U.S. at over \$200 billion.⁴ Although a large amount of timber, particularly softwoods, originates in plantations, a high proportion of that in trade comes from natural, essentially uncultivated, sources. This applies particularly to tropical hardwoods, of which some 300 million cubic meters of roundwood is harvest annually—equivalent to perhaps 100 million trees.⁴



Endangered plant trail sign

is working in partnership with the International Union for Conservation of Nature (IUCN) Species Survival Commission Global Tree Specialist Group and aims to complete comprehensive conservation assessments on the IUCN Red List of the world's tree species by 2023, building on and amplifying earlier initiatives. The detailed tree species information used to compile the report is now available online on the BGCI's GlobalTree Portal.³



Simarouba tulae, rare endemic with seed

Illegal Timber Trade Putting Trees at Risk

Unfortunately, of the global timber trade 15-30% of timber is taken illegally with illegal trade estimated to be worth \$50-\$150 billion annually⁵. When it comes to tropical forest logging, only 5% of lumber productions are using sustainable forest management practices.⁵

A combination of political instability, government mismanagement, a lack of forest operation controls, and a failure to impose punitive penalties on well-known traffickers contribute to what may effectively be zero timber management control. Most of the illegal logging takes place in the tropical forests of the Amazon, central Africa, and Southeast Asia⁵. However, models of sustainable tropical forestry are emerging.

Tropical Forestry in Puerto Rico

In January 2022, I had the opportunity to visit the land known as Las Casas de la Selva, home of Tropic Ventures Sustainable Forestry & Rainforest Enrichment project in Patillas, Puerto Rico, since 1983. On this biodiverse 1,000 acres of land, the Institute of Ecotechnics has been developing methods of sustainable forestry and timber production in secondary rainforests and is involved in on-going research identifying and tracking at-risk and endangered species. They are in the southern mountains adjacent to the Carite State Forest. Three hundred acres of the 1,000 acres of the tropical forest have been used to plant over 40,000 hardwood trees for selective thinning using sustainable forestry practices, while 700 acres remain as a wilderness preserve for watershed protection, research, and educational ecotourism. The project is certified as a Stewardship Forest,⁶ and there are walking trails developed to help increase awareness of rare and medicinal plants growing there. Their goal is to develop ways to live in the rainforest, while also supporting the health and resiliency of the biodiverse ecosystem.

I was lucky enough to get to spend some time with Thrity (3t) Vakil, who playfully identifies as a "Performance Scientist and Research Artist" and is the President of Tropic Ventures Research & Education Foundation and an accomplished artist. She shared with me about the work they have been doing in partnership with BCGI to monitor endangered species. With a grant from BCGI they have recently been working in partnership with the Global Tree Campaign to secure the conservation of two threatened

endemic trees, Palo de Cruz (*Garcinia portoricensis*) and Tortugo prieto (*Ravenia urbanii*), by protecting wild populations, collating ecological information, propagating materials, and reinforcing wild sites.

Additionally, they have been working to grow other federally listed threatened species like Caribbean and Bigleaf Mahogany (*Swietenia* spp.), Blue Mahoe (*Talipariti elatum*), Ausubo or Bulletwood (*Manilkara bidentata*), Cobana negra (*Stahlia monosperma*), Palo de Jazmin (*Styrax portoricensis*), Palo de Nigua (*Cornutiatia obovata*), Calabash (*Crescentia portoricensis x lineatfolia*), Rain Tree (*Brunfelsia portoricensis*), Matabuey (*Goetzea elegans*), and Uvillo (*Eugenia haematocarpa*).

Of Puerto Rico's native tree species, 23% of them are endemic,⁷ making their preservation all the more critical to global biodiversity. Up until the 1940s, colonial deforestation

reduced the Puerto Rican forests that once covered the island to less than 10% tree canopy cover. Since then a diligent effort began to extensively replant suitable native and regional hardwoods, creating a significant increase in secondary forest cover that is currently around 60% of the island.⁸

In 2015, Thrity and the project's Technical Director, Andrés Rúa González, noticed that innumerable valuable hardwoods from trees like mahogany and teak, two of the world's most endangered and coveted wood species, were being dumped in already overburdened landfills on the island. The solution was the creation of Puerto Rico Hardwoods (PRH). PRH has worked tirelessly with local municipalities, the Department of Natural Resources (DNRA), and local residents to prevent high value at-risk wood from being dumped or bulldozed into the ground during construction or agricultural projects.

In September 2017, these efforts became all the more urgent after Hurricanes Irma and Maria devastated 20-40 million trees⁹, taking down an estimated 10.4 billion tons of Puerto Rico's tree biomass.¹⁰ Four to six million cubic yards of "vegetative debris" remained across the island, equating to roughly 1-2 billion board feet of wood.¹¹ For an island facing challenges of economic instability and overwhelming debt, the hurricanes brought an opportunity to produce a significant income from salvaging valuable, hurricane-felled hardwood trees, especially considering that 95% of all of Puerto Rico's wood and agricultural products are imported from off the island when it could be sourced sustainably from within the island's abundant tropical forests.¹



Forest damage from Hurricane Maria

In October 2017, following PRH's sustained pressure, the Puerto Rican Environmental Quality Board (EQB) passed a resolution to separate the tree trunks from vegetative waste at the U.S. Army Corps of Engineers (USACE) temporary debris sites.⁸ The U.S. Forest Service, with support from FEMA and USACE, launched a program to salvage valuable fallen trees, bringing thousands of trees to local sawmills in June and July of 2018. Unfortunately, when the resolution signed by EQB expired in August 2018, it was not renewed because DRNA declared that they had jurisdiction over the hurricane-felled timber and that most of the wood was "worthless." It is arguable whether the hurricane-felled timber was actually worthless, and many sustainable forestry advocates, including the USDA Caribbean Climate Hub, have advocated for fallen wood reuse as a way to create a sustainable tropical forestry model for the Caribbean and other parts of the world.

If Puerto Rico can find a way to sustainably harvest and trade at-risk species on the island with models like TVREF and PRH have created, it is possible that Puerto Rico will be able to provide its own supply of wood products, therefore decreasing the need for importing exotic tropical hardwoods that contribute to the deforestation of the Amazon or other globally at-risk tropical forests.

Ways to Support Sustainable Tropical Forestry

If you would like to support the stewardship, harvest, and trade of at-risk plants in tropical forests, there are many ways you can be involved.

Volunteer at Eye on The Rainforest, especially if you have horticultural and propagation skills to offer, though anyone willing and able to support the work is welcome! Donate to the NGO through their website, www.eyeontherainforest.org. Purchase wood from sustainable sources¹³ and help spread the word about illegal logging, the need for sustainable forestry practices, and protecting biodiversity on this planet through the protection of trees. More resources in the reference list below. ■

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Tropical plant nursery at Eye on the Rainforest

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SUBSTITUTES FOR SELECT AT-RISK NORTHEASTERN WOODLAND SPECIES

By Herbal Academy, international school of herbal arts and sciences

Introduction

Many of the plants on the United Plant Savers' Species "At-Risk" List have a long history of herbal use, and a good deal of them are still used in herbal practice, so it is common to come across herbal texts, articles, or recipes that suggest the use of these at-risk species. Herbalists concerned about sustainability often wonder what other, more common herbs they may be able to use as substitutes for these plants. At The Herbal Academy, we get tons of questions from students who get excited about at-risk plants and are curious what herbs they can use as substitutes. Here we offer some insight we have shared with our students over the years on the use of herbal substitutes for a selection of at-risk plant species that grow in woodlands of the Northeastern United States.

Of course, some at-risk plants can be sustainably cultivated and can still plausibly be used in herbal practice. However, others are not easily cultivated or cultivated sources are not commercially available, and substitutes should always be used in their place. Even for those at-risk plants that *can* be cultivated, sustainably cultivated sources may not be widely available, and substitutes may still be preferable.

In this article, we'll be taking a look at a handful of potential substitutes for each at-risk plant discussed. While it is nearly impossible to find herbal analogs that match up 100% with every use and action of an at-risk plant, there are often multiple herbal options with similar properties that can be used in their stead. And sometimes, combining two or more herbs can help to match the at-risk plant in question more closely, together providing a more suitable substitute.

American Ginseng

American ginseng (*Panax quinquefolius*) is well known as an adaptogen that helps to modulate the stress response, immune and respiratory function, and blood sugar levels. There are certainly plenty of other adaptogenic herbs that are not on the at-risk list to choose from—ashwagandha (*Withania somnifera*), eleuthero (*Eleutherococcus senticosus*), Asian ginseng (*Panax ginseng*), codonopsis (*Codonopsis pilosula*), and tulsi (*Ocimum tenuiflorum*), for example—but which of these most closely mimics American ginseng's properties?

Compared to other adaptogens, American ginseng is unique in its energetic qualities. While most adaptogens are warming, American ginseng has a slightly cooling nature. The Ayurvedic herb shatavari (*Asparagus racemosus*) is one of the only other adaptogens that is energetically cooling. While primarily used to maintain and restore the health of the generative organs, shatavari, like American ginseng,

has an affinity for the respiratory system and makes an excellent substitute when chronic stress is aggravated by or occurs alongside dry, inflammatory, or deficient lung conditions. To emphasize this lung-nourishing quality, shatavari combines well with astragalus (*Astragalus mongholicus*).

While tulsi has an opposite energetic picture to that of American ginseng, it shares a very similar action profile. Both are adaptogens with an affinity for not only the nervous and endocrine systems, but also the digestive and respiratory systems and can be helpful for blood sugar dysregulation and type 2 diabetes. In some cases, tulsi's warming and drying nature will be a better fit for an individual with blood sugar dysregulation, but for individuals presenting with a hot and/or dry tissue state, tulsi can be combined with cooling demulcent herbs, such as shatavari, violet (*Viola* spp.), milky oat (*Avena sativa*), or marshmallow (*Althaea officinalis*), to better act as an American ginseng analog.

Of all the adaptogens, codonopsis checks the most boxes for similarities to American ginseng. While it is warming rather than cooling, it is not as heating as tulsi and is like American ginseng in its demulcent properties. Like ginseng, codonopsis has an affinity for the digestive and respiratory systems and is used clinically for blood sugar regulation, convalescence, immune dysregulation, and as an adjunct in cancer treatment. Codonopsis may not be as rejuvenating as American ginseng, and for individuals that are particularly deficient, it combines well with other adaptogens.

Another potential analog for American ginseng is eleuthero, which has a similar amphoteric effect on the immune and endocrine systems and is also an important ally during convalescence and conventional cancer treatment. Astragalus (*Astragalus mongholicus*), which likewise emphasizes immune modulation and can offer support alongside conventional cancer treatment, may also function as a substitute for American ginseng.

Slippery Elm

Like American ginseng, slippery elm (*Ulmus rubra*) is a cooling and moistening demulcent. Highly mucilaginous, slippery elm is an excellent anti-inflammatory and vulnerable with an affinity for the digestive, respiratory, and genitourinary systems. Long used as a convalescent remedy, slippery elm is also a fiber-rich nutritive that can nourish the body and restore tissue integrity in the gastrointestinal tract.

Marshmallow has many properties in common with slippery elm and is often used as a substitute for this at-risk tree species. Marshmallow root is also a cooling and moistening demulcent, and its leaves and flowers are also sometimes used in this way as well. Like slippery elm, marshmallow can be useful for cooling inflammation of the gastrointestinal, respiratory, and urinary tracts and is commonly used in formulas for both diarrhea and constipation, inflammatory gastrointestinal conditions, and urinary tract infections as well as laryngitis, dry coughs, and other inflamed or dry respiratory conditions.

Other demulcents with an affinity for the urinary tract that can stand in for slippery elm include corn silk (*Zea mays*) and couch grass (*Elymus repens*), while substitutes specifically for respiratory tract dryness and inflammation include licorice (*Glycyrrhiza glabra*) and violet (*Viola* spp.). Demulcent slippery elm analogs that work particularly well for conditions of the gastrointestinal tract include chia (*Salvia hispanica*), flax (*Linum usitatissimum*), and psyllium (*Plantago* spp.). Like slippery elm, soaked preparations of these herbs will work best as demulcents. Plantain leaf can also be used as a mild demulcent that acts as a vulnerary to help heal gastrointestinal tissues.

Fenugreek (*Trigonella foenum-graecum*) can also be a useful digestive- and respiratory-specific substitute for slippery elm, although fenugreek is more warming and thus especially indicated for cold or stagnant conditions of the digestive or respiratory tracts, while slippery elm is best for dry or atrophic and inflamed conditions. However, fenugreek can be combined with cooler herbs to match slippery elm's energetic properties more closely.

While marshmallow is the go-to slippery elm analog overall, it may not be as analogous to slippery elm as a nutritive convalescent. If searching for an alternative to slippery elm during convalescence, marshmallow may be combined with herbal nutritives such as nettle (*Urtica dioica*), milky oat or oat straw (*Avena sativa*), and alfalfa (*Medicago sativa*), or moistening, fiber-rich nutritives such as oatmeal or shatavari can be used in place of slippery elm.

Goldenseal

The alkaloid berberine, which is at least partially responsible for goldenseal's cholagogue, alterative, and antimicrobial properties, can fortunately be found in several other less-at-risk plant species, including Oregon grape (*Berberis aquifolium*), barberry (*Berberis vulgaris*), and other *Berberis* species. They make wonderful substitutes for goldenseal when sustainably cultivated goldenseal rhizome is not available. Note that goldthread (*Coptis* spp.) is also sometimes used as a goldenseal analog, due to its berberine content, but it is also on the "At-Risk" list and should be avoided.

Berberis species can easily be used in place of goldenseal (*Hydrastis canadensis*) in cases of skin infection (topically), gastrointestinal infection, sluggish digestion, and liver-related skin and digestive tract imbalances. However, goldenseal has an additional property not found in barberry and Oregon grape—goldenseal is an outstanding mucous membrane tonic. If your formula calls for a mucous membrane tonic—for example, after a gastrointestinal infection or in the case of leaky gut syndrome—consider including plantain (*Plantago* spp.), gotu kola (*Centella asiatica*), marshmallow, or triphala (an Ayurvedic formula composed of a combination of amalaki (*Emblica officinalis*), bibhitaki (*Terminalia bellerica*), and haritaki (*Terminalia chebula*)).

Trillium

While not used as commonly in herbal practice today, many herbal references from the 19th century and earlier point to trillium's use as an astringent mucous membrane tonic with a special affinity for the reproductive tract. Trillium (*Trillium* spp.) has been incorporated into formulas for vaginal and uterine prolapse, excessive vaginal discharge, and uterine hemorrhage or menorrhagia. Its astringent properties have also been employed for the gastrointestinal tract, especially in cases of diarrhea.

There is no shortage of common herbal astringents in use today, and this is one of the reasons that trillium has not remained in regular use as much as some of the other at-risk species. Possible substitutes for trillium as an astringent for relaxed or prolapsed tissues include raspberry leaf (*Rubus* spp.), black haw (*Viburnum prunifolium*) and other *Viburnum* species, and lady's mantle (*Alchemilla vulgaris*). Hemostatic herbs that may be useful as a substitute for trillium in the case of uterine hemorrhage include shepherd's purse (*Capsella bursa-pastoris*), bayberry (*Morella cerifera*), and yarrow (*Achillea millefolium*). Gastrointestinal astringents include agrimony (*Agrimonia eupatoria*), plantain, and wild geranium (*Geranium maculatum*).

Conclusion

When sustainably cultivated sources of plant species on the United Plant Savers' Species "At-Risk" List are not available, there are always alternatives that can be sustainably used in their place. Sometimes, it is as simple as a one-to-one switch, and sometimes multiple herbs can be combined in a formula to arrive at an appropriate analog.

There are many, many other potential substitutes for the plants discussed in this article that are used in various traditions and occur in different bioregions. Discovering local-to-you substitutes for at-risk plants can be a rewarding quest and an excellent tool for learning about the herbs in your bioregion. What plants in your area are mucous membrane tonics, astringents, adaptogens, or demulcents? Are there any traditional uses recorded for those plants that indicate they may have similar properties or uses as at-risk plants? We hope this article provides a jumping off place for you to discover new substitutes for at-risk plants that you can add to your apothecary! ■

The Herbal Academy empowers people with the art and science of herbalism through accessible, affordable herbal education that represents many points of view and honors our intrinsic connection to nature.

Learn how to identify, connect with, use, and sustainably harvest common local herb species in our Botany & Wildcrafting Course, Foraging Course, Introductory Herbal Course, and other online courses and intensives.

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MEDICINAL PLANTS AND ANTS SYMPHONY NO. 1

By Jessica Fleming

Medicinal plants encompass a wide variety of cultivated and wild species that grow in diverse habitats and soil types. While nearly all medicinal plants are miraculous in their own ways, very few can contend with the transient magnificence of spring ephemerals, the wildflowers that blossom at the fringe of winter and spring. Through snow and sleet rain, ephemerals bloom from February to April and are specifically adapted to maximize filtered light through a leafless canopy. Because they bloom at the winter-spring transition, the weather is too cold for most pollinators to fly. Thus, ephemerals rely heavily on ants for seed dispersal in a relationship that is not only symbiotic, but also symphonic in its closeness to perfection. As the theme for this year's *Journal of Medicinal Plant Conservation* is "At Risk Plants in Trade," a tribute to "myrmecochory," the synergy between ant and plant, may supplement our ecological appreciation for the insects that ensure survival of our beloved spring ephemeral plant species in trade.

Numerous endangered, threatened, and cultivated medicinal species are considered spring ephemerals. *Sanguinaria canadensis* (bloodroot), *Erythronium americanum* (yellow trout lily), *Arisaema triphyllum* (Jack-in-the-pulpit), *Claytonia virginica* (Virginia spring beauty), *Allium tricoccum* (wild ramps), and *Trillium* spp. (trillium) are only a few of the estimated 11,000 species that are heavily reliant or secondarily reliant on myrmecochory for seed propagation.^[1]

Ephemerals, true to their name, bloom for only a short period of time. They must create a seed that is irresistible to ants. At the heart of myrmecochory and seed propagation is the elaiosome. Elaiosomes are lipid-rich seed appendages, akin to ornamental hats, that differ in fatty acid, starch, volatile oil, and nutrient chemistries, depending on which ant species utilize them.^[1] What is it about elaiosomes that attract ants to participate in this beautiful duet? Elaiosome nutrients are key to ants raising healthy young (larvae).

While much of elaiosome chemistry remains to be discovered, research has shown elaiosomes lure ants

with irresistible scents. Volatile oils cue ants to seed-carry, attuning them to their abundance of nutrients.^[1] Ants gather the seed-elaiosomes in their mandibles, a haul that can be up to 5,000 times their body weight.^[2] They can travel up 180 meters to feed the nutrient-rich elaiosomes to their larvae, but most often, seeds are dispersed anywhere from 0-1.5 meters from the plant itself. Research has also shown that seeds may not germinate unless the elaiosome is removed, a job performed specifically by ants within the nest.^[1] Ants then discard the seed in one of their nitrogen-rich tunnels, a warm luxurious place for a seed to sprout.

Thus, as one marvels at the winter forest's flowers, ants are often the ones to thank. Plants are stationary organisms after all, and mastering seed dispersal across a vast forest floor takes millions of years of perfection. Flying pollinators get their buzz with hives and groups

committed to their salvation. But the unsung invisible heroes of our forests are in fact doing the gardening underground [science.org don't crush that ant, August 2020]. Ants are the eloquent composers of one of our most intriguing and beloved sights in nature—spring ephemerals. Thus, on your next medicinal plant adventure, look under the leaves and tread lightly. A busy world of ant tunnels bustle below the surface, planting our favorite medicinal ephemerals in a symphony that blooms as the result of an ant's composition. ■



Bloodroot (*Sanguinaria canadensis*)
Photography by Lindsay Caplan
www.etsy.com/uk/shop/lindsaycaplanphotos

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SUSTAINABILITY IN VETERINARY HERBAL MEDICINE

Factoring sustainability into herbal medicine, whether we are using it in veterinary practice or for our own well-being, is increasingly important to the health of our planet and its ecosystems.

By Susan Leopold

The well-being of the planet, and thus ecosystem resiliency, is deeply linked to the sustainability of herbal medicine and the preservation of cultural traditions. Using herbs in either a holistic veterinary practice or on a personal level elevates our awareness not only of what the plants can do for an ailment, but more importantly, what we can do for the plants and the planet. The interconnectedness of human, animal and planetary well-being is becoming more apparent than ever. The pathway of learning about herbal therapeutics and understanding how a plant grows, what part of the plant is used, where the plants are sourced, and the challenges they are exposed to in the supply chain brings about important questions to navigate. This article seeks to provide resources to help address those questions.

Supporting sustainable supply chains

Conservation through cultivation is a path towards sustainability if a plant can be propagated easily. For example, in the 1980s Paul Strauss developed his herbal Golden Salve to treat his farm animals and himself. The founder of Equinox Botanicals, Paul was instrumental in encouraging United Plant Savers to establish a botanical sanctuary in Rutland, Ohio because the land had an established population of goldenseal that spanned several acres. A wonderful movie, *Sanctity of Sanctuary*, tells the story of how Paul became a self-taught herbalist, farmer, and land steward.

Goldenseal is an iconic American medicinal plant with a long tradition of use among numerous tribes; it is also part of the Eclectic Materia Medica. It can be propagated, but most of the goldenseal on the market today is wild harvested. United Plant Savers is working with farmers through the USDA Beginning Forest Farmer Coalition and the Plant Saver's Forest Grown Verification program to support a more sustainable supply chain for this popular herb.

Unfortunately, many at-risk plants cannot be easily propagated. The seeds may be difficult to germinate, or they may not propagate by cuttings, which means sustainable harvesting and management become critical to the plant's survival. The United States has no governance over plants harvested for trade. Choosing a company that you trust and has transparent practices is vital.

Why does biodiversity matter?

We certainly want to be mindful of the conservation concerns surrounding the medicinal plants that go into the products we use, but why does the state of the world's biodiversity matter? In a recent *Nature* article entitled, "Why deforestation and extinctions make a pandemic more likely," Jeff Tollefson cites a recent study that helps reveal why: "While some species are going extinct, those that tend to survive and thrive—rats and bats, for instance—are more likely to host potentially dangerous pathogens that can make the jump to humans."² (See Figure 1.)

Databases for conservation status

- NatureServe in the US manages a database of the conservation status of all plants. However, it is important to take into consideration that each state has limited resources, and the data provided is often decades old.
- The International Union for Conservation of Nature (IUCN) Red List is a global database of all species; that said, many medicinal plants have not been evaluated and their status is "unknown."
- The Kew Royal Botanic Gardens in the UK has recently started producing an annual report called *The State of the World's Plants*, which is a great resource for up-to-date information on plants.¹ The very first report, published in 2016, stated that of 391,000 known plants, 17,810 have known medicinal uses. It also stated that a staggering 21% of all plants around the globe are threatened by extinction, primarily due to deforestation and land use changes. In fact, we are in what many scientists are calling the Earth's sixth mass extinction. A mass extinction event is when species vanish faster than they are replaced.

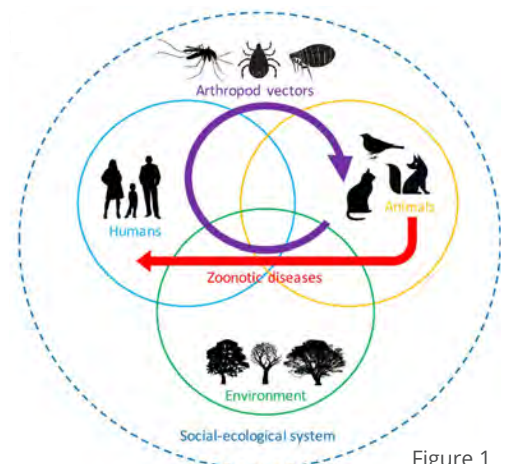


Figure 1

On September 17, 2020, the IUCN posted this call to members that now is the time to form a Global Wildlife Health Authority:

“The COVID-19 pandemic has revealed how vulnerable we are to emerging diseases, and exposed the lack of wildlife health oversight, surveillance and management across the world. Our disturbance of the natural world and growing human and domestic animal populations are increasing contact with wild species and novel emerging infections. To help prevent future emergence of novel pathogens and outbreaks of known zoonotic diseases, the global community should designate a global authority for wildlife diseases and strengthen capacities to monitor and manage disease risks, argue members of the IUCN SSC Wildlife Health Specialist Group.”³

The IUCN also released a statement about the COVID-19 pandemic on April 8, 2020 stating that land use change is a key driver of emerging zoonotic diseases.⁴ Deforestation rates have increased astronomically; in just the last 100 years, the world has lost as much forest as it did in the previous 9,000 years—that’s nearly one-third of the planet’s forests, according to OurWorldinData.org.⁵ While it is difficult to grasp such numbers and concepts, what we do know is that trees are not only amazing at supporting biodiversity, providing oxygen, and cooling the planet, but they also produce forest volatile organic compounds that have numerous benefits to human and animal health.



All the benefits provided by trees and herbaceous plants and how they sustain life on the planet, along with the interconnectedness of human health and ecosystem health, are becoming more apparent as the concept of One Health gains momentum. ■

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EDUCATIONAL RESOURCES FOR HERBAL VETERINARIAN MEDICINE



Veterinary Botanical Medicine Association

www.vbma.org



American Holistic Veterinary Medical Association

www.ahvma.org

2022 AHVMA conference September 10-13, 2022, in Palm Beach Florida



Planetary Health Alliance

www.planetaryhealthalliance.org

Through the IHS' Virtual Learning Center, United Plant Savers in collaboration with VBMA carries on the legacy of the Herbal Vet Track inspired by Juliette de Bairacli Levy and nourished all these years by Rosemary Gladstar.

The IHS brings people together from many diverse backgrounds and ways of working with plants. Learning from elders is at the heart of herbal traditions, and the heart of the symposium as well. The 2021 keynote address was delivered by Diana Beresford-Kroeger, a prolific author who has extensively studied forest volatile organic compounds. Featured online were Diana's film, *Call of the Forest, A Force for Nature*, about the life of botanist Lucy Braun; and the classic *Juliette of the Herbs*, highlighting Juliette de Bairacli Levy, an herbalist specializing in holistic veterinary medicine and one of the original IHS elders.



Post-class photo of Thomas and Holly with students and parents

HERBAL ADVENTURES IN CHINA

By Thomas Garran

The image of the wandering monk from the TV series Kung-fu and my study of martial arts helped develop my impression of Chinese culture and mysticism during my childhood. The idea of the lone barefoot monk wandering the country righting injustice and brewing herbal concoctions to heal both himself and those he encountered is an ethos I have always felt very connected to. Those were the 70s and early 80s—fast forward to 2004, and I started to bring those images into focus with real monks and real monasteries during my first trip to China. In 2007 I returned, and for the last 15 years have lived, loved, lost, and learned in the culture that had such a significant impression on my childhood. This essay attempts to clarify a small slice of what I have learned here about medicinal plants and what I am bringing back from my time here.

China's long history of using plants as medicine has created layers of complex networks of wildcrafters, growers, buyers, sellers, processors, medicine makers, pharmacies, and practitioners—relationships that often go back generations. In the modern era hospitals, exporters, and scientists have been added to the layers of this milieu. The latter are a well-funded arm of modern Chinese medicine, probing the tradition in search of modern breakthroughs that could lead to the next "great" medical advance (i.e., drug). At its core, this network is a conglomeration of people who love plants and have intimate relationships with the plants they work with most closely.

I came to China as a practitioner, seeking out doctors in clinics and hospitals in hopes of learning the "secrets" of clinical Chinese medicine from experienced doctors who



Thomas allowing children to feel the heat produced in a compost pile commonly see 50-100 patients (sometime more) every day, 5-7 days a week. One thing that I learned quickly was that very few doctors had any connection to the herbs they prescribed and never even touched them. A prescription is written and given to the patient, who then takes it to the pharmacy where they it is filled.



Thomas explaining observation of soil microbiota with a microscope

This was my first introduction to some of the layers that exist within the greater “industry” of Chinese medicine.

My experience in China has been filled with all the things that life has to offer, and love and loss are two of the most common elements to our human experience. First, love was brought to me, and there was marriage, and as love often does, it brought a new life into the world. However, loss soon followed. On the eve of Chinese New Year 2011 our beautiful baby Autumn Reine fell victim to SIDS, leaving a crater of emptiness in our lives.

Running on fumes in the wake of our daughter’s death, my wife and I happened upon an astonishing offer from a woman who ran an orphanage for children of incarcerated parents. They had a farm and offered to allow us to bury Autumn Reine there under a tree we would plant. But then, halfway through our first meeting, I had an idea. What if we built a garden filled with flowers where children from both the orphanage and elsewhere could come and laugh and sing in the summer sunshine? Autumn Reine would forever be surrounded by the joy of children. Fast forward more than a decade, and we have built 5 of these gardens. More than 120 medicinal plants are rooted in the soils that have been tended by thousands of children and adults over that time while they were reconnecting to the soil and the plants in front of a backdrop of learning about organic gardening, soil ecology, and simple uses of the plants. Some children have come back year after year, and we recently received an email from a couple who, at an early volunteer event, met, got married, and recently had a daughter whom they named Autumn.

After Autumn Reine’s death, I chose not to return to the clinical apprenticeship where I had been for about a year. My focus was entirely on the garden. This shift from clinical practice to gardening and eventually farming

herbs led me to the China Academy of Chinese Medical Sciences: National Center for Materia Medica Resources and Daodi Herbs. Here, I was given the good fortune to do my PhD and mentor with the top academics in the field of ecological agriculture. The trajectory of my life had changed forever, and a completely new world of Chinese medicine opened to me. My studies at this institution offered me the opportunity to travel the country, visit farms and markets, and attend and present at conferences on every aspect of Chinese medicine. I did cultivation research projects at the farm I managed and continue to be involved in projects across the country. The advantages of studying at the pinnacle institution for academic study of Chinese medicine are tremendous, especially when your advisor is the president of that institution.

Since before my first book was published in 2008, I have looked closely at and ruminated incessantly over the ecological impact of using Chinese herbs in North America. In that text I stated, “[Chinese medicine practitioners have] many good reasons to make use of Western plants. Probably the most important of these is conservation of resources.”¹ My goal in writing the book was, and remains, to stop or at least slow the excessive use of resources to transport herbs around the world. This effort has, in spite of publishing a second book on the subject in 2014, not been as impactful as I would have hoped. And, while I continued to do this work, it became clear to me that in order to have a meaningful impact on resource consumption, effort was necessary elsewhere. Given the shift in my professional focus from clinical to non-clinical areas of Chinese medicine, agriculture seemed like the logical direction. If we could grow a significant volume of the herbs used by Chinese medicine in North America, then we could not only save those resources, but also build a new avenue for farmers to integrate profitable crops into their agricultural systems.



Thomas hosting graduate students from his alma mater

Over the last 25-30 years there have been and continue to be attempts to cultivate Chinese herbs in North America, but they have not been able to have any significant impact on the commercial market and thus have failed to reduce the resources used to ship herbs from Asia to North America. I talked to many people who were interested in growing Chinese herbs in North America and Europe but heard of very few success stories. Interviewing people who had been involved in failed projects, those still involved but struggling, and others who had done academic research in the field suggested that one of the primary problems was information (i.e., growing, processing, etc.) and direct experience farming these plants. I was convinced that there was a way for me to have a positive impact in this area.

In 2016 I was asked to translate a text that had been edited by my PhD advisor and the head of my committee. This text, *Growing Chinese Herbs: Daodi Practices for Growing & Processing Chinese Herbs* was published in 2019. It was the first and remains the only book in English with source information on growing Chinese herbs. This information that is crucial for farmers—from soils and inputs to pest management and on-farm processing details. The information in the book was a critical piece of the puzzle that was missing. How to transfer my experience, access to source information, and enthusiasm to farmers outside of China?

I began to give seeds to farmers in hopes that they would grow them. I offered, free of charge, my experience and access to source information on how to grow and process them. I even offered to purchase the herbs from them so that they need not be concerned with the sales side of the business. However, this process uncovered yet another major barrier. Although I could talk about how these herbs are grown and processed in China, I could not look a farmer in the eye and tell them how those plants would grow on their farm. I could assure them that their farm very closely fit the ecological niche that one or more Chinese herbs prefer, but all that information was coming from halfway around the planet. I found it very difficult to take my enthusiasm and translate it into momentum on the ground.

Frustrated, I began to reevaluate what I had been doing and looking back at what had been done. Where was the problem? Then it dawned on me that the biggest problems cited in my original research had been solved. I had offered expertise from the source, but I could not offer “proof of concept,” which is to say, how these plants would respond to the soils, pests, etc. of North America. Nearing the completion of my PhD, I was steeped in academic research, and I realized that the vast extension programs of the land-grant universities of the United States might hold the answer. These programs, generally, hold the trust of their local agriculture community, and they have experienced researchers to help bring to fruition this part of the vision. So, starting in 2019 I began working with one university extension and then in 2020 another. Unfortunately, our favorite “wrench in the works,” COVID-19, sullied our progress to some extent, but we are planning significant steps forward this year with full-fledged yield experiments that will also include

chemical analysis to see if what we are growing conforms to the *Pharmacopoeia of the People's Republic of China*. Additionally, I have joined the non-profit organization American Institute of Integrative Herbalism, and we are focused on this singular issue. Our goal is to help raise funds to support farmers through training and grants for equipment and facilitate further research with university extension programs.

Currently, we have experimental farms in Colorado, North Carolina, and Maryland; one farm in West Virginia that has been able to bring small commercial volumes to harvest; and a farm in New Mexico that has made good progress over the last year. We are hopeful that more will be joining in the near future.

Love and loss have a way of changing a life. My wife and I have tried to do our best to honor the life that love brought us. The loss, we believed, could be transformed into a gain and although seeing a child run through a planted bed at a learning garden still makes me cringe, the joy on their face quickly turns that into a tender sigh and a warm smile.



Thomas and Holly at one of their learning gardens

Thomas Avery Garran, PhD is an herbalist with formal training in both Western and Chinese herbal medicine. Earning a certificate in herbal studies in the early 90s, then a Master's in Traditional Oriental Medicine, he finally became the first foreigner to earn a PhD in materia medica studies at China's flagship institution for the study of Chinese medicine in Beijing, China. He has published in peer-review journals and is both an author and a translator of several books. He and his wife run a learning garden and a small natural skin-care business in Beijing known as Herb Whisperer.

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TRADING MEDICINAL PLANTS IN THE ANCIENT WORLD

By Rachel Thomas

Human beings began trading medicinal plants in prehistoric times. Even before the agricultural revolution of the Neolithic age, there is evidence of the collection, storage, and international movement of exceptionally powerful plants.

It is impossible for us to determine when humans began trading medicinal plants. The use of plants as medicine has been traced back to at least 50,000 years ago by paleobotanists who found chamomile and yarrow residues in the dental calculi of Neanderthal skulls in what is now Spain.¹ At that time, early humans would have chosen their plant medicines based on their distinctive smells or tastes, much the way we see animals medicate with plants today in the wild. The preparation of the herbs would have been simply chewing them raw or drying them out to store for a later time.

As early as 24,000 years ago, we start to see more sophisticated herbal techniques in South Africa, where wax from the castor plant was applied using a thin piece of wood.² Unlike mild medicines such as chamomile or yarrow, poisonous plants require an advanced harvesting and preparation strategy. Pharmacological applications of castor would not be recorded until 20,000 years later when included in the Ebers Papyrus and other early medical writings in North Africa. Further studies which combine paleobotany, archeology, linguistics, and ethnobotany would help us to understand how this important plant and its applications traveled through time over such large distances.

New findings in the first ancient cities of the Eastern Mediterranean and Western Asia may indicate that humans were trading medicinal plants as early as 7000 BCE in that area. We know that international trade of select goods, such as obsidian, had already begun by this time. At the settlement of Çatalhöyük thousands of mustard seeds were found in a sealed vessel.³ This large quantity and careful packaging may indicate that they were to be traded internationally, although more

research is needed to understand the role of medicinal plants at that time.

The opium poppy (*Papaver somniferum*) is another plant which requires further study to unravel its historical use and trade. Believed to be native to Southern Europe, use of the poppy was ubiquitous during the agricultural revolution in Mesopotamia, North Africa, and Greece.⁴ Still one of humanity's most important plants for its unmatched pain-relieving properties, the opium poppy was central to the ritual practices of these early large-scale settlements.



Recipe Vessel Akrotiri

The first medical texts in these civilizations indicate an advanced system of international trade. In Kemet, now called Egypt, gardens were created to collect plants that had been transported from foreign lands. A great example is the expedition of Queen Hatshepsut, who traveled herself to the land of Punt in East Africa to bring myrrh trees back to her palace.

International trade routes of these early civilizations spanned Europe, Africa, and Asia. Studies of this period focus on the trading of metals. However, in a time before money precious plants were equally important as a form of payment. It is probable that before coins, standardized measures of plant resins such as opium were used as money. Early coins often had images of plants on them, which may have indicated their rate of exchange.

Possibly the most famous of these plants was called silphium. Used as a panacea and effective birth control, this fennel-like plant was one of the most important during the Greek and Roman occupations of North Africa. Although many attempts were made at that time to reproduce silphium in other places, it would only grow in its home climate of Cyrene in what is now Libya. Severe climate change, colonization practices, and over-harvesting lead to the extinction of this valuable plant.

To prevent the repetition of silphium's extinction story protection of natural areas and regulation of medicinal plant trade are essential. We must also look at human

SWEETGRASS (*Hierochloe odorata*)

By Jennifer Langstaff-French



Silphium

history with an honest perspective of the role that plants played in the development of our “civilizations,” economies, and religions. An interdisciplinary reassessment of this topic can help us to reverse the assumption that medicinal plants were insignificant in human development. To create a sustainable future, we must recognize the pivotal role that medicinal plants have played in our history and our survival. ■

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Rachel Thomas shares her passion for natural medicine through teaching, writing, and consultations, focusing on reviving the medical folk traditions of Latin America, Africa, and Europe. She founded the Hidden Garden Ethnobotanical Sanctuary in Costa Rica 20 years ago to support the work of community-based herbalism and promote medicinal plant conservation. Rachel helps her individual clients of all backgrounds to connect with the ancient healing modalities of their own ancestry. She also guides herbalists in their quest to integrate oral and cultural traditions into their professional work.

You can find her at [facebook.com/ancientwellnesstools](https://www.facebook.com/ancientwellnesstools) or read more about her work and book a private consultation at [ancientwellnesstools.com](https://www.ancientwellnesstools.com).

The first time I ever met sweetgrass (or fragrant holy grass) was through Rosemary Gladstar’s hands. Like so many of the allies she would introduce me to over the coming years, sweetgrass was brought forth with reverence and grace. Tossed upon the waiting stone beings of the sweat lodge, its sweet and pungent breath filled that dark womb space of my rebirth. As a young teen, lost in a world that held no culture I could cling to, its essence entered my blood through my lungs directly into my anxious heart and gave it hope. Those moments initiated in me an embodied sense of place, one that I learned to turn to, to cultivate, and ultimately to offer on to others.

This was decades ago. So many of my teachers in human form have retired or quieted their voices for future generations to take up the call. And as we muck about, attempting to fill these archetypal shoes, it is always the beings of green who continue to fortify my path. My family and I now tend a botanical sanctuary in our home land of rural Vermont. And while I am thrilled and awed to be the guardian of astragalus (*Astragalus propinquus*), codonopsis (*Codonopsis pilosula*), angelica (*Angelica* spp.), and nettle (*Urtica dioica*), amongst so many more of our sacred allies, it is sweetgrass that will always bring me to tears, as it is She who found me and guided me home.

This spring we will expand her territory on our land. She has successfully held ground and bears seed, offering her grassy leaves, like the Earth Mother’s tresses, that we braid and share as guidance for all our relations. And as I admit to my lack of success in propagation through seed, I will spread her wisdom through runner roots this year, repopulating the beds of our waterways with her humble and ancient presence. For me, She embodies that deep and sometimes unknown secret of herbal medicine—that we don’t always need to ingest what someone has to offer in order to heal and to grow and that some of the most powerful medicines come solely through their existence. If we can enter the stillness it takes to know this truth, we will find we were never lost and have always been home.

This excerpt from my life as a green nations guardian is in honor of Rosemary Gladstar and United Plant Savers, who have always understood this great and ancient truth and worked tirelessly to ensure that it waits in safety for those who are ready to listen. ■

Jennifer Langstaff-French has been a lifelong ally to the Green Nations. Educated by the pioneer elders of the field, she currently maintains a botanical sanctuary and honey farm in Rupert, Vermont. Her work is to continue to offer the type of direct contact intimacy that fosters connection between all our relations.



Fire Ecology, 22" x 15" Copper Etching, 2021
by Vanessa Jo Bahr
www.vanessajobahr.com

RECEIVING VS TAKING

By Melissa Lisette Edwards

On the subject of conservation, I'd like to look at how some of the ways in which we've been conditioned to perpetuate the consumerism that fuels our lives and economics have extended into our interaction with the natural world as well, bringing about the need to protect and conserve.

2020 was a lot of things. For me, in the apothecary I managed, I had a front row seat to witness the craze people were bringing to the purchasing of herbs. The rush for herbs was comparable to the rush on toilet paper. On one hand, it was great that people were looking for natural ways to care for themselves. On the other, the colonized approach of taking everything we see with no regard to where it came from, for the caretakers of the land where it was harvested, any knowledge of the actual plants, and definitely no respect for the plant medicine was disheartening at the least, and horrifying at best. This was just one example of the very real and potentially harmful effects of our consumer mentality on our own health.

It starts with our language, which then informs our actions. We talk about taking our medicines, vitamins, supplements, baths, etc. What would happen if we decided to *receive* all of these medicines instead? How would that change our absorption of nutrients? What would this bring up or shift in our body?

What if instead of conversations around calculating and *consuming* more/less calories/protein/sugar, we tuned into our body and allowed it to *receive* the nutrition it is asking for? And are we actually *taking* our time or *receiving* the present moment for all that it is?

Being that almost all of our exchanges in mainstream society are transactional, why is the natural world the one place where we think we don't need to give something in exchange for keeping us alive and well? If we weren't so obsessed with unsustainable consuming, maybe we wouldn't have to work so hard to conserve the very things that sustain our lives. When we're in right relationship with the world around us, and *receive* the earth's medicine, we understand that it is a gift and privilege to have access to and to work with. We understand the power of sitting among the trees, visiting with the flowers, lying on the earth, and allowing in the healing we receive just by being there and being still without ever needing to take a thing. *Receiving* our medicine gives pause to the taking and consuming mentality of not giving back, of not planting a seed, of not replacing what we've been gifted, of not truly absorbing the real medicine. I invite you to consider this: right relationship with the earth = right relationship with the self.

As we know, conservation is a conversation to save ourselves, not the planet. She will be here long after we're gone. ■



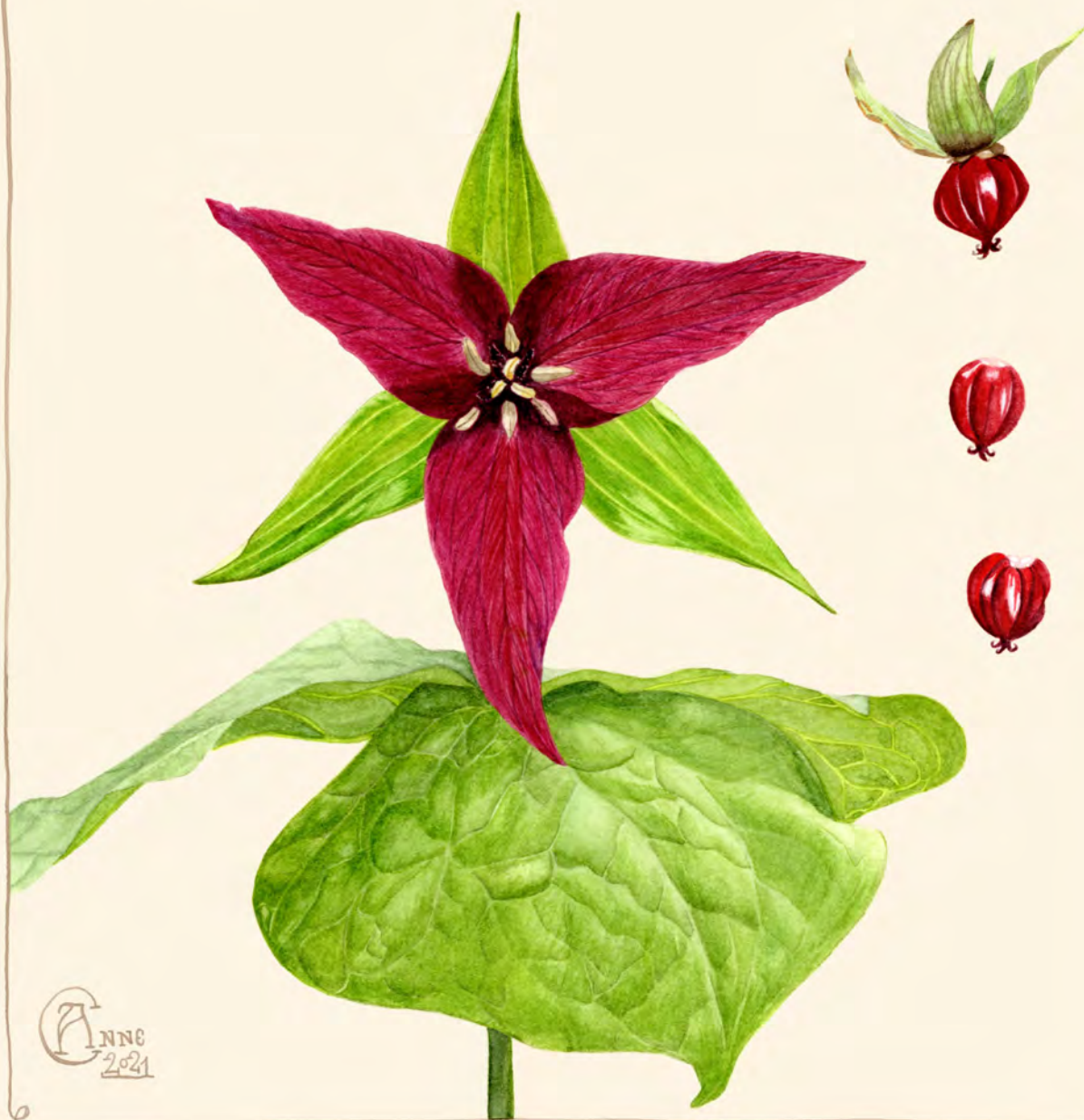
Winter by M L Edwards



Irish fungi by M L Edwards

Melissa Lisette is an Intuitive Spiritual Herbalist, Flower & Gem Essence practitioner, and an Akashic Record reader, utilizing all of these to assist in expanding consciousness and reconnecting people to the earth in order to activate the ancient wisdom.

Trillium erectum



Trillium erectum, Watercolour Painting by AnneSea Illustration, www.annecillustration.art

ENDING THE TRILLIUM TRADE

By Susan Leopold

History of medicinal use

Trilliums have a rich history in medicinal use here in the United States but also in China, India, Pakistan, and other regions around the world where they grow. *Trillium govonianum*, native to Pakistan is an example of another species facing pressure due to its slow-growing nature and demand in the regional medicinal plant trade. The bioactive components of trillium roots/bulbs are steroid saponins. Plant derived steroid saponins occur in a wide variety of plants, and there are numerous articles on the health benefits of these plant steroids. Trilliums are also known to be astringent, tonic, and antiseptic, which makes for wide application in their being used as an ingredient in herbal formulas as well as single tinctures. The common name, birth root or beth root indicates that it has a history of use for women during and after birth and for preventing and mitigating hemorrhages. Further description can be found in *Kings Dispensatory* (1898) and in numerous early American herbals. There is a long history in rural Appalachia of side income derived from the trapping for the fur trade as well as digging roots and harvesting barks for the medicinal plant trade going back to the 1700s. Knowledge of native medicinal plants was derived from diverse encounters with the many Indigenous tribes of the North American region. Much of the plant knowledge and formulation of herbal products is based on folk knowledge that has been passed down over generations. The demand for herbal products in the United States hit a peak during the late 1800s and early 1900s when there were many schools of eclectic medicine that promoted the use of plant-based remedies. During this period it was common to purchase a plethora of herbal based medicines at any small store. This all changed with the dominance of trained allopathic doctors and the development and use of pharmaceutically derived medicines.

Currently we are witnessing a renaissance in the demand for plant-based products that are currently regulated under the Dietary Supplement Act passed in 1994. The legislation provides some regulation for herbal products but clearly states that no medical claims can be made on them. This regulation creates a conundrum on how products are marketed and the subsequent research on understanding the medicinal properties of these plants and how they are formulated. There are GAP (good agricultural practices) guidelines for handling and processing plant material to ensure that it is washed, dried, and handled appropriately, but these practices neither address conservation concerns nor proper identification when there are many similar species such as trilliums. Companies are required to document some form of tracking the plants in the supply chain. This can be done with a herbarium specimen or through the use of HPTLC or DNA but these “markers” or testing techniques are unable to properly identify

similar species, and a company is only held accountable if they are audited by the FDA. Plants that are used in the making of pharmaceutical grade drugs must comply with much stricter conservation protocols, but for the Dietary Supplement Act these requirements on sustainability do not apply.

Information on the trade

The medicinal plant trade in general is unregulated in the United States unless a plant is listed on CITES and requires a permit for export. Trillium is not listed on CITES at this time and therefore is unregulated. Plants on the endangered or threatened list can still be harvested on private lands without consequence. On public lands such as the National Forest a permit may be required for digging plants, but the permit process varies from region to region. So how do we know what is happening on the ground in the trillium trade? The use of Facebook by dealers and diggers to advertise prices is one way to gauge current demand. There are well over a dozen or so dealer and digger Facebook pages with thousands of followers that provide a good sense of how large the network is across the southern region of Appalachia.

To supply the herbal products industry with wild harvested plant material it takes a big network over a large geographical area to accumulate enough wild harvested plant material. One example of an active Facebook page is the “Root Diggers of All Kinds” where the prices advertised for trillium over the summer of 2020 were one dollar per pound wet and two dollars per pound dried. Depending on the size of the trillium rhizome, a pound of dried root could range dramatically. Generally speaking, the rhizomes are often rounded and the size of a gumball, so a pound of dried root could be around 100 individual plants. Often dealers will advertise a lower price than the going rate and, depending on supply and demand, will negotiate the closing price at time of sale.

Another source of current information on trade can be found in the Root Report, a project of the Department of Forest Resources and Environmental Conservation at Virginia Tech. From 2013-2016 a confidential, voluntary questionnaire was sent to registered ginseng dealers in southwest Virginia, eastern Kentucky, and West Virginia about the other herbs they purchased. The goal was to be able to estimate the annual output of some of the more commonly traded medicinal forest products to better understand their value and where they are being harvested. In this report from 2013-2016 1,338 pounds of trillium were reported being purchased at an average price of \$3.11 cents per pound. It is important to note that the number of dealers surveyed is just a fraction of those who purchased in those years or reported purchasing, so the number is most certainly higher in total pounds traded. The American Herbal Products Association also has a voluntary process where companies can report purchases of raw botanicals. The last survey year to be reported and published is 2010 when 594 pounds of wild harvested plants were reported

for that year down from 2002 when 2,403 pounds were reported. It is important to note that cultivated trilliums have never been reported as a source. Certainly there could be a trend towards a diminishing demand in natural product companies using trilliums in products. Note that it is only a fraction of companies that chose to participate in the AHPA tonnage survey, so the numbers are obviously higher than the reports show. A quick search on Amazon or Google will reveal that trilliums are sold as a tincture by numerous companies and as a plant used both in capsule and liquid formulas.

The nursery trade in trilliums is difficult to report on because it is a very lucrative trade. Native plant nurseries and the native plant community have strict ethical guidelines against digging plants out of the wild for resale. Even though native plant regional societies and native plant nurseries have clear guidelines, trilliums are a highly sought-after plant in the nursery trade for their beautiful flowers and fondness as a spring ephemeral and sell for anywhere from five to fifteen dollars for a single plant. There is a huge discrepancy in the value of trillium as a living plant in the nursery trade and the value of the dried root for the medicinal plant trade. How can one pound of fresh root be valued at one to three dollars, when a pound of fresh root could be nearly 100 plants that could be sold for five dollars a plant, a value of five hundred dollars or 500% difference? In personal conversations with dealers, they lament that it is difficult to find diggers who have harvested and dried trilliums when they can sell a single rhizome fresh for a high price to those looking to repot and sell the plants into the nursery plant trade. In personal comments from a digger, the dealer told the digger that if she did not dig trillium in the spring, the dealer would not buy the digger's ginseng in the fall. (link below to youtube video on the trillium trade)

The geography of the trillium trade and its conservation consequences

The trillium trade is a cash economy that is difficult to track. The conservation concern for trilliums is that the trade takes place in southern Appalachia, West Virginia, Kentucky, Ohio, Tennessee, and Georgia. The southern Appalachian region is also the center of diversity for trilliums in the world, and many of these species are threatened. Most trilliums are dug in the early spring as soon as their three leaves appear. Trilliums are spring ephemerals and after they flower, they start to disappear. Most diggers will dig any trillium species and may not be aware of which species are threatened or endangered, since the three leaves are a visual signature of trilliums and plants are often dug before they even flower, which also diminishes their ability to reproduce by seed. Even though *Trillium erectum* (a species that is not threatened and has a large geographical range) is the name used to market and sell dried medicinal trilliums in the medicinal plant trade, there is no way of knowing which species of trillium was harvested by

looking at the dried root. Dried trillium can be found on sale via Amazon, Etsy, and several herb companies for around \$40 per dried pound. The trade alone is likely not the main threat to trilliums. Deer browse due to over population and lack of top predators in the ecosystem, invasive species, the decline of healthy forests, and the fragmentation of the landscape combined create the perfect storm for vulnerable trillium species in the southern Appalachian region.

Ending the trillium trade in commercial herbal products and suggestions for analogs

United Plant Savers, a non-profit founded in 1994 dedicated to native medicinal plant conservation, listed trillium species on its "At-Risk" list, but has now moved it to "Critical". There are several common species that are abundant and easy to cultivate and provide accessible analogs for the traditional uses of trillium. Motherwort (*Leonurus cardiaca*) is an effective uterine tonic. Yarrow (*Achillea millefolium*) can be used as a plant that is very effective as an anti-hemorrhage herb as well as Shepherd's purse (*Capsella bursa-pastoris*), which is also useful as an astringent. Raspberry leaf (*Rubus idaeus*) is used to tonify the reproductive system. United Plant Savers supports the work of those who are dedicated to cultivating trillium for the horticulture trade and for conservation purposes. Without any efforts to use cultivated sources of trillium for the commercial trade in herbal products, compounded by the fragility of such a slow growing woodland spring ephemeral, United Plant Savers advocates for the ending of the trillium trade in commercial herbal products. ■

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TEN DAYS ON KYTHERA: REMEMBERING JULIETTE DE BAIRACLI LEVY

By Maria Christodoulou

In the spirit of remembering those who have passed, I would like to share a trip I took last summer to the Greek island of Kythera. This island was the home of Juliette de Bairacli Levy (1912-2009), who was a well-known and well-loved herbalist, traveler, and writer. Many beloved herbalists in the United States and around the world knew and learned from her the magic and medicine of plants. As she documented in her many books, including *Common Herbs for Natural Health*, *Traveler's Joy*, *The Illustrated Herbal Handbook for Everyone*, and *The Complete Herbal Handbook for Farm and Stable*, Juliette immersed herself in a truly natural lifestyle to intimately experience the wisdom of plants. During several points in her life, Juliette lived in Greece, my country of heritage. Visiting the island allowed me to meet with people who knew her, to imagine the herbal life she had, and to be transformed by the magic that happens when we immerse ourselves in beauty.

KYTHERIANS

An eclectic island with 60 villages, Kythera is located between the Peloponnese and the island of Crete. The island feels like a hidden gem away from popular tourist destinations, offering mountains with picturesque views of the Mediterranean Sea and a selection of beaches with clear blue water, worthy of Aphrodite herself. Juliette lived on the island for ten years during the latter part of her life. She was considered an eccentric on the island and lived there with her Afghan dogs in a small stone house on the edge of a small village. Within walking distance of her home was Skandeia Restaurant, where Juliette would sit with her beloved dogs near a patch of rosemary and under the shade of the trees. The owner, Evanthia, was excited to hear that I was interested in learning more about Juliette, who was a regular patron and friend. "She was an amazing woman. She was a pioneer," she said.

Evanthia shared the story of how Juliette came to the island because of a dream she had about living on "Thira." Before coming to Kythera, Juliette had visited Santorini, which was called Thira in ancient Greece. Not finding

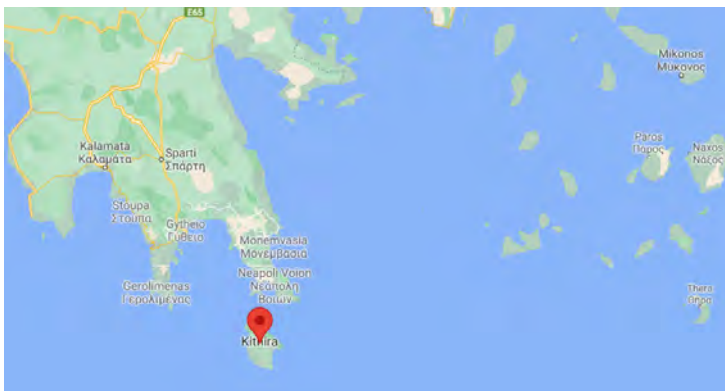


The home of Juliette de Bairacli Levy

what she wanted there, she came to Kythera. It was this "-thera" that Juliette had imagined: when she arrived and passed by Skandeia, she told Evanthia that this landscape was exactly what had appeared in her dream. "She was brilliant...[and]...she had a wonderful sense of humor," Evanthia recalled.

Evanthia also shared about Juliette's collection of heart-shaped rocks that she found on the beach near her home, a symbol that paired well with the myth that the island was the birthplace of Aphrodite, the goddess of love and beauty. In mythological legend, the goddess emerged from the sea foam as a fully grown woman just off the shore.

Another local who knew Juliette is award-winning author, photographer, and filmmaker James Prineas. In his book *The Kytherians*, James includes stories about Juliette, including her comical relationship with her taxi driver, Tarzan. This is a heartwarming and genuine collection of stories from across the island and over several generations. His book is available on the Pure Kythera website (www.purekythera.com), along with an aerial photography book of all the villages on Kythera and a whimsical film about the island. James was delighted to share his many stories about Juliette with me and offered much support during my visit, including a complementary signed copy of his book. He also has a collection of photos



Map of Kythera



Juliette's sweet home

of Juliette on his photography website (<http://james-prineas.com/kythera/the-kytherians/juliette-de-bairaclivy/>), including a photo of them together at her nursing home in Switzerland.

VISITING JULIETTE'S COTTAGE

Of course, the highlight of my trip to the island was visiting the cottage that Juliette lived in during her decade on Kythera. The property is currently rented out to a shepherd, but the interior of the cottage has remained empty since Juliette left in the late 1990s. Her beloved former home is tucked away, located off a side road that leads to a quiet beach. A friend and I carefully trekked through high grasses and thorny shrubs at the peak of the midday heat, proven by the scratches on our legs and sweat pouring off our faces. The same olive tree that featured in the film, *Juliette of the Herbs*, greeted us as we approached the cottage. Unfortunately, not much remains of Juliette's heart stone pathway or her vibrant garden, as the hot and dry climate of Greece makes it hard to upkeep a garden without regular care and water. What does remain of Juliette's signature cottage is the green paint on the weathered door.

During our special mission to Juliette's sweet home, we tried capturing similar photos to the scenes in *Juliette of the Herbs* to compare then and now. Nature clearly follows her own rules when humans are no longer present.

SHARING STORIES

There is something about revisiting the past that provides inspiration for the future. Last year, the International Herb Symposium had presented the 1998 film *Juliette of the Herbs*, as well as a live conversation between celebrated herbalist Rosemary Gladstar and *Juliette of the Herbs* filmmaker, Tish Streeten. As revealed by their delightful conversation, stories about Juliette continue to spark the memories of her wisdom and eccentricities, even after so many years.

At dinner one night on Kythera with a group of locals, I re-told the story that Rosemary had shared during this conference conversation—how she had invited Juliette to be the guest speaker at one of the very first International Herb Symposiums and how Juliette had agreed. However, shortly before the conference, Rosemary still hadn't heard from Juliette about her arrival date. As I shared this story, the Kytherian locals were delighted, and not completely surprised, at Juliette's last-minute change of heart not to travel. But Rosemary, in her retelling, decided on her own last-minute travel to Kythera to bring Juliette to the conference. Rosemary's adventures were a series of misadventures—from calling the local taxi station just to get in touch with Juliette to realizing Juliette's passport was expired when they arrived at the Athens airport for their flight to the States. All this happened in true Juliette form.

Both the stories of Juliette on Kythera and in the U.S. reveal her widespread influence during a time when life moved more slowly—before the internet existed and cellphones ruled our lives, when we could capture our



Ancient olive tree



Juliette in her garden



Adaya and Maria

routines and experiences more closely to our hearts instead of to the world-wide web. It is these everyday stories of how people got to know Juliette either in-person or through reading her treasured collection of herbal books that continue to keep her brilliant character and plant wisdom very much alive and present.

ONE LAST MOMENT OF SERENDIPITY

If you visit Kythera, be sure to enjoy yourself on perfectly imperfect adventures and leave room for serendipity. In true Juliette magic, a couple of weeks after I left Kythera for Athens, I learned that Juliette's granddaughter, Adaya Lancha Biracli, was in Greece to visit the island after 15 years. Adaya and I arranged to meet during the one night she had in Athens before her return to Switzerland. It felt incredible to meet her and hear her childhood stories on the island with her grandmother. As a popular folk singer, Adaya (www.adaya.net) sings the lyrics of her grandmother's poetry as well as music that captures the treasure and spirit of being human.

During our conversation, Adaya mentioned the unfortunate changes on Kythera that she had noticed. In addition to the dilapidation of her grandmother's cottage, there is also a lack of seagulls, which hungrily appear in a scene in Juliette's film. There was also, regrettably, small clumps of oil dotting the beach near Juliette's cottage, which I had unknowingly stepped on. The result was black tar covering the bottom of my feet for several days. This was caused by a ship that had spilled oil offshore several years earlier and was clearly not held responsible for cleaning it.

There is a certain hope that time can maintain the images from our past. But nature transforms to reflect the way we treat her—from the tall grasses that now hide Juliette's cottage to the missing sounds of nature we remember from childhood. And yet, time moves us in the direction of our own unmarked path. I choose to marvel at the serendipities of my visit and take delight in the mysteries of how time can reveal the treasures that Adaya so often sings about. ■

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MIGHT BE
At Risk

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Please see our website for information on critical issues surrounding white sage and Hawaiian sandalwood as well as articles on the conservation of other essential and carrier oil-bearing plants.

UNITEDPLANTSAVERS.ORG/ESSENTIAL-OILS/

Through education we aim to protect threatened essential and carrier oil-bearing plants.



Agarwood
(*Aquilaria* spp.)
CRITICALLY ENDANGERED*



Rosewood
(*Aniba rosaeodora*)
ENDANGERED*



Spikenard
(*Nardostachys jatamansi*)
CRITICALLY ENDANGERED*

*IUCN RED LIST OF THREATENED SPECIES

Use Essential Oils Sustainably

You can help protect threatened plants which essential and carrier oils are sourced from.

OVERVIEW OF CHANGES TO THE AT-RISK LISTS

By Helen Metzman

This update is a first major revision of the UpS “At-Risk” List since it was first developed by United Plant Savers over two decades ago. In recent years United Plant Savers has added Hawaiian Sandalwood to the at-risk list and ramps to the “To-Watch” list. As a board we have had an ongoing committee that has worked to gather information and navigate how best to advocate for native medicinal plants. This list is dynamic, and we encourage members to participate and share thoughts. We are working hard to figure out ways to gather information, conduct research and network with our membership and partner organizations. We have now reworked the categories from “At-Risk” and “To-Watch” to “Critical”, “At-Risk” and “In Review.”

History:

Rosemary Gladstar founded United Plant Savers over 25 years ago to raise awareness about the necessity to conserve native medicinal plants. She observed that many of her beloved plants were overharvested for commerce or imperiled by habitat destruction, leaving their populations too small to sustain themselves. Rosemary, along with others at United Plant Savers, created “At-Risk” and “To-Watch” lists that highlighted the species of most concern. Monographs (now called “plant profiles”) were written by prominent herbalists and plant people of the time and compiled into the book, *Planting the Future*, (Healing Arts Press, 2000)

These UpS At-Risk lists were developed to serve as a standard for those seeking information and guidance on the conservation of medicinal plants. The latest revisions reflect the current state of the environment, industry, and personal use, with the intention of revisiting their status on a yearly time frame. The uncertainty of ecological conditions and popular use makes it imperative that we stay up to date on the status of each species so that we may foster hope for their survival far into the future.

A generation has passed since Rosemary was first summoned to become an activist for at-risk native medicinal plants, and we tasked ourselves with revisiting and updating the lists. Our responsibility remains to the plants to ensure their populations remain viable and steady for many generations to come.

Changes:

In our updated lists, we have moved some of the most vulnerable plants into a new “Critical” category. These species have been evaluated by the Board of Directors of UpS, which carefully reserves this category for species that are federally or state protected and/or are at a very high risk of extinction. United Plant Savers recommends

these plants should not be wild harvested or purchased under any circumstance except for research that directly supports the health of the population and sustainable use by Indigenous societies that have a traditional history of connection with these plants.

Plants in the “Critical List” include: Elephant Tree, (*Bursera microphylla*), Lady’s Slipper Orchid (*Cypripedium acaule*), Peyote (*Lophophora williamsii*), Sandalwood (*Santalum* spp.), Sundew (*Drosera* spp.), Venus Flytrap (*Dionaea muscipula*), Beth Root (*Trillium* spp.), and False Unicorn Root (*Chamaelirium luteum*).

The majority of plants from the original list have remained in the “At-Risk” category.

The United Plant Savers recommends that “At-Risk” plants should be used in cultivated forms whenever possible. Because of pressures facing these plant populations and significant variability in abundance, wild harvesting should be very limited and carefully monitored. Any wild harvest of these plants should align with rules established by federal, state and local governments.

The new “In Review” list has replaced the “To-Watch” list and are native plants that have significant known medicinal, edible, and/or ornamental uses that have been recommended through our membership or the UpS Board. We will review and, if necessary, evaluate these plants for consideration for the “At-Risk” or “Critical” listings. We advise caution and careful consideration when using these plants for either personal or commercial use.

Our lists are ever evolving and subject to the vicissitudes of the herbal industry, environmental impact and popularity. Plant profiles on our website discuss the conservation aspects of the plants and provide additional resources to delve deeper into ethnobotanical and geographical links.

United Plant Savers created a “Species At-Risk Assessment Tool” for those experienced in the herbal industry to score and rank the plants’ status. The scores give a barometer as to how each specific plant fits into the spectrum of our “Critical,” “At-Risk,” and “In Review” lists. For instance, the higher score of 75 for Sandalwood indicates the species is more vulnerable compared to the lower score of 34 for Mayapple.

Take a look at the lists, read the profiles, and please feel free to provide any feedback. We hope these lists help to ensure the plants’ populations remain stable not only for future herbalists, botanists, wild-crafters, medicine makers, and farmers, but most importantly for the survival of the species and their ecosystems.



SPECIES AT-RISK LIST

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 medicinals of North America to bring awareness to these sensitive species.

Our intent is to assure the increasing abundance of medicinal plants and fungi which are presently in decline due to expanding popularity and shrinking habitat and range.

“Critical”

ELEPHANT TREE

Bursera microphylla

FALSE UNICORN

Chamaelirium luteum

LADY'S SLIPPER ORCHID

Cypripedium spp.

PEYOTE *

Lophophora williamsii

SANDALWOOD

Santalum spp. (Hawaii only)

SUNDEW

Drosera spp.

TRILLIUM, BETH ROOT

Trillium spp.

VENUS FLY TRAP

Dionaea muscipula

* Peyote restrictions do not pertain to ceremonial uses protected by US federal law.

“At-Risk”

AMERICAN GINSENG

Panax quinquefolius

BLACK COHOSH

Actaea racemosa

BLOODROOT

Sanguinaria canadensis

BLUE COHOSH

Caulophyllum thalictroides

CASCARA SAGRADA

Rhamnus purshiana

CHAPARRO

Castela emoryi

ECHINACEA

Echinacea spp.

GENTIAN

Gentiana spp.

GOLDENSEAL

Hydrastis canadensis

GOLDTHREAD

Coptis spp.

KAVA, AWA

Piper methysticum

(Hawaii only)

LOMATIUM

Lomatium dissectum

MAIDENHAIR FERN

Adiantum pedatum

MAYAPPLE

Podophyllum peltatum

OREGON GRAPE

Berberis spp.

OSHA

Ligusticum porteri

PARTRIDGE BERRY

Mitchella repens

PINKROOT

Spigelia marilandica

PIPSISSEWA

Chimaphila umbellata

PLEURISY ROOT

Asclepias tuberosa

RAMPS

Allium tricoccum

SLIPPERY ELM

Ulmus rubra

SPIKENARD

Aralia racemosa,

A. californica

STONE ROOT

Collinsonia canadensis

STREAM ORCHID

Epipactis spp.

TRUE UNICORN

Aletris farinosa

TURKEY CORN

Dicentra canadensis

VIRGINIA SNAKEROOT

Aristolochia serpentaria

WHITE SAGE

Salvia apiana

WILD INDIGO

Baptisia tinctoria

WILD YAM

Dioscorea spp.

YERBA MANSA

Anemopsis californica

“In Review”

ARNICA

Arnica spp.

CHAGA

Inonotus obliquus

EYEBRIGHT

Euphrasia spp.

GHOST PIPE

Monotropa uniflora

LOBELIA

Lobelia spp.

SKUNK CABBAGE

Symplocarpus foetidus

SOLOMON'S SEAL

Polygonatum biflorum

WILD CHERRY

Prunus serotina

WILD GERANIUM

Geranium maculatum

WILD RICE

Zizania palustris

YAUPON

Ilex vomitoria

YERBA SANTA

Eriodictyon spp.

List Definitions

“CRITICAL” DEFINITION

United Plant Savers recommends these plants should not be wild harvested or purchased under any circumstance except for research that directly supports the health of the population and sustainable use by Indigenous societies that have a traditional history of connection with these plants.

These species have been evaluated by the Board of Directors of UpS which carefully reserves this category for species that are federally, or state protected and/or are at a very high risk of extinction.

“AT-RISK” DEFINITION

The United Plant Savers recommends that At-Risk plants should be used in cultivated forms whenever possible. Because of pressures facing these plant populations and significant variability in abundance, wild harvest should be very limited and carefully monitored. Any wild harvest of these plants should align with rules established by federal, state, and local governments.

“IN REVIEW” DEFINITION

The In Review list contains native plants that have significant known medicinal, edible, and/or ornamental uses that have been recommended through our membership or the UpS Board. We will review and, if necessary, score these plants for consideration for the At-Risk and Critical listing. We advise caution and careful consideration when using these plants for either personal or commercial use.



Jackass bitters (*Neurolaena lobata*) by Lochan Mungal

JACKASS BITTERS — AN ODE TO MR. JAMES A. DUKE (PhD)

By Lochan Mungal

To my surprise, while doing research, I was ecstatic to be informed that Mr. Duke traveled to Trinidad and Tobago for specimens of this bitter-tasting herb for its medicinal properties. In all parts of the world this plant, *Neurolaena lobata*, is known by different names: Zebapique, Jackass Bitters, Tres Puntas.

Jackass bitters was believed to be a sacred plant of the Mayans and used as a ceremonial incense. It grows within the Caribbean, Southern Mexico, Central America, and the northwest of South America.

This weedy herb species is also found throughout the Caribbean islands. It grows 1-2m tall and has alternate trilobed leaves. The yellow flowers grow in compact groups at the top of the branches. All portions of the plant have a bitter taste.

It is a natural bitter, multi-use herb, which may be drawn as a tea or infused in wine or white rum to create bitters.

Jackass bitters is a popular herb of the Asteraceae family that is utilized in Trinidad and Tobago as well as the Caribbean for a variety of ailments, most ordinarily the flu.

This is a natural herb that is used to prevent or treat infection, intestinal parasites, malaria, fungus, skin rashes and sores, and ringworm, and it also helps regulate blood glucose levels. Due to the herb's bitterness, it is thought to assist with digestion, balancing

the appetite, curbing sugar cravings, and cleansing parasites from the body.

More than Diabetes

Mr. Duke primarily focused his research and findings on using Jackass Bitters for the controlling of diabetes, but the herb has so much to offer medicinally.

It has also been used for malaria, high blood pressure, and liver problems and as an insect repellent. Additionally, it has been used for skin diseases, stomach pain, and ulcers.

The leaves also contain a potent anti-parasitic agent effective against intestinal parasites, candida, and fungal infections. They are also used to heal wounds and infections. For spots on the skin the leaves are crushed and rubbed on the legs or other afflicted parts.

Jackass bitters has potential to be used in wound care because of the flexibility of its constituents to arrest bleeding from fresh wounds, inhibit the expansion of bacteria, and accelerate wound healing.

Traditionally, the herb is employed topically to bathe wounds and infections or as a hair wash to obviate lice. ■

*Lochan Mungle is an herbalist, tutor, and mentor.
101 Edible & Medicinal Plants of Trinidad & Tobago
www.facebook.com/101ediblemedicinalplantstnt*

STEP INTO SPRING WITH DELICIOUS, NUTRITIOUS REAL ROOT BEER

By Karen Talbot



In our busy lives, consuming supplements and powders mixed into morning smoothies is helpful in keeping ourselves looking and feeling better. But the foundation of true self-care begins at ground level with unprocessed food and drink, which deeply nourish our health and well-being and prevent a call to the doctor's office.

A North American recipe for old-fashioned soda made from roots, barks, and herbs is one component of that foundation. It benefits many bodily systems and contributes to "Dr. Jones" wondering where you've been. But how did root beer originate and what are these healing plant ingredients?

When colonists arrived in the new world, there were no familiar grains to homebrew "small beer", a fermented low alcohol beverage that was safe to drink rather than the bacteria-contaminated water back home. The generosity of Native Americans taught them how to make healthful wild root teas, which evolved into root beers through natural fermentation. They began to make their own teas and remedies from their newly acquired knowledge. I can imagine many of the following wild and cultivated ingredients used in this recipe are related to their foraging experiments, but I know these plants will certainly benefit the immune system, improve digestion, and cleanse the liver from toxins. They create a healthy brew far different from the chemically induced sodas found on supermarket shelves today that even contain petrochemicals. Real Root Beer is, as my mother used to say, "Delicious, nutritious, makes you feel ambitious!" And if you can't or don't want to forage, you can order them online, and some may already be lurking in your kitchen cupboard. My favorite suppliers for the rest are Mountain Rose Herbs, Frontier CO-OP, and Starwest Botanicals. The following is a list of what I use to make Real Root Beer:

- Sarsaparilla: blood cleanser, improves vitality, and benefits the hormonal system
- *Sassafras: spring tonic, blood cleanser after a long winter of heavy foods
- Astragalus: for immunity, heart health, anti-viral
- Dandelion Root: diuretic supplying its own potassium
- Birch Bark: Vitamin C, immunity, anti-inflammatory, diuretic, for eczema and dermatitis
- Burdock Root: for elimination, skin problems, internal healing
- Licorice: for depleted adrenal glands and hormonal balance
- Fennel Seed: primary herb for digestion and flatulence
- Ginger: for digestion, helping to alleviate nausea and motion sickness, warming

- Mint: for digestion, flatulence, and as an expectorant
- Stevia: (unprocessed whole or powdered leaf recommended) 50x sweeter than sugar, good for diabetics, and/or
- Molasses (blackstrap): a sweetener that alleviates anemia, menstrual cramps, constipation
- Vanilla Bean: adds luscious flavor but may also be an antioxidant and protects the nervous system

My basic recipe is a combination of what appealed to me in recipes by Rosemary Gladstar, Hunter- Angler-Gardener-Cook, SpiceJungle, Learning Herbs, and Recipefairy.com.

The roots, barks, and herbs above are only some of the wild and cultivated ingredients to make Real Root Beer. After making it, you can add your own herbs to suit your taste such as coriander seed, wintergreen, cinnamon, cloves, star anise, and any other plant that appeals to you and that you think will be appropriate.

You can forage several of these plants yourself or buy from reputable herb companies online. Digging up roots is usually done in the fall, but roots like burdock can be dug up in early spring before flower stalks appear signaling that all the energy is now moving up in preparation to make seed. Dandelion roots are sweeter in the spring before flower buds emerge. Do your own research and experiment with different plants for flavor and benefits.

Herbal Benefit References: Rosemary Gladstar, Dr. Andrew Weil, WebMD, Dr. Glen Nagel

To make Real Root Beer, you only need roots and sweetener to make a syrup to mix with sparkling water. Sassafras roots are what have that familiar root beer flavor, but I also used several other types of roots that I had on hand. It is a forgiving recipe you can make simply with sassafras roots, cinnamon bark, allspice berries, fennel seeds, molasses, and sugar. Pick and choose at least 5 ingredients (including sassafras) and adjust the amount of sweetener and water. Here's how I made 1 quart of Root Beer syrup, enough for approximately 12 servings:

- ¼ C sassafras rt
- 1 C sassafras twigs
- ¼ C dandelion rt
- ¼ C sarsaparilla rt
- ¼ C burdock rt
- 2 Tbsp fennel seeds
- 2 2-inch cinnamon sticks
- ¼ C wild cherry bark
- 1 whole vanilla bean
- 1-1½" ginger rt
- 1 Tbsp allspice berries (or star anise)
- 6½ C water
- Sweetener



Place chopped ingredients in a large pot, bring to a boil, and then turn heat to low and simmer for 30 minutes. While still warm, add sweetener (about 1 C sugar). I used about ¾ C spruce tip syrup for my sweetener made last spring. It is basically a Simple Syrup: simmer a quart of spruce tips in 3 C water, straining, adding 3 C sugar, and cooking down to a syrup consistency. ■

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THE TROPICALIST TRUST IN KARGIL: AN INTRODUCTION TO OUR WORK WITH MEDICINAL PLANTS

By Madhavi Peters

Kargil, in the Trans-Himalaya, lies at the border of India and Pakistan, with China a few hundred kilometers away. The craggy, arid landscape, with its bitterly cold winters, could be the mountainous redoubt of Batman's nemesis Ra's al Ghul (*Meconopsis betonicifolia* sighting included). Come April, however, the rocks spring to life. Apricot trees, brought over from Central Asia many aeons ago, burst into bloom, laying the ground for alpine summers. In small villages, extended families busily work the farms, sowing and harvesting during the brief growing season while their young toddle underfoot. The bucolic setting belies the region's underlying geopolitical tensions.

As the "ethno" in "ethnobotany" is particularly important here, the ethnic composition of Kargil should be noted. Tibetic-speaking people dominate the Trans-Himalaya. In Kargil, a majority has converted to Islam from Buddhism or other animist traditions; nonetheless, they still observe the indigenous ways of life necessary to survival in a harsh environment. This includes a recognition of the abilities of native medicinal plants to maintain the health of both the land and the people who live off it. For their healthcare needs, especially in the more remote areas, Kargilis turn to the still-Buddhist amchis, practitioners of *Sowa Rigpa*, the traditional medicine system of this region.

On any given day, amchis, young and old, can be spotted nimbly climbing the mountains to collect rare medicinal plant species, which they bring home to dry and mix into compounds according to the principles of *Sowa Rigpa*. It is noteworthy that they do not engage in external trade of these species. A family of amchis typically serves a clade of villages over generations. Each generation of healers keeps detailed health records and passes them on to the next, creating a handwritten repository of that community's medical history, along with notes on treatment methods. While it may seem rudimentary, it is a sophisticated system of community and public

health with outcomes that would be the envy of more developed nations.

With creeping modernization, however, the inhabitants of this region are increasingly turning to allopathy. The next generation of would-be amchis are eschewing their hereditary profession in favor of other, more lucrative ones. Those who remain dispense their medicines for a nominal sum, perhaps more out of a desire to honor their traditions than anything else.



Aconitum in the Himalayas

For a long time, because of the region's distance from the center, the Indian state felt like an abstraction here; yet, because of recent geopolitical considerations, not to mention technological advancements, the state has increasingly encroached upon quotidian realities. Till 2019, Kargil was administered as part of the state of Jammu, Kashmir, and Ladakh (an unwieldy name for an unwieldy polity). In an attempt to bring peace to the entire, troubled region, the central government cleaved Jammu, Kashmir, and Ladakh in two, placing Ladakh under central government control. Kargil is now administered as part of Ladakh, which is divided into two key regions: the Buddhist-majority Leh, which is the seat of the administrative agencies, and the Muslim-majority Kargil. The

implications for the millennia-old practice of *Sowa Rigpa* are manifold.

First, with an eye to the growing and lucrative global LOHAS (Lifestyles of Health and Sustainability) market, the Indian government has made the promotion of traditional systems of medicine a strategic priority. In the 2020-2021 budget, the Ministry of Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa, and Homoeopath (or AYUSH for short) received an allocation second only to the military, a 40 percent increase over the previous year. The top-down stimulus has resulted in a marked uptick in interest in the commercial cultivation



Storing herbs

and harvesting of medicinal plants in the cold desert Himalayas, including Kargil. Suddenly, private actors are eyeing resources long held in common, at which point the gears of the state regulatory apparatus must kick into motion, balancing the multiple interests at play.

These interests include those of the local Muslim residents of Kargil, Kargil's small Buddhist minority, the Leh-centric Sowa Rigpa community and then the Ayurveda community, dominated by other groups from other parts of India, but whose national/global footprint is by far the most significant. (Sowa Rigpa and Ayurveda share a common ancestry, although they seem to have diverged at some point in history.) Additional actors to consider include the environmental conservation community, the state, which has an imperative to deliver sustainable economic development to a sensitive border region, and large multinational corporations such as Himalaya Botanicals and Dabur.

Our trust, The Tropicalist Trust in Kargil (www.tthink.org), was created a few years ago for the purpose of the sustainable development and conservation of Kargil's valuable medicinal plant species. The trust was formed with considerable input from local actors, who understand that as Kargil integrates to a greater degree with the Indian state, some degree of social upheaval is inevitable. They are keen to maximize opportunities for economic empowerment while minimizing the impact on their way of life. The political developments mentioned above have imposed limits on local sovereignty, which poses certain challenges to meeting these objectives. Nonetheless, a thoughtful approach to the exploitation of local natural resources could offer a pathway.

To date, the trust has focused on creating awareness among local school children about these medicinal plant species. As we consider our work a form of heritage

education, we take a multidisciplinary approach to engage *all* students, not just the ones interested in biological sciences. Nonetheless, for the latter, we have also organized career counseling sessions wherein we educate them on opportunities in scientific research, for example within pharmacology that would allow them to translate traditional ethnobotanical knowledge into a modern livelihood.

In addition, the trust has worked to document the hitherto undocumented medicinal plant species of Kargil. As the centre of the Sowa Rigpa community is in the Buddhist-majority region of Leh, most documentation work has focused on that region with no systematic efforts being made in Kargil till now. We are currently creating the first ever field guide to Kargil's medicinal plants. We are also working with the local government to set up an herbarium in Kargil.

For the next phase of our work, we are exploring the economic feasibility of the cultivation of certain commercially valuable species of aconitum. Ultimately, we hope to convince local farmers to turn over a portion of their land to cultivate them. It is not without local precedent: government initiatives to promote the commercial cultivation of native species of sea buckthorn (*Hippophae rhamnoides*), also a medicinal plant, have met with some success.

The three species of aconitum, *A. heterophyllum*, *A. rotundifolium*, and *A. violaceum*, were chosen for our pilot cultivation project because they have the potential to become an attractive cash crop. In preliminary interviews with buyers from the Ayurvedic community all expressed the need for greater supply of aconitum in the market, as it is a medicinal plant with many applications. One kilogram of *A. heterophyllum* (heterophobic) can fetch prices as high as ₹7000 or USD100. Nonetheless, the

Indian buyer is very price sensitive, and producers thus have incentives to cut corners. Prices for cheaper *A. heterophyllum* substitutes can run as low as ₹300 or USD5 per kilogram. Farmers who wish to cultivate medicinal plants according to good agricultural and collection practices are thus often advised to seek Western or overseas buyers instead. This of course raises questions around the ethics of who should have access to quality—not an issue when amchis harvested wild species to mix into compounds they administered to their “flocks.”

Interestingly, there remains a perception in the traditional medicine community that wild-harvested medicinal plants are the most potent, and therefore, cultivated plants will never be perfect substitutes. Still, with appropriate quality control measures in place, cultivation can reduce pressures on wild populations.

Hopefully, it should be evident to the reader at this point that the conservation and sustainable commercialization of medicinal plants in Kargil involves a complicated balancing of interests. India, being one of the world's 12 megadiverse countries and a provider of genetic resources, has a long and unfortunate history with biopiracy. The possessors of traditional knowledge (TK) on medicinal plants have typically derived no monetary benefit from the exploitation of their knowledge by other actors. In recent years, there is greater awareness of the need to regulate access to medicinal plants and to ensure the benefits are distributed equitably. While much thought has been put into creating the appropriate framework, the reality often falls short of the ideal.

One of the earliest examples of access and benefit sharing in India dates to the late 1980s and involves a native medicinal plant species, *Trichopus zeylanicus*, used by the tribal physicians of the indigenous Kani tribe. Researchers from Indian scientific institutions convinced the tribal physicians to share their TK on this species, and building upon that, they successfully applied for several patents. They then licensed this technology to a large Ayurvedic corporation and proposed sharing the ensuing benefits 50/50 with the Kani tribe. In a novel arrangement, a trust, the Kerala Kani Community Welfare Trust, was set up for the purpose of channeling benefits earned from the exploitation of the Kani's TK back to the tribe itself.

The case of the Kani tribe predates the Convention on Biological Diversity (CBD) and the Nagoya Protocol on Access and Benefit Sharing. It was ground-breaking, although it was later argued that more could have been done to empower the active participation of the Kani. Since then, Article 15(4) and (5) of the CBD stipulates that parties ought to insist on prior informed consent *and* mutually agreed terms before access can take place. Given the considerable power differentials between the various parties, however, this can be nearly impossible to put into practice.

A second issue, and perhaps a thornier one, is which indigenous group holds the rights to the TK of Kargil's medicinal plants. As mentioned, the inhabitants of Kargil are converts to Islam from Buddhism, and the practice

of Sowa Rigpa is now confined primarily to the Buddhist amchis. Nonetheless, there are still a few Muslim amchis in practice. Moreover, many of the region's medicinal plants are also used in Ayurvedic formulations. Given the underlying ethno-religious tensions in this region, determining ownership of TK will likely be contentious. What is more, Indian law does not actually recognize the concept of indigeneity, as it considers all Indians to be indigenous to India. (That much said, these matters are always subject to political considerations. Recent jurisprudence and legislation concerning the restive northeast of the country have conceded the indigeneity of the residents of that region; there is no reason to think that similar concessions won't be made to the northwest, that is, the region that we work in. Certainly, some groups are more indigenous than others.)

And finally, there is the issue of navigating India's notoriously convoluted licensing and regulatory framework, especially for a small organization such as ours. There are thirteen steps between submitting an application for access to resources and receiving final approval from the National Biodiversity Authority. In addition, the application is subject to approval from various bodies, some of which, like the grassroots Biodiversity Management Committees or BMCs, a key component of the framework, are not even operational in our region. There are also national, state, and local level bureaucracies to navigate, and bureaucratic fiefdoms are not always clearly demarcated in a nascent field. We would not be the first to note the potentially dampening effect of so much red tape.

In conclusion, I do not think it too bold a statement to say that of the many countries in the world where traditional health systems still flourish, India is the only one that, on paper at least, tries so hard to achieve fair and equitable outcomes for all the parties involved. Nonetheless, put into practice, the pitfalls and challenges are manifold. There is no doubt we will get it wrong many times. Still, the more opportunities there are to work through the knottier issues, the more precedents there will be for future aspirants, who will hopefully figure out how to do things better the next time. ■



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SHARING VOICES OF THE AMERICAN CHESTNUT, PAWPAW, AND MILKWEED THROUGH ART, GAMES, AND STORIES AT ANTINANCO

By Alan Ritter and Olga Sher (United Plant Savers Grant Recipients)

We call ourselves Antinanco. We were founded in 2015 in Holmdel, New Jersey, our home today. Our mission is to preserve native at-risk plant species and provide access to education about the plant world through nature experiences, creative art projects, and environmental conservation projects. We involve communities of New Jersey, New York, and Pennsylvania in environmental stewardship, educating about the impact of our actions on the environment and providing resources and solutions to maintain the integrity of the Northeastern ecosystems.

This article provides an overview of Antinanco's goals and the projects that support them. This is followed by a voyage into three jewel plants, American chestnut (*Castanea dentata*), pawpaw (*Asimina triloba*), and milkweed (*Asclepias syriaca*). We will end this article with an overview of Antinanco's Native Plants of the Northeastern Woodlands Art Contest that we offered in the Winter of 2022.

From time immemorial, people of Earth-based traditions practiced ways of living with Nature that not only provided for all their needs, but also enhanced the fertility and biodiversity of the ecosystems around them. We strive to preserve and follow Earth-based traditions that honor this relationship and offer valuable lessons. These lessons hold the solutions we need to help heal Earth today and tomorrow. Among them are how we can rebuild the connections to Land and to traditional practices which protect the diverse fertility of Earth, as well as how to grow, gather, and preserve plant medicines and foods in respectful and harmonious ways, as to not take away from the overall balance of all relations.

Within this broad mission, we specifically focus on the restoration of native Medicinal and Food Forest systems that represent a fundamental segment of the Northeastern woods. The Northeastern forests are some of the most productive forests in the world and are the principal source of many medicinal and food-producing plant species. There is a growing and widespread concern that many of the species are being depleted and becoming rare and endangered due to increasing development and overharvesting. Our Medicinal and Food Forest Restoration projects started in 2018, initially focusing on restoring the American Chestnut tree and gradually expanding to other food and medicine producing trees, shrubs, and plants, such as American pawpaw tree, Eastern persimmon (*Diospyros virginiana*) tree, Eastern redbud (*Cercis canadensis*) tree, great blue lobelia (*Lobelia siphilitica*), bloodroot (*Sanguinaria canadensis*), bee balm (*Monarda didyma*), wild senna (*Senna marilandica*), and anise hyssop (*Agastache foeniculum*).

American Chestnut Tree

Our relationship with the American chestnut tree started in 2018, when Joseph Arnold Resch, Antinanco's Director of Green Initiatives and Plant-Human Connections, suggested organizing an event in Emmaus, Pennsylvania to plant American chestnut trees with kids. In November of 2018, we procured our first group of 25 American chestnut hybrid seedlings from Musser Forests, a Pennsylvania nursery. The event was a tremendous success, filled with kids and adults digging in the dirt and snow, planting, and sharing old Appalachian stories about the legendary tree.

The American chestnut is native to the eastern North American forest ecosystem and is, tragically, considered functionally extinct. In the first half of the 20th century, an accidentally introduced pathogen, the chestnut blight (*Cryphonectria parasitica*), killed virtually all native American chestnut trees in the United States. The damage total was 4 billion trees, and the loss of the American chestnut tree is often cited as one of the worst ecological disasters in the United States. Although chestnut trees still exist in our forests today, they rarely have an opportunity to reproduce and mostly exist as understory sprouts.



Tree planting event in Emmaus, PA

Little did we know that this single event would take us on a five-year-long (and continuing) journey dedicated to lasting preservation of the American chestnut. With support of many friends and partners, including a grant from United Plant Savers, we have been restoring pure American chestnut trees that come from mature parents that survived the blight. We are applying novel biological methods and add companion plants to promote the trees' optimal health and growth. We currently have close to 300 trees under our care. As the trees grow, so does our hope. As of the date of this article, out of 35% of trees affected by blight, all but one are surviving or thriving. Some of the one-year-old seedlings that kids lovingly planted in the Fall of 2018 are now over 9 feet tall!

A big part of the project is education. Just like all Earth-based traditions, where each person is considered to be a forest keeper, we believe that it is critical to involve as many children, families, and students as possible. Educating kids about the importance of this Keystone species and instilling a sense of responsibility and environmental stewardship will strengthen the long-term success of the undertaking, increase kids' appreciation of the value of the species, and ensure continuity of the effort.

Our activities are tailored to the kids' level of interest and understanding and involve playful and creative components. For the youngest ones, we offer games of interconnection and symbiotic relationships. One of the games calls for children to assume the roles of the American chestnut, its companion trees, animals, humans, and insects and gather in a circle connected by threads. The colorful threads represent various symbiotic relationships and interdependence of the species on one another. We then ask one of the players to step out of the circle, breaking the multi-layer network of mutual support, making it apparent how the loss of one affects the entire network.

For the elementary school-level children, we offer a collection of lesson plans, illustrations, myths, and stories. The materials have been lovingly put together by Sonia Horowitz, a wonderful educator, artist, and forager from Mason, Wisconsin. We distribute the lesson plans at planting events and invite a wider audience of kids and families to access the materials through our website, which also includes interactive plant identification games, printable sheets, and videos about the American chestnut.

Older children are encouraged to participate in the Project as citizen scientists by inspecting the trees, recording and sharing their findings throughout the trees' planting and growing phases, and by planting chestnut trees in their own gardens and yards. Our goal is to grow a caring generation, which plants, monitors, nurtures, and observes.

In 2020, we published the American Chestnut Tree Conservation Field Course manual for high school seniors and undergraduate college students wishing to gain foundational knowledge about the history and plight of the American Chestnut tree as well as its care and maintenance.

Pawpaw Tree

A true tropical-like wonder of the northeastern woodlands, the pawpaw tree appeared on our horizon through a local grower, Irina Popova, who as we later found out, grows a stunning mix of rare edible plants in her tucked-away urban garden in Edison, New Jersey. Irina gifted us two boxes of young pawpaw seedlings in the summer of 2020, and we were happy to add the younglings to our planting sites later that fall.



Pawpaw

It seems that pawpaws are having their moment of fame these days as more and more groups get together for pawpaw festivals, pawpaw cooking extravaganzas, and to post trophy pictures of their finds. This is a great thing as this tree is currently considered endangered in New Jersey and threatened in New York. Back in the

day, pawpaws were an important sustenance staple. According to Richard L. Thornton, a Creek Indian in the Coweta Creek Tribe, ancestors of the Uchee, Chickasaw, Choctaw, Creeks, and Catawba cultivated and protected pawpaw patches, harvesting fruit for food and using the tree's fiber for ropes and nets. Pawpaws helped sustain Lewis and Clark on the journey to the West.

Last fall, we had a pawpaw festival of our own, where kids and families had fun sharing stories, examining pawpaw seeds and plants, exchanging growing information, and of course, enjoying its flavorful sumptuous fruits.

Milkweed

Common milkweed is a special and much respected member in our Holmdel, New Jersey garden. In addition

to producing cheerful flowers, it attracts a diverse suite of pollinators and provides a valuable habitat to the dwindling Monarch butterfly populations.

The plant is never shy of human attention either. From spring to fall, it attracts a gang of kids coming to observe Monarch caterpillars, cheer for the butterflies as they emerge and fly away, collect milkweed seed pods, play with the milkweed fluff, and pack seeds. A few seasons ago, kids also had to face the task of urgently finding other milkweed growers and relocating some of the caterpillars, as their number grew so large that we ran out of milkweed! The upside of the challenge was more milkweed planted and more caterpillars adopted by more gardens.

The monarch caterpillars' efficiency and resilience has been a subject of much curiosity and adoration. Their beautiful striped colors, loud chewing, rapid growing in size, tons of poop production, and pupation process have produced pages of observations in the young nature lovers' journals. We are happy to be a part of destigmatizing the magnificent milkweed plant and sharing with the community about its superpowers.

The Native Plants of the Northeastern Woodlands Art Contest

Earlier this year, we offered a public art contest, which focused on the awareness about the plants in the Northeastern United States. The themes sprang naturally from our passion for the plants we hold dearest in our hearts. ■

About the Authors

Alan Ritter was born in Syracuse, New York. He has walked many backwoods trails and loves Nature. He hosts a wholesale produce club in Oaklyn, New Jersey wherein folks get access to affordable produce. He also consults and connects interested parties to wholesale resources in their area. Alan holds a PhD in Chemistry from the University of Pennsylvania.

Olga Sher was born in the Volga-Ural region of Russia. From an early age, she was interested in herbal studies, traditional healing modalities, medicinal plants and mushrooms. Presently, Olga's home is in Holmdel, New Jersey, where she raises two children, practices law, and advocates for the preservation of earth-based ways and indigenous traditions through organizing community service projects, workshops, and classes with Antinanco. Olga has been involved with the American Chestnut

Revival and Native Food-Forest Restoration projects since 2018.

Antinanco is a non-profit community organization in Holmdel, New Jersey committed to preserving and sharing knowledge about the Earth and her inhabitants and ecosystems through environmental conservation and educational projects, while leaning on Indigenous traditions.

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- Antinanco's Native Food Forest Restoration Project: www.antinanco.org/foodforest
- American Chestnut Tree Games, Lesson Plants and Stories on Antinanco website: <https://www.antinanco.org/americanchestnuteducation>



Milkweed

Get Involved

Stay informed about our American chestnut adventures, planting events, volunteer opportunities, and project developments by signing up for our mailing list here: <https://www.antinanco.org/subscribe>.

You can also contribute to this project by supporting the following public parks, which have generously offered their land as a safe home for the seedlings. These parks and the amazing caretakers of these lands are protecting our plantings for the future.

- Columcille Megalith Park in Bangor, Pennsylvania: <http://columcille.org/>
- The Land Conservancy of New Jersey, South Branch Preserve in Mount Olive, New Jersey: <https://tlc-nj.org/portfolio-item/into-the-woods/>
- Graver Arboretum in Bath, Pennsylvania: <https://www.muhlenberg.edu/aboutus/graver>



*Gouache on mixed media paper by Rachel Fae Coleman
Inspired by the artist's love of North America, her mixed European and afro-indigenous roots, and its changing seasons.*



Oregon Grape

PLANT STEWARDSHIP

By Suzanne Tabert

Back in the late 1980s and 1990s, I worked at an herb store in the Pike Place Market in Seattle, Washington called Tenzing Momo. It was wildly famous for being the oldest herbal apothecary on the west coast and was, as I so affectionately called it, “a freak magnet.” I recall many wild times as lots of famous people, actors, musicians, and those in the herbal biz congregated there as workers and customers. I was the herb buyer for several years. The owner, Jeffrey, was a former biker and a very colorful character. He was instrumental in my burgeoning career as an herbalist and called me an herbalist before I felt comfortable doing so myself. He afforded me many opportunities to hone my craft as he would pass customers on to me to listen to their worries and woes and dole out rudimentary herbal advice.

During that time, goldenseal (*Hydrastis canadensis*) was the herb of choice for those who wished to acquire a clean urine analysis. Remember, this was the time of the Seattle grunge scene, with musicians and roadies working day jobs to keep the roofs over their heads and head-banging at night.

Thinking back on those years, we sold a lot of goldenseal, much to my chagrin. Gallons of the bitter yellow tea were drunk and untold amounts of goldenseal capsules swallowed. I recall when word came to us to refrain from selling this deeply golden herb as the demand was far overreaching the plant populations.

Oregon grape (*Mahonia berberis*), so ubiquitous to the Pacific Northwest and Inland West, became the focus as an effective replacement for goldenseal, as it contained berberine, hydrastine, and other drug clearing alkaloids. All eyes turned to the west. The amount of Oregon grape plants that were taken by the herbal extractors was staggering. It was like a plague of locusts came through the richly fertile forests. I dare not call them wildcrafters, but extractors, as the title *wildcrafter* denotes a stewardship of the land, including both flora and fauna.

Avaricious herbal extractors are concerned only with the price they gain from their booty.

When the demand for Oregon grape waned as the then latest fad herb, the plant was able to recoup its losses. Once again when we enter these sacred places, Oregon grape thrives and is abundant.

I would venture to say that as herbalists, wildcrafters, naturopaths, teachers, and medicine makers, it is imperative to do the research before harvesting or advising clients to utilize a plant that may be threatened or endangered. The earth’s plants are so precious. While I identify all plants when teaching my apprentices, I will strongly recommend we do not harvest certain ones. Often, there will be other plants, more commonly found and abundant, that can be used instead.

Certainly, herbs can cure. Herbs can also alleviate symptoms enabling the body to more easily heal from the root cause. Truth be told, information pertaining to age, health and family history, current and preexisting conditions, diet, constitution, lifestyle, stressors, tech usage, pharmaceutical drugs, etc. should be addressed before “shooting from the hip” with herbs. Herbal medicine is strong medicine that may be better served as an adjunct in treating someone holistically, not the initial go-to.

While I may be preaching to the choir, we must own the responsibility and do our part to wrap our energetic arms lovingly and with purpose around our threatened plants and do what we can to ensure their survival. They are counting on us. ■

Suzanne Tabert is a bioregional herbalist, adjunct professor at Bastyr University, and director of herbal education at the Cedar Mountain Herb School in Sandpoint, Idaho and Seattle, Washington (cedarmountainherbs.com). Her passion is taking students to wild places and giving them tools to engage and connect with flora, fauna, and the exquisite beauty of nature. Suzanne has been inspiring students with joy and excitement for all-natural living for over 30 years.

WOMEN'S HERBS IN APPALACHIA

By Susan Leopold

It was early spring in 2021 when visiting a friend in southern Virginia that I had a rare encounter with a small colony of just emerging false unicorn root (*Chamaelirium luteum*). This sacred fertility herb was thriving in the woods nestled throughout a graveyard of rusty old farm equipment. Hiding in plain sight along a winding creek there were about 20 or so plants spread out in small clusters. Listening to the sound of the trickling creek, I was in awe of these divine forest beings. A part of me deeply hoped that diggers' hands would never find this population and that the rusty old farm equipment would be a deterrent, a strategic decoy. We don't yet understand how to successfully cultivate this plant. Though it can be germinated from seed, it takes years to grow and needs a certain type of soil to thrive. It produces separate male and female plants, which complicates its ability to reproduce under cultivated circumstances. So, ironically, we do not know how to propagate and cultivate a plant that is highly desired for women's reproductive health. If there were one plant that I feel strongly about taking out of commerce in Appalachia, this is the plant I would choose.

In the last decade, I have been the director of United Plant Savers. With boots on the ground, I have met with landowners, diggers, dealers, growers, suppliers, and herbal formulators, so my experience comes from a humble perspective and my inquisitive nature.

False unicorn root is one of the most valuable roots for a digger to sell along with wild American ginseng (*Panax quinquefolius*). The difference is that ginseng is a plant people have been planting the seeds of for many decades. It has been tended by rural people for generations to ensure its future. Only a few dedicated growers of native plants have tried to germinate false unicorn root, and its future is in serious decline. The herb trade in the U.S. is completely unregulated and very much an underground secretive trade. It is important to know that we have little data on what is going on except for the prices advertised on digger and dealer pages

on Facebook and the prices of herbal formulas that are being sold online. The current price for dried root on Etsy (2021) is 40 dollars for one gram or 161.00 dollars for 4 ounces (butterfly express). That amounts to around \$2,500.00 a pound, and lastly, an 8-oz tincture sells for 100.00 dollars (Vita Living). A digger would likely get around 100-200 dollars a pound, which is roughly around 75 plants or many more depending on the size and if the roots are dried. The roots themselves are like a small carrot and lose around 1/3 of their weight when dried.

United Plant Savers publishes the *Journal of Medicinal Plant Conservation*, which is on our website along with all kinds of resources for free to download and explore. Dalene Barton-Schuster, CH, Doula wrote an article, "Saving a Sacred Fertility Herb, False Unicorn Root." In this article she discusses the medicinal properties of false unicorn, and within that framework she also suggests similar herbs. She writes, "Tribulus (*Tribulus terrestris*), vitex or chaste tree berry (*Vitex agnus-castus*), and dong quai (*Angelica sinensis*) are some examples of fertility herbs with similar actions to false unicorn aiding in the increase in estrogen and helping with fertility. As for aiding in the prevention of recurrent miscarriage, partridge berry (*Mitchella repens*) is a great alternative." United Plant Savers encourages herbalists to consider using analogs to "At-Risk" plants when possible. On our website

is a wonderful list of analogs provided by Herbalist Jane Bothwell.

I often try to convey that there is a bounty of herbs that are not "At-Risk" and that companies can quickly reformulate, but once a plant is in decline and especially when its habitat is diminishing, nature cannot so easily renew itself. Certain plants can take decades to repopulate, and, in some cases, they are dependent on relationships we do not even understand nor know how to replicate. United Plant Savers created the "At-Risk" Tool, a simple list of questions based on five categories: the life cycle of the plant, the part that is



False Unicorn (*Chamaelirium luteum*) by Stephen Foster

harvested, the habitat, threats, and demand. These questions can help guide the user to determine for themselves the ethical impact on plant biodiversity. A critical aspect to herbalism is getting to know the plant and understanding where it grows, its life cycle, and the part of the plant being harvested. In Appalachia many of the herbs in trade are roots of long-living perennial native plants that grow in only healthy forests. In eastern Europe, many of the herbs in trade are leaves, berries, and flowers, so there are different challenges to maintaining healthy ecosystems and to sustaining annual harvesting of plant populations. There are also social implications to those harvesting the plants as well as how they are treated and compensated. These are all important questions to ask suppliers and herbal product companies when making informed decisions. Ecological herbalism is an awakening to the deep connection between the health of the planet and human health. I cringe at the thought of plants in peril at the cost of an herbal formula, and I am also in awe at the amazing diversity of plants that support women's health.

Another plant that I strongly discourage from use in herbal formulas is trillium (*Trillium erectum*). This woodland spring ephemeral, also known as beth root, is slow-growing and takes decades to establish. Its seed produces what is called an elaiosome, which is a fatty white substance that attracts ants that then disperse the seeds. It can take two years before this seed might germinate, and when the bulb is harvested, the life is over for that plant. Each bulb harvested could be a plant that has lived in the forest for 20-30 years. There is more

to this story. There are 43 species of trillium worldwide with 38 species in N. America and 5 in Asia. Trilliums are often dug in early spring before they flower as they have distinctive three leaves. The epicenter of diversity is found in southern Appalachia where most digging takes place. Many of these species are endangered and face all kinds of pressures such as deer predation, loss of habitat, and an increase in invasive species. I wrote an article, "How We Protect Trillium" that details the diversity of trilliums in N. America, and I worked on a committee with the IUCN on red listing the N. American trillium species. As I have mentioned, the herb trade in the U.S. is very secretive. Diggers are often on private



False Unicorn (*Chamaelirium luteum*) by Stephen Foster

and public lands, so they want to remain anonymous, and dealers are often trading cash or drugs for plants, so it is challenging to ensure that the correct plant is being harvested and/or harvested in a sustainable way and that people who are harvesting are also paid and treated fairly and that private land and public lands are being respected.

There are few regulations in the underground plant trade of Appalachia, and in general, the United States is very much a plant blind society that dedicates very few resources to the study or protection of plants. Information we have on plant populations is often decades outdated if we have data at all. Certainly, trilliums could be cultivated for herbal formulas but currently, all trilliums in the herbal supply chain are wild harvested. A very interesting article in the last Journal covers efforts in Pakistan to grow the native *Trillium govanianum* due to overharvesting pressure. United Plant Savers takes a strong stand on trilliums being removed from herbal products unless they come from a cultivated source.

Black Cohosh (*Actaea racemosa*), according to the 2019 market report produced by the American Botanical Council, was number 15 on the list of the topmost traded herbs, generating \$28,078,996 in sales, and it is almost all wild harvested. The issue with black cohosh beyond the sustainability of tons of root being harvested each year is that there are several similar species, and adulteration in herbal products is an issue. Therefore, a few companies have dropped cohosh from

their product or have switched to growing black cohosh since it can be propagated to ensure that the roots are indeed black cohosh. In our annual Journal we published an article on the look-alike cohoshes and a simple guide for how to distinguish these species. United Plant Savers strongly encourages conservation through cultivation, and therefore we launched the forest grown program to support forest farmers of botanicals. The FGV program provides important growing and life cycle information on five plants: ginseng, goldenseal (*Hydrastis canadensis*), cohosh, bloodroot (*Sanguinaria canadensis*), and ramps (*Allium tricoccum*). We hope to expand this program to other native forest herbs such as Solomon's seal

(*Polygonatum* spp.) and wild yam (*Dioscorea villosa*) that have solid cultivation information.

Women's herbs of Appalachia are a pharmacopeia of phyto-rich saponins that reduce inflammation and support the female reproductive system through the many stages of life. These roots are understudied in their potential and undervalued in how the forests are managed. This article has not covered the in-depth practical use of these plants in herbal practice, but that information is abundant on many websites and books. What is lacking is balancing that information with transparency in the supply chain and the ecological understanding of what these plants need from us to survive the pressures of today's rapidly growing marketplace. These are challenging times, and as herbalists, we must advocate and speak for the herbs as an integral part of our practice. We must ask difficult questions about the supply chain and try to understand the reproductive challenges for plants to survive, just as we are seeking their support to help us navigate the well-being of our reproductive organs. As we seek support from plants to help us navigate the challenges of women's health, we must find ways we can reciprocate this gift. ■

Resources

- Jane Bothwell/Analog, [List-of-Herbs-Analogs-by-Jane-Bothwell.pdf](#)
- Cohosh lookalikes, <https://unitedplantsavers.org/species-at-risk-list/>
- "At-Risk" Tool, <https://unitedplantsavers.org/species-at-risk-assessment-tool/>
- A diggers perspective on ending the trillium trade, <https://www.youtube.com/watch?v=pk3nu6cAszU>
- Forest Grown Resources, <https://unitedplantsavers.org/fgv/>
- ABC 2019 market report, <https://www.herbalgram.org/media/15608/hg127-hmr.pdf>

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SUSAN'S BOOK STACK

- **Llewellyn's 2022 Herbal Almanac:** A Practical Guide to Growing, Cooking & Crafting
- **The Good Earth** by Pearl S. Buck
- **The Middle of Somewhere:** An Artist Explores the Nature of Virginia by Suzanne Stryk
- **Fresh Banana Leaves:** Healing Indigenous Landscapes through Indigenous Science by Jessica Hernandez Ph.D.
- **The Disordered Cosmos:** A Journey into Dark Matter, Spacetime, and Dreams Deferred by Chanda Prescod-Weinstein
- **The Treeline:** The Last Forest and the Future of Life on Earth by Ben Rawlence
- **Africans into Creoles:** Slavery, Ethnicity, and Identity in Colonial Costa Rica by Russell Lohse
- **Ginseng Diggers:** A History of Root and Herb Gathering in Appalachia by Luke Manget
- **Finding the Mother Tree:** Discovering the Wisdom of the Forest by Suzanne Simard
- **Eating to Extinction:** The World's Rarest Foods and Why We Need to Save Them by Dan Saladino
- **Citizen Farmers:** The Biodynamic Way to Grow Healthy Food, Build Thriving Communities, and Give Back to the Earth by Daron Joffe



Marc Williams tending the UpS booth with Bernadette Montanari

UNITED PLANT SAVERS AT THE IUCN

By Marc Williams

The International Union for the Conservation of Nature (IUCN) met in September of 2021 in Marseille, France for the typically every four years conference that helps set the agenda for global monitoring and preservation of species on land and sea as well as the ecosystems that support these biotas.

The trip started for me with a flight from Atlanta, Georgia to Paris, France. During my limited time in the French capital my agenda was to visit the legendary centuries old Jardin des Plantes botanical gardens and attached main Natural History Museum founded in the 1600s. This garden is broken up into a bunch of sections including an ethnobotanical garden with food, medicine, and craft plants and an extensive taxonomic garden with many other medicinal and unusual plants. Other sections include an alpine area, arboretum, conservatory, natural gardening demonstration, and various ornamental plantings. It is always such a great honor, pleasure, and privilege to walk in the footsteps of folks who have treasured nature for centuries!

The next day i headed by high speed train to Brussels, Belgium, which is home to the world class Meise Botanical Garden, located on a centuries old fusion of

royal estates. The garden, which is in the Flemish, Dutch speaking part of the country hosts a fascinating array of plant collections across hundreds of acres. A specific garden is dedicated to medicinal plants and other collections focused on various aspects of plant diversity. Some cool medicinal plant examples included crampbark (*Viburnum opulus*), nutgall tree (*Rhus chinensis*), and rowan (*Sorbus spp.*)

While there a primary focus beyond botanizing was to meet with the director of research Xavier Scheldeman, who focused his PhD investigation on the rare papaya relatives from the *Vasconcellea* genus located in the Andes of South America. After our time together with a couple other colleagues, i toured the grounds alone for hours and then together with Dr. Scheldeman inside the conservatory complex before he dropped me off at the tram to catch a ride back to Brussels. Next it was off by high-speed train to the Mediterranean city of Marseille.

Marseille

Marseille is a city with an over 2,600-year history going back to its founding by Greek traders. One of the main thoroughfares called the Canebiere was named from the Provençal word "canebe," meaning hemp. The botanical garden is named the Jardin Botanique Edouard-Marie Heckel. Due to Covid-19 protocols, booking ahead online was necessary after initially spending considerable effort to visit there without an entry pass to my chagrin. The

garden had an extensive medicinal plant section. Some interesting species included a plant from the nettle family (*Pilea petiolaris*), a fairly common temperate genus but not commonly used for medicine in my experience. A common ornamental shrub (*Loropetalum chinense*) appeared as well. The exotic invasive and wonderfully fragrant sweet breath of spring (*Lonicera fragrantissima*) was intriguingly featured, too. It has one of my favorite scientific names but is one of the more exotic invasive shrubs around Asheville, NC where most of my time is spent. This sparks my interest to research the potential medicinal benefits. Hundreds of hours of my life have been spent trying to compile uses for exotic invasives. Out of the approximately 300 species considered exotic invasives in the southeastern USA, my work has documented uses for about half, but this has not been one of them until now.

Despite such displays in their gardens, France is much more regulatory to the discouragement of herbal practitioners from what conference participants shared with me. A number of people mentioned how one must be careful in France around acting as an herbal practitioner. That said, Marseille is famous for soap manufacture and is located close to the lavender fields of Aix-en-Provence, and therefore a certain amount of innate herbal traditions continue though less so than in the past. The famous Savon de Marseille consists of olive oil, sea water, and the ash of glasswort (*Salicornia* spp.). This plant is also an edible that grows in salty to brackish wetland environments all over the world.

Another example of embedded traditional herbalism includes the world-famous anise-based liqueur called Pastis which has a rich history of production here. That said it was hard to find any great diversity of types. La Maison du Pastis was one establishment that had a wide array of options. Pastis Henri Bardouin is one famous variety, and their website as well as a store display allude to some of the 65 ingredients they use including anise, black pepper, cardamom, cinnamon, clove, grains of paradise, green cardamom, licorice, mace, nutmeg, tonka bean, and white pepper. Local plants like mugwort, rosemary, sage, and thyme from the famous Lure Mountain region are included as well.

Presentations

One theme for a group of presentations attended was Saving Plants Saving the World.

Steve Bachman from KEW gardens in London gave a fascinating talk about the technology regarding modern plant conservation strategies. One example is a toolkit for the Global Strategy for Plant Conservation (GSPC) from Botanical Gardens Conservation International (BGCI) www.plants2020.net. These endeavors also include the work of the Global Biodiversity Information Facility (GBIF), the Geospatial Conservation Assessment Tool (GeoCat), and World Flora Online headed by KEW. He

also gave some examples of machine learning approaches to conservation assessments including, for instance, orchids.

Philippe Bardin gave an overview of the work of Planta Europa, which has a focused agenda for meeting the goals of the GSPC. Some of their publications are great models for what can be accomplished in other bioregions.

Maite Delmas from the Museum National d'Histoire Naturelle spoke about the GSPC in the context of the New post-2020 Biodiversity Framework and presented examples of work around the world. I found the publication entitled *North American Botanic Garden Strategy for Plant Conservation* of particular interest.

A presentation from the Royal Botanic Gardens of Jordan was also given by her Royal Highness Basmah Bint Talal. Among other things she talked about were the

endangered and endemic black iris (*Iris nigricans*) and rock oregano (*Origanum petraeum*). She also referred to an annotated checklist for the plants of Jordan which is always a great foundation for conservation of any biological unit under consideration.

Dustin Wolkis, the seed bank and laboratory manager at the National Tropical Botanical Garden (NTBG), spoke inspiringly about innovation in plant conservation in Hawaii. He offered the staggering statistics that 90% of native Hawaiian plants grow nowhere else on earth, and 53% of endangered plants for the whole USA occur in Hawaii. This is something mirrored in the flora of many islands in particular (Whittaker & Fernández-Palacios,



Setting up at IUCN



IUCN street art

2007). He spoke especially about improvements in ex situ conservation to try and maintain a diversity of genetics. A particular challenge to tropical flora is that the seeds often cannot stand freezing. He also detailed a plan for an online flora for all the known plants of Polynesia.

Paul Smith detailed the prodigious work of Botanic Gardens Conservation International in the space of forest restoration in particular. BGCI has a new publication called The Global Tree Assessment out as well in this regard. He rounded out his presentation with a discussion of trees regarding carbon sequestration.

Domitilla Raimondo from the South African Biodiversity Institute offered some tangible examples from work on the ground with plant conservation in this biodiversity hotspot area (Mittermeier et al., 2005; Zachos & Habel, 2011). She detailed the specific threat of exotic invasive plants to native flora and the challenges of poachers seeking succulent plants.

The most dynamic and inspiring presentation of all was given by high school student, Janique Marcil from Kauai, Hawaii. She demonstrated in a very multi-media way the future of environmental education. From video making to smart phone QR code sign integration, this young person is a walking example of what we need the future to be in order to bridge the realms of nature and technology.

During the conference there also was a meeting of North American IUCN members including Healy Hamilton and Shawn O'Brien from Natureserve. Tracy Farrell is the new president of the North American region of IUCN and is based in Washington D.C. All these folks gave short presentations about their work in the conservation space. Following was an open floor discussion about some of the potential priorities at the IUCN regarding North American representation. As is currently common, a

robust discussion about proper representation for people of color was part of the focus.

One of my favorite parts of the conference from an interpersonal level was daily plant walks with Paul Eguia, who is a graduate of the KEW gardens horticulture program. He also works with sustainable sourcing of plant materials. It was interesting to see plants from all over the world as well as the native flora interspersed within the grounds and reflect on their potential ethnobiological applications. Some of the woody plants included hackberry (*Celtis* spp.), pomegranate (*Punicum granatum*) and tree of heaven (*Ailanthus altissima*). Herbaceous things put in planters included pigweed (*Amaranthus* spp.), *Petunia* spp., *Rudbeckia* spp., coleus (*Solonstemon* spp.), spider plant (*Chlorophyllum comosum*, and sweet potato (*Ipomoea* spp.).

Media wise UpS was featured in a short video produced by former Rosemary Gladstar student, Tasha Goldberg and the Earth Negotiations Bulletin.

One of the biggest interests of the hundreds of people I interacted with at the conference was the United Plant Savers system of Sacred Seeds Sanctuaries. This is a program that was inherited from the Missouri Botanical Garden and was formerly largely a project headed by renowned ethnobiologist Rainer Bussmann. Numerous articles about the sanctuaries are on the website and within issues of the *Ups Journal for Plant Conservation*. Hopefully through some of our contacts and possibly this article we will be able to grow this network of crucial sanctuaries

around the world for the medicinal plants and their knowledge essential to the societies therein.

Below is a chart that represents the location of current sanctuaries and thereby clearly elucidates areas for further growth and engagement.



Nzingha Clarke & Marc Williams



Heading for the medicinal plants

Asia	Africa/Middle East	Central/North America	Europe	South America
China (1)	Ghana (1)	Costa Rica (3)	France (1)	Bolivia (1)
India (2)	Nigeria (1)	Canada (1)	UK (1)	Colombia (2)
Kyrgyzstan (1)	Uganda (1)	USA (9)		Peru (3)
Laos (2)	Israel (1)			
Sri Lanka (2)	Turkey (1)			

Resources/Partner Orgs

A number of organizations were represented at the conference including some that share directly overlapping goals with those of United Plant Savers. Some examples include the Regional Invasive Species Climate Change (RISC), Fair Wild, Traffic and the Union for Ethical Biotrader.

While at the IUCN conference, i also found out about a novel network of French speaking botanists called Tela-botanica.org. This would be such a cool initiative to have in every country.

The UNESCO Man and the Biosphere project had quite an impressive booth as well.

Journal Articles

The IUCN is the source of a mind-bending amount of literature beyond the famous Red List of Species. They have recently developed a Green List as well to document successes in species preservation too.

Some of my most frequent contacts at the conference were Nzingha Clarke, who among a number of endeavors works with Indigenous folks in Mexico and Bernadette Montanari, who is a Kent trained Ethnobiologist who works in Morocco, Portugal, and the UK. Both of these folks feel like prime candidates to write future articles for the UpS Journal as well as the people involved with the Saving Plants Saving the World symposium.

Food

Most of my food came from local natural foods stores, which tended to be clustered in more upscale areas. That said, a wide selection of affordable organic food was available, and a delicious array of breads, cheeses, pickles, and sauces constituted my main diet. Public transportation is also thankfully ubiquitous in Western Europe regarding access to any necessities. Main food stores like Carrefour and Franprix had organic options, but i tended to favor natural food stores like Biocoop and My Bio Delicious. The selection of probiotic drinks like kombucha and kefir as well as local beers was a particular delight. The Fernand et Lily establishment in Marseille had an astonishing array of locally produced beverages and snacks.

Paris

Another garden i visited upon my return was the Jardin des Serres d'au-teuil. It is the site of the French Open along with a world class collection of greenhouses that unfortunately were closed due to Covid 19 protocols. Nonetheless, the outside portions of this garden host an arboretum with an impressive array of diverse trees and shrubs from around the world. It is also part of a much larger park complex similar to Central Park in New York. Another botanical garden in France that has a connection to medicinal plants that i did not get to visit is linked following www.plantarium.eco.

Conclusion

The IUCN conference is an opportunity for folks from all over the world to compare notes and further the agenda of species protection. It serves as an incredible networking and educational opportunity as well as a tangible forum for making decisions on the conservation agenda largely based on an ever more holistically scientific approach. The Marseille Manifesto was one outcome from the event. An increasing openness to input from often marginalized groups like Indigenous folks from around the world is certainly overdue. Yet rhetoric like "Nature Based Solutions" looking at the environment as a resource to be extracted albeit "sustainably" is often counter to such traditional wisdom. The main focus is clearly on animals, though there are so many more plants! The majority of known medicinal plants have not even been characterized for their level of threat through the IUCN rubric. Given the enthusiasm i experienced from attendees and the relative dearth of plant-focused booths out of the hundreds present, there is clearly room for growth in this arena. The best change, of course, starts at home as well. May we all find the balance between acting locally in our gardens, forests, and fields and keeping track as we are able on what global conversations like this yield.

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Ethnobiologist Marc Williams has taught hundreds of classes to thousands of people about plants, humans, other life forms, and their interface. His training includes a B.A. in Environmental Studies/Sustainable Agriculture from Warren Wilson College with a minor in Business and a M.A. in Appalachian Studies/Sustainable Development from Appalachian State University with a minor in Planning/Geography. He has over 20 years of experiences working at various restaurants and farms and travels throughout 30 countries in Central/North/South America and Europe as well as all 50 states in the USA. More information can be found at www.botanyeveryday.com and www.plantsandhealers.org.

“The plants have enough spirit to transform our limited vision.”

–Rosemary Gladstar

GOLDENSEAL CULTIVATION

By Jennifer Gerrity

Herb Pharm expanded a planting of goldenseal (*Hydrastis canadensis*) roots from nursery stock this fall on private land in SW Virginia. The land is owned by Blake, a multi-generation ginseng producer who embarked on goldenseal cultivation after noticing wild stands naturalized around his 60 acres of forested land.

“Once I saw the goldenseal stands around the ginseng and how they grow together, I thought that it might make sense to grow more goldenseal,” remarked Blake while he gazed out over his three acres of certified organic cultivated goldenseal.

This special project is a multiyear installation of locally sourced root stock secured through the Appalachian Sustainable Development (ASD), Appalachian Harvest Herb Hub in Duffield, Virginia. It has achieved verification through the United Plant Savers Forest Grown program. Herb Pharm and ASD have collaborated on this project for three years now, splitting costs and planning a long-term forest farming project.

The first year the farm in Williams, Oregon transplanted a substantial portion of our own organic goldenseal under the direction of Alexis Durham, Herb Pharm’s Director of Botanical Affairs. This planting was supplemented with locally sourced roots. The plots have now been further expanded with additional cultivated material.

Katie Commender of ASD works to source roots from several Appalachian growers. She explains “Nurseries sell for landscapes and the cost is prohibitive—we simply

need more production for farm stock. For forest farmers to be successful, they must have access to reasonably priced roots and seeds. This is not easy to come by and is a significant gap in the supply chain. We were lucky to find enough material for planting this year.”

Blake planted the roots himself the first year, along with his children, who helped. Since then, the labor became too intense, so the ASD Herb Hub sent interns to help. These paid interns learn traditional forest farming skills and gain the opportunity to participate in native plant generative practices. The interns, Susan and Dave, were previously mentoring under Blake in the cultivation of ginseng, so they knew the land well from spreading and tending ginseng seed in previous seasons.

In August 2021, Jennifer Gerrity, Herb Sourcing and Procurement Manager at Herb Pharm LLC, and Susan Leopold visited the ASD Herb Hub, as well as Blake’s land. They both noted that the previous plantings were thriving and that the plots for the next installation were the ideal terrain for this project.

Once the goldenseal blooms and goes to seed, a portion of those plants will be available for digging. Whatever is eventually dug, 10% will go back into the ground for regeneration, thus creating a perpetual forest garden.

The future of offering goldenseal on a commercial level depends on cultivation efforts and root stock propagation. Conservation through Cultivation is the model Herb Pharm follows, while preserving goldenseal for future generations.



Jennifer Gerrity and Blake at the Herb Pharm Goldenseal forest plots. Photo by Susan Leopold, 2021.



Goldenseal in its second year

Jennifer Gerrity is the Herb Sourcing and Procurement Manager at Herb Pharm in Williams, Oregon.



BIG HORSE WOMAN, Graphite

SEED CARRIER WAMÍDE-Í^N

Excerpt from BIG HORSE WOMAN (Book One)

Stories & Art by B. Salvatore

Her mother held her, touched her lips with sacred water, nursed her, welcomed her. Her grandmother named her.

In the early days, every woman carried seed for their families, for their village, for the tribe.

But not every woman knew the seeds to carry of medicine.

Those that did, carried these seeds wherever they went.

Rain Walking was such a seed carrier.

Nónzhin Mónthin carried the seed of every medicine that crossed their path. When her daughter, KóndehiWin, gave birth - there and then Nónzhin Mónthin recognized Water Willow as one.

Rain Walking had the seeds of knowing to pass on, and she saw that Water Willow would be fertile ground.

She saw in this new child, the heart and hands to carry seeds.

She whispered to her new granddaughter,
"Witúshpa..."

For every medicine, there is a plant.

For every plant, there is a seed.

For every people, a Seed Carrier."

And thus, she blessed her.

Rain Walking was close to the seeds, knew when they were thirsty, and could call on winds when they grew desperate to drink. When Rain Walking beseeched, these winds would gather up clouds and press rain from them.

And that is how she got her name.

Rain Walking would keep the rain making in her fingertips, until Water Willow was old and strong enough to move winds and water. But first, she would speak with trees. And so her name was - the tree she was born under.

Thíxu wín, Water Willow, she was called.

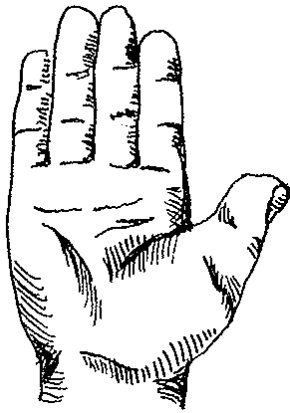
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When they opened the door to Kímonhon, he saw his child glowing red, thick vermilion grease coating her skin. They wrapped her in an ermine trimmed blanket and placed her in his arms. The wind was a spiraling zephyr,

blowing circles around them.

Stars were yet falling from the sky.





FIVE FINGER MEDICINE

Excerpt from MAGGHIE (Book Two)

Stories & Art by B. Salvatore

With winter came more lessons. Time spent in the kitchen with Maye and the herbs and medicines. Magghie watched and listened, and the plants lent their voices. They sunk in, because Maye had a way of making remembering easy.

"Today Magghie dear, we will count with our fingers, and each one will be a lesson worth remembering. Five Finger Medicine is within everyone's grasp, but it's not everyone who will hold it tight. Not just anyone who will know it... But by the end of this day you will have it at the tips of your fingers!"

She held up her thumb "Number One!"

She reached into a pouch and took out a pinch of dried plantain seeds and leaves. She chewed on these and spit the resulting sticky mass into the palm of her hand.

"First...is Spit or water. If you have nothing else - you chew the medicine and dissolve it in your own mouth or make a spittle pack to press onto a wound or insect bite. Spit."

She lifted Magghie's hem and exposed her recently scraped knee, pressing the spittle poultice onto the raw skin. Magghie flinched and squirmed at the initial sting, but smiled when she felt the burn fade as the plant worked its way in.

Maye stood and turned to the warm stove. "Water - you boil or simmer the medicine in water. This can be done by the heat of the fire or sun, or the cool light of the moon. Infusions, teas, juices...all made with Water."

While Maye spoke, she crumbled a handful of peppermint leaves into a simmering pot and covered it tight. Nonetheless the room was filled with the sharp scent, and Magghie inhaled peppermint before following her mother out to the stone porch. Out under the bright night sky, Maye set a glass bowl full of cool spring water with floating rose petals, telling Magghie,

"The full moon will pull out the delicate scent and make a magic mist for us to use in the mornings. Our skin will be rose petal soft and perfumed, just like the Old-World princesses!"

"When will it be ready, Momma?" Magghie asked, impatient.

"We will rise with the sun and use the dawn's rosewater," her mother promised, whisking Magghie back in before the mint tea boiled over.

As she took the pot off the flame, she held up Two fingers. "Second is Sweetness. Sugar. Honey. Syrup. Children, such as yourself, like this best, and will take their medicine this way, when you cannot force them to take it any other."

Magghie smiled in agreement as her tongue remembered honey coughing medicines, maple candies, sugared violets.

"Sugar will break down a plant, so it slips right into your tongue. You love the sugared flowers we dip in the spring! And where would we be without honey hives and Syrup?"

Magghie reached for the crockery where her mother stored the dry fruits that she used for cough medicines. Wild grapes were shriveled and darkened, but their sweet, musky smell was still pungent. Wild cherries dried black and hard and whole. She ground them, seeds and all, in the stone mortar, as her mother bent to the cool low shelf that held the honey jars. Together they mixed the wild grapes, tart cherries, and thick clover honey in a wide jar.

Then Maye added a spoonful of brandy, a spoonful of vinegar, four cloves of chopped garlic and a pinch of sugar.

"This will cure anything from a tickle to a cough - stop it short in your throat before it gets heavy in your chest ... coughing Syrup!"

"And yes, Vinegar is Third." She pushed a gallon jug of apple cider vinegar closer to Magghie. "Vinegar, is a 'Fermenter', draws the medicine out, especially the invisibles (vitamins and minerals.) Vinegars, used on raw foods or cooked, or added with a bone to soup, will draw its marrow strength out, into the broth. Vinegars help clean wounds, stop bleeding, stop stinging, help with digesting. Vinegar."

Maye pulled off the wax stopper and Magghie pinched her nose shut against the sour odor. Maye added a pinch of dill, a sprig of lovage, a smidge of mint, a spoon of salt, a dash of chopped celery, and one powdered strawberry. As she stirred in the magic ingredients, their scents mingled and she proclaimed, "This vinegar will be a culinary specialty!"

Maye wiped her brow and then emphatically stretched out Four fingers, "Which leads us to the Fourth..."

Spirits! Used to make the strongest, most intensive concentration of the plant. Fermented ales and beers, brews and ciders. Brandies and cognacs, corn whiskey, rice wine, and of course the clear, pure vodka. A plant tincture or simple is made with Alcohol."

Together they chopped the curled comfrey, the hard burdock, and the waxy dandelion roots Maye dug the day before when she smelled snow coming. Magghie labored over the hard, tough roots, and Maye helped her by pummeling them with a wooden hammer. "The softer and smaller we can make them, the better the alcohol will distill them. The more of the inner core we can uncover, the stronger the brew will be when it's done steeping. Just a teaspoon full of tincture, will usually halt what ails you. Nip it in the bud!"

They scraped the chopped and pounded roots into brown bottles, covered them with clear vodka, and stirred them under. Maye capped and corked and shook them hard before setting them on the shelf with all the others.

"Five!" she shouted. "Oil!"

On the stove a cast iron pot warmed, and when Maye poured in the golden oil, the room filled with the scent of dinner starting. Maye kept the savory olive oil in large vats she yearly imported to the Apothecary, special packages sent all the way from Sicily. Maye always doled it out with careful measure, using it to season food as well as to make medicines.

She went about the task of crushing open globes of garlic cloves. Smushing each clove with her thumb into the cutting board, forcing the skins to peel away. Magghie's little fingers picked away the papery sheaves while Maye chopped and pressed the garlic into a stinking paste. When she scraped the mashed garlic into the cast iron pan, the oil simmered with delight at the perfect union. Soon it was caramel brown and Maye removed it from the flames.

"We'll let this cool overnight and soak deep throughout the oil. Tomorrow we will strain and bottle it for later use."

"For what use mamma?" Magghie asked, right on cue.

"Oh my," Maye took in a deep breath. "Where do I begin? A tablespoon of this added to any soup or meat, mixed in with any vegetables or greens, will flavor it well and keep us strong. Guard us from illness and weakness. Clear our breathing ... If it ever gets so far as an ache in the ear, we'll pour a drop of this garlic oil right in it! And the earache will quickly subside! ... And you must remember times I dabbed the oil on cuts and insect bites? It helps to heal and stop infection, helps to kill the sting of venom....

When you were a baby, I would rub it on your fat little feet on cold winter nights, then put double socks on and let your stuffed toes warm in front of the fire. You never so much as sneezed that first winter... It kept all sickness away... It kept you safe...."

Maye's voice trailed off, and she cleared her throat of its sudden lump. Cast her eyes away so Magghie did not see tears come. Set herself to pouring the tea and spooning out extra honey, mirroring Magghie's quick smile, delighting in her pleasure. ■

When they sat down to their cups of honeyed peppermint tea, they both grinned with pride to see all that they had made in one night with Five Fingers. Barbara Salvatore © 2022

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Barbara Salvatore, from Verdigre, Nebraska, is the author and illustrator of the Big Horse Woman series including Big Horse Woman, and MAGGHIE.

Big Horse Woman, first in a series of four epic novels, was a Finalist in the Leapfrog Press Literary Fiction Contest, and Winner of Chanticleer International Book Award - Prairie/First Nations, Laramie Prize for Western Fiction. Big Horse Woman, born in a dream, sparked Barbara's interest in Ponca Language, because she wanted to Name the Plants the way Big Horse Woman would. This led to her becoming a lifetime student of the Ponca Language.*

www.bighorsewoman.com

*The Ponca are a Midwestern Native American tribe of the Dhegihan branch of the Siouan language group. There are two federally recognized Ponca tribes: the Ponca Tribe of Nebraska and the Ponca Tribe of Indians of Oklahoma.



Big Horse Woman & Maggie, books by Barbara Salvatore

Professor Emeritus Emil John Staba
College of Pharmacy, University of Minnesota
Pharmacognosy, Medicinal Chemistry, and Philanthropy

WHAT MIGHT WE FIND IN THOSE OLD BOOKS?

By Bill Chioffi,
United Plant Savers Board Secretary

E. John Staba, Ph.D. has generously donated 5,849 books to United Plant Savers and the newly formed Duke Ethnobotanical Archives & Teaching Gardens (www.unitedplantsavers.org/dukearchives). The books were collected by Professor Staba over the course of his long career in academics and natural products research and development. Professor Staba's academic career began with a B.S. in Pharmacy in 1952 from St. John's University, a M.S. from Duquesne University in 1954, and his Ph.D. from the University of Connecticut in 1957. The University of Nebraska is where he got his start as an assistant professor of Pharmacognosy in 1957 until he would become Professor and Chairman Department of Pharmacognosy in 1965. From 1968-1982 John served as Professor and Chairman, Department of Pharmacognosy at the University of Minnesota where he also served as Assistant Dean for Professional Curriculum from 1974-76. John has served as a consultant for the National Aeronautics and Space Administration (NASA), World Bank, USAID, National Academy of Sciences, and various food, pharmaceutical and industrial concerns. He's got over 160 publications, 4 patents, and a book on topics that include plant tissue culture, phytochemistry, herbal remedies, and Pharmacy Education. When John retired from the University of Minnesota in 1995, he was not finished with his work and continued as a consultant through his firm Plants Personified, Inc. Notably in the field of Natural Products, John worked as Interim Director of Research and Product Development for Toms of Maine, Inc. in Kennebunk, Maine from September of 1996-July of 1997.

I was introduced to Professor Staba by Roy Upton from the American Herbal Pharmacopeia. John had donated part of his collection to the Lloyd Library in the E. John Staba Papers 1946-2006 (<https://lloydlibrary.org/wp-content/uploads/2021/05/E-John-Staba-Finding-Aid.pdf>). This collection includes reports, correspondences, conference brochures, publications, teaching materials, and research notes. Other materials include resumes, awards, certifications, clippings, applications, evaluations, and directories. Most of the materials are directly related to his positions at the University of Nebraska and the University of Minnesota. It is a curated documentation of a life's work dedicated to the understanding of plants, people, and their interactions. The Lloyd Library in Cincinnati, OH is a place many herbal researchers

make a pilgrimage to in search of these types of original primary sources. There were certain items they had limited in the collection they received, and John wanted to be sure they were located somewhere scholars and the public could access them. Through my work with United Plant Savers assisting with development as well as my work at SCNM and the Ric Scalzo Institute for Botanical Research, Roy thought I might be able to help John find a home for the remainder of his collection of books in addition to a collection John built and dedicated to Ginseng. I immediately thought of United Plant Savers and the Duke Library and connected Susan Leopold, Ph.D. and Dr. Staba. We began making a plan to

incorporate these resources into the Duke Archives. Plans are in store to digitize the Duke Archives and make them even more accessible. I will note strongly that this would not have been possible without the generous donations to UpS and the fundraising efforts and ground floor efforts of its staff and volunteers that went into making the physical space and gardens a reality. Although digitization is crucial to the preservation and dissemination of this information, the preservation of the hard copy texts, research notes, flyers, and correspondence is also crucial to the evaluation of Primary Sources.



Photo 1: The Thomsonian Materia Medica



Photo 2: Lobelia (*Lobelia inflata* L.) with newspaper clipping



Photo 3: Medicine bottle label

I'm a novice rare book collector with budget as a key limiter of my collection. The first Antique Book I purchased really got me hooked on what treasures these are. The book was written by Samuel Thomson a famous (or infamous depending on your opinion) New England botanist and herbal practitioner from the 19th century who developed a very popular system of medicine known as "Thomsonian Medicine". I cannot look at or read about Lobelia (*Lobelia inflata* L.) without thinking of Thomson, who extolled its virtues and employed its use widely. This book; *The Thomsonian Materia Medica, or, Botanic Family Physician: Comprising a Philosophical Theory, the Natural Organization and Assumed Principles of Animal and Vegetable Life; To Which Are Added the Description of Plants and Their Various Compounds* (Photo 1), when purchased came with a "Patent" and gave the person certain rights to practice the system of medicine described therein for the sum of \$12 which is equivalent to around \$380 in today's US currency by historical inflation rates. It came replete with its own certificate. The copy I have is the 12th Edition Published By J. Munsell 1841 in Albany, NY and purchased by a person named Geo W. Smith, who had his "patent" authorized by an agent of Samuel Thomson on November 24th, 1841 as noted on his certificate signed in Ink. When I opened the book to look at the exquisite color plates of Lobelia (*Lobelia inflata* L.) and Lady's Slipper (*Cypripedium acaule* Aiton but labeled in Thomson's as *C. pubescens*), there were newspaper clippings on each. Thomson was well known for his use of Lobelia as an emetic and it was controversial at the time, as new medicines were being used such as preparations of mercurous chloride (calumel) to treat virulent disease. Thomson was put on trial for the murder of one of his patients, Ezra Lovett in 1809 and spent much of his time promoting his system of medicine on tour through New England from town to town, and then later in his life defending his "patent" on a system of medicine from both his own licensees and many others. For more information on this topic please read the article here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC128961/> by Michael A. Flannery of the Lister

A—*Ferula Asafetida*.
 spasmodic expectorant and feebly laxative of hypochondria, hysteria, convulsions of nervous debility. From the union of

Hill Library of the Health Sciences at the University of Alabama. It places the Thomsonian movement in the framework of the Jacksonian political system that was dominant in the thinking of 19th century Americans. Also for more on the trial of Samuel Thomson please read Paul Bergner's article from *Medical Herbalism*: http://medherb.com/Materia_Medica/Lobelia_-_Legal_considerations_in_the_Samuel_Thomson_trial.htm Paul points out the legal issues of the case in which Thomson was tried for killing a patient by use of Lobelia leaves yet not allowed to respond to the accusations in court.

The article clipping placed in the text perhaps intentionally on the page describing Lobelia (Photo 2) indicates a documentation of a public dispute. Without further research into the individuals, it may be a bit of a leap to associate this relic with the plant on which it was placed in the book. It certainly warrants more investigation into Mr. Wesley mentioned here and of course Mr. Geo W. Smith, the Thomsonian practitioner using this tome in practice. It gives some insight into the social context and polarizing nature of the use and practice of herbal medicine during those times, the struggles of those wanting to promote the safe and effective use of plants, and the power of the legal system's influence on those who are brave enough to challenge the standing thought paradigms of their time. It makes me wonder if things have changed all that much in the last 181 years.

There was a label from a bottle of medicine (Sweet Spirits of Nitre or Ethyl Nitrite) placed on page from a pharmacy in Leominster, MA (Photo 3), which happened to be a town less than twenty miles from where I was living when I ordered this book online. Sweet Spirits of Nitre was reclassified by the FDA due to safety concerns and toxicology reports showing a correlation to Methemoglobinemia (*The Merck Index. 10th ed. Rahway, New Jersey: Merck Co., Inc., 1983., p. 554*). It is currently regulated under 21CFR172.515 by the FDA as a Food Additive Permitted for Direct Addition to Food for Human Consumption. This list also contains ingredients you

may recognize such as Piperine and Pine Tar Oil. Did Mr. Geo W. Smith also have concerns and was he looking to use Asafoetida or some other plant as an alternative? It was opposite the page containing Thomson's famous "Composition Powders," also a possible alternative to Sweet Spirits of Nitre? I couldn't even have thought to ponder this question if I had referenced the online versions of the Thomsonian Materia Medica that are thankfully available.

There were notes about which plants acted like poison written on scraps of paper stuck in the text. These kinds of details are not always captured in the digitization process, but other researchers and book collectors will attest to the insightful nature of these notes and clippings that past owners have left behind.

Professor Staba's collections contain multiple gems similar to the one described above, and I am looking forward to researching the collection in more depth to see what kind of details were left behind perhaps not in the original print. John was also active in the early years of herbal commerce in the United States and participated in the Herb Trade Association Meetings in Santa Cruz, California (1978-79). I asked John how he became involved with the Herb Trade Association, and he mentioned that he was asked to present on Ginseng to the group at a meeting in Santa Cruz. He remembered meeting many herbalists including Mark Blumenthal whom John delightfully recalled "Introduced me to Guacamole" and upon checking in with Mark on a phone call, he quipped quickly, "If John was an Ethnobotanist he would have already known about Guacamole, but he's a Pharmacognocist". Mark went on further to describe many visits with John and his wife Joyce and how this consummate gentleman, scholar, and expert in his field had become a good friend over the years. John was happy to say the plants brought him to those meetings, specifically Ginseng. John was a regular presenter and attendee at the International Ginseng Symposium, Seoul, Korea (1976, 1978, 1980, 1984). We look forward to integrating his



Pictured above: John Staba. UpS is honored to be the home of The John Staba Holistic Arts and Science Library

Ginseng Collection into the Duke Archives and adding to the Learning Garden's power through the availability of these documents. John's great hope is that we continue to stress the importance of cultural knowledge as it relates to plants, and that without that transfer of cultural knowledge and spiritual relevance of the natural world in the research and stewardship of plants, we may tend towards furthering more humanistic practices without necessarily intending to do so. Perhaps John was more of an Ethnobotanist than his friend anticipated!

In addition to his donations to the Lloyd Library and United Plant Saver's Duke Archives, John also made a donation to UMD's Kathryn A. Martin Library and the blossoming Mishoomis Collection Library in the American Indian Learning Resource Center (AILRC). John's collection consists of American Indian/Alaskan Native scholarly research materials, which are unique because they cover the indigenous people, not settlers, from South America to Canada during the development of the western United States from 1700 to 1900. It is a shame that this is unique information and all the more reason to call attention to it so that it can be well referenced by others. The collection is primarily non-fiction: history, culture, dance, music, art, and painting. As with any other important historical collection, Professor Staba hopes it attracts even more scholars to the resources at the institution he spent years contributing to. These resources are even more important to bring to awareness now as finally indigenous practices are being valued and embraced for ecological restoration and reclamation of indigenous lands.

With the recent passing of botanist, photographer, researcher, plant lover, and friend to many, Steven Foster, I took stock of the many contributions he made that will continue to provide meticulously researched information and pristine images of our beloved plants for years to come. I may not always have a battery charged in my phone to reference a digital image of a text, but the copy of *Peterson's Field Guide to Medicinal Plants and Herbs* (Duke&Foster) fits nicely in my backpack, and it reads well by candlelight if need be. So long as I don't leave it on a log in the woods or spill another cup of coffee on it, I'll be able to refer to my own scribbled notes in the margin, and maybe someday with any luck, it will be used by another fellow human on the green journey. There are many herbal enthusiasts and practitioners across the globe and certainly in the US who have carefully collected references for their practices and pleasure. It would be wonderful if there were a central repository dedicated to N. American herbal practice and tradition where they could leave them in good hands and in places the herbal public can reach them. The hope for future generations is that there will be both digital and centrally located repositories for physical books, documents to be stored in perpetuity so that primary sources of North American herbal traditions and practices can be referred to inform and remind people of their existing and intricate connection to the plants. ■



Plant specimens taken from Madagascar by France (Musée colonial de Marseille, 2017), courtesy of Chanelle Adams

THE DJ AND THE MIRACLE CURE: THE PERILS OF POSTCOLONIAL MEDICINE IN MADAGASCAR

By Chanelle Adams

Originally published by *The Drift* (Issue 2) October 21, 2020

On March 16, Madagascar's state-owned TV station aired an 18-minute documentary. Narrated by two airline pilots, it re-enacts a November 2019 visit to the island nation by an anonymous Brazilian woman purported to be a prophet. "Joana," as she is dubbed in the film, crosses the island in two flights, one south-to-north and the other east-to-west, tracing the shape of a crucifix. She has been sent by God, she confides in the pilots, to make a protective cross over Madagascar and to deliver a warning. The world would soon be besieged by biological warfare, she predicts, and Madagascar alone held a remedy that could protect the Malagasy people and bring desperately needed economic relief to a country where 75 percent of the population lives below the international poverty line. There was one condition: the people had to reaffirm their belief in God.

Over an image of the statue of Christ the Redeemer in Rio, Joana calls on the majority-Christian nation to double down on faith. Flashes of coronavirus panic — statistics, hospital rooms, body bags rolling down a hill

in Italy — fade into a close-up of Joana's face as she cries crocodile tears.

Enter Andry Nirina Rajoelina, Madagascar's President, who reassures viewers that they will be protected from Covid-19 and insists that the island "*manana fanafody*" ("has medicine"). In the film's concluding montage of stock images, a Malagasy woman is seen in a field harvesting rosy periwinkle, an indigenous plant used globally in cancer drugs.

Four days after the documentary aired, the first cases of Covid-19 surfaced in Madagascar. Two women had returned from a trip to France with the virus; another came from the neighboring island of Mauritius. That day, Rajoelina's government suspended all flights, closed schools, and canceled large gatherings. A full lockdown followed in the three largest cities, with military and police deployed. Those caught maskless were sentenced to public street cleaning in shame.

Three weeks later, Rajoelina announced that a potential, but confidential, remedy for Covid-19 was undergoing tests at the Malagasy Institute of Applied Research, Madagascar's national laboratory for the development of traditional herbal medicines. The cure, he declared on Twitter, would "change the course of history in this global war being waged against the pandemic."

By April 20, the miracle medicine had a name, Covid-Organics (CVO), and an eye-catching package: 330mL bottles labeled in the orange hue of the President's political party. Speaking on national television, Rajoelina echoed Joana's rhetoric. "Madagascar has been chosen by God," he proclaimed, taking a big gulp of the beverage, its ingredients still undisclosed. "I will be the first to drink this today, in front of you, to show you that this product cures and does not kill."

Rajoelina swiftly lifted lockdown measures, and CVO was distributed by military officers throughout the country and mandated for all students returning to school, striking up debates among the Malagasy people about whether or not to trust the government's tonic. A friend confided that she kept the soap the government gave her and threw the CVO in the trash.

What came next was a hodgepodge of prophecy, faith, and medicine. Rajoelina called for Madagascar to embrace "clinical observations" rather than "clinical trials" in evaluating the drink. At the time of the announcement, two individuals had taken CVO and recovered from Covid-19. But for a virus with a recovery rate upwards of 90 percent, that statistic is effectively meaningless. When asked how he could be sure of the drink's efficacy, Rajoelina answered confidently, "History will prove it."

At the time of CVO's debut, the global death toll from Covid-19 had just surpassed 100,000, but Madagascar still only had a handful of confirmed cases. By the end of April, the count had risen to 121, and in June cases spiked. A two-week lockdown was reinstated in July to little avail: the number of positive cases surpassed 14,000 in August. As of this writing, that number has climbed to 16,810, with 238 deaths.

Madagascar — a nation still plagued by the legacies of colonialism, slavery, corruption, and extractionist industry — would have been an unlikely pandemic hero. A home-grown Malagasy cure would have upended decades of exploitation of Madagascar's biodiversity by the Global North, as well as the regimes by which local remedies and traditional wisdom are transmuted into commercial pharmaceutical products the world over. For a brief moment, CVO felt like a turning point, as leaders across Africa and the diaspora voiced support and placed orders for the drink. But the hype was short-lived. Instead, CVO became a case study in how colonial politics still determine the vectors of power and profit when it comes to medical knowledge.

Alternative remedies for Covid-19 have circulated furiously since March — from the Trump-endorsed

hydroxychloroquine craze to Instagram debates about Echinacea and Ayurvedic treatments in India. But only in Madagascar have we seen an entire government fully adopt and promote a mysterious and minimally tested herbal cure. The island is a fitting setting for such an endeavor. Isolated from the African mainland, it is considered a biodiversity hotspot — one of only a handful on earth. Ninety percent of its plants and animals are endemic (native and exclusive to the island). This is a blessing and a curse: today, only 30 percent or less of Madagascar's original natural vegetation remains, primarily because many native plant species are actively useful in agriculture, building, textiles, and — crucially — medicine.

The Malagasy history of traditional medicine, called *fanafody gasy*, dates back 2,000 years to the arrival of the island's first settlers. Incorporating native plant and animal materials, *fanafody gasy* reaches beyond the Western conception of medicine. Demand remains high: The World Health Organization estimates that 80 percent of people in Madagascar use traditional Malagasy plant medicine. Sometimes, herbal remedies are taken in tandem with pharmaceutical drugs, but the majority of the Malagasy people live at least a two-hour walk from a Western healthcare clinic. Meanwhile, the nation continues to face malaria, polio, measles, flu, rotavirus, regional famines, and widespread chronic undernutrition. Outbreaks of the bubonic plague occur annually, as fleas on the backs of rats spread the deadly disease, which is often traced back to the nation's overcrowded and unhygienic prisons.

Across the island, medicinal plant markets are meeting-places for medical advice and gossip, settings where health, magic, and social life overlap. A patient seeking a diagnosis might consult an *ombiasy* (spiritual healer), a *renin-jaja* (*sage-femme*/midwife), a bone-setter, a massage therapist, a biomedical doctor, or a trusted friend. And, according to the wisdom of these advisors, the illness might have a physical source, but it might also be traced to the psychic or social — caused by jealousy, heartbreak, or misfortune.

Rajoelina's plan appealed to the national reverence for plant medicine, potent postcolonial nationalism, and ecological exceptionalism. He also ensured that he would profit personally. As he made sure to note publicly, it would be illegal to export the medicine or any of the plants used in the still-secret formula.

Africa's youngest president, Rajoelina came to power in 2009 after he led a coup against his corrupt predecessor Marc Ravalomanana. In one particularly scandalous deal, Ravalomanana had arranged to lease half of the island's farmable land to the Korean industrial company Daewoo for the next 99 years. Fed up with development projects that only benefited the elite, the masses rallied around Rajoelina's agenda. The Malagasy Army stormed the royal palace, and Rajoelina declared himself President. In 2018, he was challenged by 35 candidates including Ravalomanana, but he held onto the seat.

In a nation where two-thirds of the population is under 25, it was not difficult for Rajoelina — a former entrepreneur who skipped college to become a DJ and event planner — to gain cultural cachet. His carefully curated image extends even to social media: he is photographed at parades in festive, traditional *lambahoany* tops, distributing food in rural villages, making speeches, and more recently wearing a mask as he oversees production of CVO.

The President made an international media splash with the unauthorized tonic, but many in Madagascar hesitated to touch it. Long used to propaganda, these citizens were unfazed by the Joana stunt. When asked directly whether the Joana documentary amounted to propaganda, Rajoelina's chief of staff replied: "It is necessary to recognize that there are unexplained mysteries in the world."

The unbelievable happens in Madagascar all the time, and largely falls under the radar of global attention. The 2009 coup, for instance, was one of the largest peasant land revolts in recent history. There are accounts of ancestral magic melting French colonizers' bullets into water during the 1947 insurrection. A specimen of the Madagascar orchid *Angraecum sesquipedale* was crucial to Charles Darwin's theory of evolution because he deduced that a moth with a remarkable proboscis must have pollinated it. That the magical island might harbor a coronavirus cure seemed not entirely inconceivable — and Madagascar's initial infection rates were miraculously, even suspiciously low.

For some, CVO's arrival signaled an opportunity to build solidarity among African nations and push back on centuries of tense medical relationships with colonial powers. CVO was always an international project. With the English name "Covid-Organics" (it's "CVO Tambavy," in Malagasy) it was well-positioned to tap into the booming holistic wellness market, currently valued at \$34 billion worldwide. (In local supermarkets, it sells for 53 cents; online it retails for \$100 plus shipping.) But when French doctors began to talk about testing dubious cures on African populations, CVO began to look like a statement of anti-colonial defiance. Another medical abuse posing as a benevolence would not be tolerated by African

people; if that meant experimenting with homegrown cures, so be it.

The possibility of forming diplomatic pathways to validate and market traditional medicine among African and African diasporic nations was an early boost to CVO's appeal. Its first international customer was Senegal. Comoros, Chad, Guinea-Bissau, Equatorial Guinea, Liberia, and Nigeria soon followed. In total, the leaders of a dozen African nations placed orders. Out of gratitude, the president of Haiti called for African diplomatic alliances "entre pays d'amis." The President of Tanzania, John Magufuli, sent a plane to Madagascar to fetch the

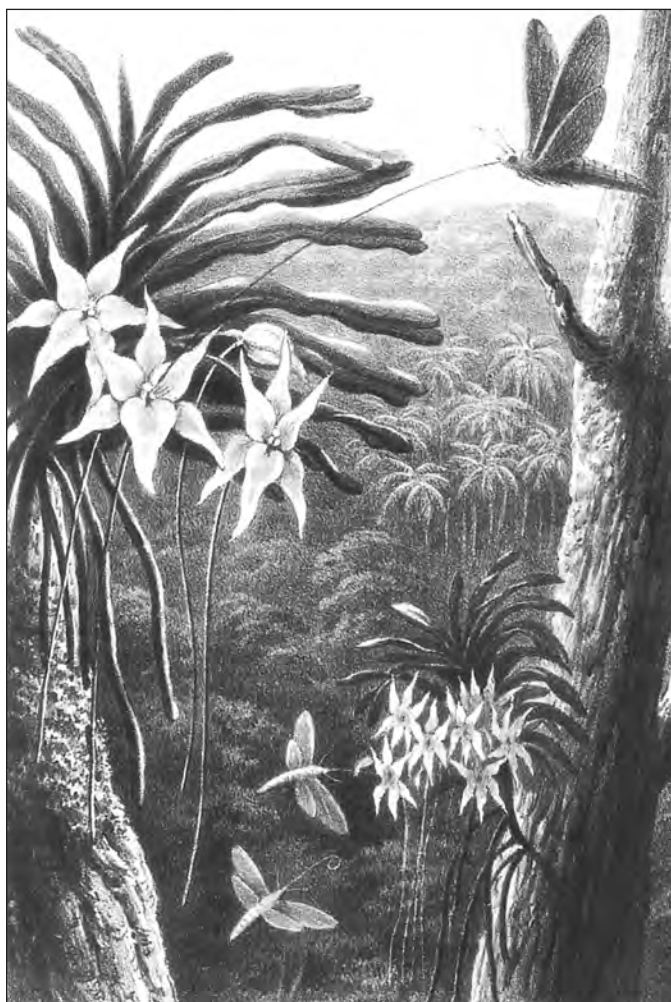
medicinal drink. Madagascar had "made Africans proud," said the country's foreign minister Palamagamba Kabudi. "Madagascar is providing...a solution to a global problem," he added. "We are used to being told it is Europe and Western Europe and other countries who solve global problems."

"What if this medicine were found in Europe? Would you doubt it so much?" President Rajoelina asked in an interview on France 24. "African and Malagasy scientists should not be underestimated," he continued. "We are here... We have our own tonic."

Despite Rajoelina's nationalist rhetoric, only one known ingredient in CVO is native to Madagascar: *Ravensara*, a plant that's already widely used and trusted across the island as a powerful treatment for respiratory conditions and extreme fatigue. But the primary active ingredient in the "enhanced traditional remedy," as it has

been marketed, is not African at all, but rather an Asian import called *Artemisia annua*.

Relations between China and Madagascar are tinged with colonialism: in 1972, diplomatic arrangements granted China access to drilling, mining, and fishing enterprises in Madagascar in exchange for development aid and medical support. Since 2015, China has been Madagascar's biggest trade partner. A special envoy of President Xi attended Rajoelina's inauguration in 2019. And it's widely accepted among the people of Madagascar that *Artemisia* was "a gift from China," but the details of its arrival remain murky.



Sphinx Moth Fertilizing *Angraecum Sesquipedale* in the Forests of Madagascar, October 1867, Thomas William Woo

Part of the daisy family, the *Artemisia* plant is green-yellow and fern-like in appearance. It is sometimes known as sweet wormwood or sweet sage, though both are misnomers. The plant itself is stinky. Its pungent odor comes from terpenoids, the organic chemicals also responsible for the smells of cinnamon and eucalyptus.

In China, where it is known as *qing hao*, the plant's medicinal use dates back at least to the Ming Dynasty. Long forgotten, it was rediscovered in 1967 by Project 523, a secret Chinese task force charged with searching for a medication to fight malaria, which was a major threat during the American War in Vietnam. One branch of the group scoured ancient texts from Traditional Chinese Medicine, and their findings on *qing hao* led to the development of "artemisinins," a class of drugs that has been found effective against malaria. Though the initial findings were met with skepticism in 1979, chemist Tu Youyou later won the 2015 Nobel Prize for her role in the process. Artemisinins are now, in combination with other medications that enhance their performance, part of the standard course of treatment for malaria. More than 64 million treatments are delivered annually to over sixty countries, including Madagascar — which, like several other African nations, now grows its own supply. On the island, *Artemisia* is used to treat malaria, fevers, and the flu.

While malaria and Covid-19 share many initial acute symptoms — fever, chills, fatigue, difficulty breathing, headaches — they are not scientifically related. Currently, both are responsible for death at global annual rates of over 400,000 people. While the spotlight is now on Covid-19, widespread infectious diseases such as malaria, HIV, and tuberculosis have not disappeared, especially in under-resourced nations.

The over-use of malaria cures for Covid-19 could not only prove ineffective, but also help breed treatment-resistant malaria strains, a key concern in the development of anti-malarial medications. If the President of a temperate climate nation unnecessarily takes hydroxychloroquine, for example, there is little public health impact. But in high-malaria zones, using a malaria treatment for Covid-19 could have lasting effects.

So who exactly stands to gain from touting *Artemisia* as a Covid-19 cure and ramping up production — particularly right now, and particularly in Madagascar? As it turns out, the timing and the source of the idea are both suspect: *Artemisia* is encircled by a complex web of international interests.

Rajoelina was initially tipped off to *Artemisia's* potential as a Covid-19 cure by the orthodontist Lucile Cornet-Venet, who runs the Paris-based "Maison de L'Artemisia." Since 2012, the organization has gained a foothold in 23 African countries while advocating for the use of *Artemisia* as a standalone malaria treatment, going against the recommendation of the WHO. The island's *Artemisia* plantations are run by Bionexx, a French-owned quasi-pharmaceutical company that has established a network

of 15,000 smallholder farmers across Madagascar, together producing about 2,000 tons of dry herb a year (100 kilograms of *Artemisia* yield roughly one gram of artemisinin). Due to increased availability, prices of artemisinin have dropped in recent years, and those who have run into difficulty touting *Artemisia* as a standalone cure for malaria are looking for other uses of the plant.

Absent from the list of parties that would directly benefit from increased production of the plant, of course, are the Malagasy people.

The invasion of Madagascar in the 1890s was arguably one of the worst medical failures in French military history. As during the American War in Vietnam, more soldiers died from malaria and other medical complications than in actual combat, leaving the French in urgent need of local medicinal resources — and the people who knew *fanafody gasy*. Even as the invaders portrayed traditional practices as backwards or savage, they simultaneously harvested local knowledge from the Malagasy people.

Today, the French use traditional medicine to fight on another front: aging. Luxury brands such as Yves Rocher and Clarins export Malagasy herbs for detoxification masks, anti-aging eye creams, and wrinkle-fighting lotions — all of which are sold at 150 times the price of the raw herb material in Madagascar, where they're also used in highly effective face masks. Most Malagasy people share none of this profit, which is not unusual. Bioprospecting — the pharmaceutical industry's search for novel materials in the traditional medicines of people around the world — is the primary process by which organic materials are selected for commercial products, and the gains rarely trickle down. Instead, traditional healers are cut out entirely.

Madagascar's national laboratory for medicinal plant research, the Malagasy Institute of Applied Research (IMRA), was founded in 1957, three years before Madagascar won independence from France, to validate traditional therapeutic plant knowledge. That knowledge proved difficult to commercialize in a way that benefits the Malagasy people. IMRA's director, Malagasy scientist and *fanafody gasy* authority Albert Rakoto Ratsimamanga, developed a topical healing ointment called Madecassol in collaboration with French scientists, and the product is now manufactured by Bayer and licensed by La Roche-Posay, a French luxury skincare company. More recently, the drug company Eli Lilly was accused of bio-piracy after using a plant native to Madagascar in two chemotherapy drugs. In both cases, ownership is unclear. A Malagasy-French research duo studied a foreign plant, and foreign researchers studied native ones — which patent should belong to Madagascar, if either?

Even with a patent, the flow of resources is unlikely to reach those who use the traditional medication on which these drugs are based. Lab work takes too long to be competitive; Internet outages are a regular

occurrence in Madagascar. Ultimately, it's not feasible for a single Malagasy-owned laboratory to alter the global pharmaceutical market in any large-scale way.

And even if it were financially possible to manufacture it in Madagascar, traditional medicine is difficult to formalize for a number of reasons. Soil type, harvesting style, and the portion of the plant used can all alter the potency and, therefore, the recommended dosage. Whereas synthetic compounds can be measured in laboratories, traditional medicines depend on centuries of accumulated knowledge. Even when these cures have earned local or national trust, they can't be adopted internationally until they have been tested in evidence-based studies. Ayurveda, traditional Indian medicine, and traditional Chinese medicine are both used locally and around the world, but their value is never quite appraised on par with Western biomedicine. The more prominent traditional medicine systems tend to possess written pharmacopeia documents (such as those consulted by Project 523), which are assembled by those in power to aggregate and distill the people's knowledge, often for dissemination. Such documents have, over the years, been used as biomedical databases.

That is because prioritization of the written word is a companion of empire. In Madagascar, where most families have never left the island, the necessity to write down materia medica is only of concern for those needing to translate across cultures or generations. Each region of the island has its own pharmacopeia due to the dramatically different plants available in the many biomes. There are few texts, and those that are available are written in Sorabe, an Arabic-based alphabet.

Madagascar's most noted pharmacopeia was compiled by Edouard Heckel, a 19th-century French scientist and member of the colonial navy who never once set foot on the island. From a chair in Marseille, he compiled missionary notes, botanical samples from colonial administrators, and hearsay to create *Les plantes médicinales et toxiques de Madagascar* (1903). The text, which includes both Linnaean classifications and Malagasy names for plants, illustrates the violent epistemology of colonialism. Heckel overwrote Malagasy medicinal knowledge with European scientific jargon, privileged French applications over those used by the Malagasy, and generated both profit and prestige for the Institut Colonial de Marseille and Marseille's Colonial Expositions, which were used to showcase France's colonial gains.

The distinction between medicine and ritual, science and magic, is an invention of 16th century Western Europe. Taxonomies followed shortly thereafter, and, by the 18th century, Carl Linnaeus's classification system had grown to encompass the entire living world. Taxonomies are not fixed and stable: they are contingent and historical, and they shift with the attention and priorities of their creators. Older family trees were often based on morphology, for example, while taxonomies now tend to rely on species' genetic relationships.

While many consider biology neutral, a review of the names given to the natural world reveals deep cultural markers. The person who finds the species gets to play Adam and name it. Ask *Diplodocus carnegii*, a dinosaur species that had its bones named after its mission's founder, Andrew Carnegie; *Dudleya hendrixii*, for Hendrix's "Voodoo Child;" the worm *Khruschovia Ridicula*, named out of distaste for former Soviet leader Nikita Khrushchev; or the slime-mold eating beetle *Agathidium bushi*, named for George W. Bush. *Onopordum acanthium*, or the donkey fart thistle, only has meaning where donkeys roam, and *Sansevieria trifasciata*, or mother-in-law's tongue, will have little significance for some.

Madagascar has its own botanical taxonomic classification system, which alternately overlaps with and diverges from the Linnaean method. Often taught orally, many of the names contain mnemonic devices or instructions, such as *tsy maty* (never die), or *bemaimbo* (very stinky). It is not uncommon for plants to have multiple names or for one name to refer to multiple plants. Across the island, these names also shift with local community needs, dialects and attitudes. *Commiphora aprevalii* is otherwise known as the *vahaza* ("foreigner") tree. Its peeling, red bark is a reminder of what happens when fair-skinned wildlife tourists brave the island without sunscreen.

Africans and people of African descent have long distrusted foreign aid — medical or financial — for good reason. From phrenology to the foundation of modern gynecology and syphilis research, Black people worldwide have been treated as test subjects to prod, maim, and murder. Under the guise of "civilizing" and "developing," settlers committed medical violence through abusive testing and forced procedures. It's no wonder that in some places across the continent, colonizers were identified as vampires in white coats who came for blood.

This deep suspicion of imperial biomedical sciences surfaced after Joana's televised visit to Madagascar. Tweets, YouTube comments, and Facebook replies surged with African pride, anti-colonial sentiment, and hope. If Madagascar had pulled it off, CVO could have become a rallying cry for anti-colonial solidarity and for traditional medicine worldwide. It might even have signaled to development agencies that medical answers are not always imported. (Elsewhere on the continent, nations have seen many of their remarkable Covid successes obscured by lack of testing capacity and, therefore, ignored by much of the international community.)

But as the situation in Madagascar began to worsen, the nation traded its foreign export market for foreign aid. Over a summer that marked Madagascar's 60th anniversary of independence from France, Morocco donated 8 million face masks, foreign doctors flew in to support the overburdened medical system, and the African nations that had once proudly promised to purchase Madagascar's cure began to reverse course. Senegal backtracked, clarifying that it had only agreed to receive samples, not prescribe them to its people.

Tanzania claimed its shipments would be used for clinical testing, not distribution. Ghana, initially cautious, repeated that its purpose in ordering CVO was always to test it. Nigeria stated definitively that CVO could not cure Covid-19, and a science advisor to the Congo's National Covid-19 Response Committee announced that an *Artemisia* study had found "no effectiveness in either prevention or treatment."

So far, only the UK HealthCare's Markey Cancer Center has conducted human studies on CVO, and one researcher has raised concerns over the dosage level and the continued lack of public disclosure of the beverage's full ingredient list. The Democratic Republic of Congo has been testing *Artemisia* alone, without the rest of the ingredients in the CVO beverage. While many in South Africa have mocked Madagascar, the country has started pouring funds into researching *Artemisia afra* (African wormwood), a close relative to *Artemisia annua*.

It is not entirely off-base to imagine that the plant could prove useful in fighting Covid-19. In a 2005 Chinese study, 200 medicinal herb extracts were examined for action against SARS, and *Artemisia* showed promising effects in inhibiting the virus in a petri dish. Given the similarities between Covid-19 and SARS, this lead garnered attention in scientific communities around the world. ArtemiFlow, a company that seeks to develop new artemisinin-based cures, recently undertook a study on the use of *Artemisia* against Covid-19, sourcing plant materials from a Kentucky-based company.

Whether the petri-observed effects can be reproduced in actual patients remains unclear, and the drug may simply need more time — herbal medicines, like vitamins, can take longer to be effective than hyper-potent synthetic drugs. These plants are non-toxic and can be less invasive, but require large doses and clinical trials. And in a pandemic, few are sufficiently patient.

The stakes of Rajoelina's Covid-Organics scheme were obvious. Madagascar was already on the political margins of Africa, and an abrupt halt in ecotourism precipitated an outright crisis. All 43 protected area national parks, which bring in roughly \$2 million USD annually, have been closed since March. Even in the absence of a global pandemic, Madagascar faces significant vulnerabilities like food insecurity; it is the world's fourth (and Africa's most) susceptible nation to climate disasters such as floods, cyclones, and droughts. The World Bank has provided \$75 million USD to Madagascar, flagging the concern that the crisis "could reverse past progress in poverty reduction and deepen fragility."

Jumpstarting *Artemisia* cultivation offered an opportunity to provide work on extant plantations while positioning Madagascar at the center of the pandemic, and Rajoelina, eager to turn a profit by any means necessary, preyed on the desire for local treatment and called it the people's medicine. Meanwhile, as development dollars and political attention have been redirected to Covid-19, the leading morbid conditions in Madagascar remain

neonatal disorders, diarrhea, malnutrition, and malaria — a disease against which *Artemisia* has actually proven effective. But with Madagascar's *Artemisia* plantations repurposed to fuel CVO, a likely ineffective treatment, there is a strong possibility that *Artemisia* will not be in necessary supply.

The Malagasy government is far from reaching consensus on CVO: the Minister of Health (previously the Minister of Fisheries, president of the Malagasy Football Federation, and a senator) was sacked for requesting foreign medical aid, and most recently, the Minister of Communication has been imprisoned for protesting CVO.

But despite the corruption, ineptitude, and hokey marketing, Rajoelina's plan seems to have worked — albeit not in the way he intended. When CVO was first introduced, deeply held anxieties about traditional medicine caused rumors to swirl on Internet forums and in smaller African newspapers, even beyond the island's borders, that the WHO paid \$20 million to squash the project, or that Trump had, or that China had poisoned the beverage stock. For a time, it was speculated that the Malagasy government would leave the World Health Organization after it refused to accept Covid-Organics as a legitimate treatment. Instead, quite the opposite has occurred.

In September, in a direct response to Rajoelina's campaign, a WHO committee endorsed a protocol to expand and encourage clinical trials for traditional medicine against coronavirus. "If a traditional medicine product is found to be safe, efficacious and quality-assured," regional WHO director Prosper Tumusiime said, "WHO will recommend (it) for a fast-tracked, large-scale local manufacturing." This month, with millions of bottles of CVO still in stock — and still awaiting scientific support — Rajoelina opened PHARMALAGASY, Madagascar's first herbal medicine factory tasked with producing CVO and CVO+, the new capsule version of the herbal drink. It has already received congratulatory support from the nation's WHO representative. ■

Chanelle Adams is a multidisciplinary essayist, researcher, and translator. She completed a B.A. in Science and Technology Studies at Brown University with a focus on history of science and medical anthropology. In 2017, she was awarded a Franco-American Fulbright to research Madagascar plant medicine in the French colonial archives. Adams was a founding member and Managing Editor at Bluestockings Magazine. Her work on music, healing, and diaspora has been published by NPR, The Feminist Press, Bitch Media, and The Funambulist, among others. www.chanelleadams.info

UpS BOTANICAL SANCTUARY NETWORK MEMBERS

Arizona

Bean Tree Farm
Stardust Trail
Arkansas
Fire om Earth
California
California School of Herbal Studies
Dandelion Herbal Center
Five Winds Mountain
Education Center
Knowlton Farms
Motherland Botanical Sanctuary
Philo Pharm
Sacred Sanctuary of Rogue Valley

Colorado

Flying Dog Ranch
Morning Star Ranch
Three Leaf Farm
Wild Wind Ranch

Connecticut

Earth Remedies

Florida

Florida School of Holistic Living
Wallaby Ranch

Georgia

Rising Fawn Gardens
Riverbank Botanical Sanctuary
The Herb Crib
Two Creeks Farm

Illinois

Ataga'hi - "Lake of the Wounded"
Labyrinth Gardens
Luna Farm Herbal Gardens and
Botanical Sanctuary

Indiana

Buck Creek Sanctuary
Glastonbury Herb Sanctuary
Green Turtle Botanical Sanctuary

Iowa

Kathy Krezek Larson Tallgrass Prairie

Kansas

Sacred Mother Sanctuary
Vajra Farm

Kentucky

Resilient Roots
Sylvatica Forest Farm

Maine

Avena Botanicals
Betula Botanical Sanctuary
Herbminders of Maine
Phoenix Farms
Rogue Sanctuary
The Rare Seed
The Rare Seed Sanctuary

Maryland

Green Farmacy Garden
Maryland University of Integrative
Health (MUIH) Herb Garden

Massachusetts

Abbott Hollow Sanctuary
Bethel Botanicals
Brick Kiln Brook Preserve
Cedar Spring Herb Farm
Earthcrafts Botanicals
Native Earth Teaching Farm
Seven Arrows Farm
Singing Brook Farm
Temenos Retreat Center
White Buffalo Herbs

Michigan

Little House Farm
Seeds and Spores Family Farm
Windsong

Minnesota

Crandall Garden Farme
Mississippi
Hickory Heal Gardens

Missouri

Botanical Sanctuary - Augusta MO
Vintage Homesteader

Montana

Buck Mountain Ranch

Nebraska

Curious Roots Botanical Sanctuary
Red Road Herbs Retreat &
Learning Center

New Hampshire

Bee Fields Farm
Blackbird's Daughter Botanicals
D'Acres of New Hampshire
Dawn Land Sanctuary
Madala Way
Misty Meadows Herbal Center
Wise Way Wellness Center

New Jersey

Magic Mountain Gardens
Morning Sun Homestead

New York

Akron Rewilding Sanctuary
Atka's Garden: Sacred Warrior &
Wolf Conservation Center Sanctuary
Cat's Cross
Catskill Creek Native Plant Nursery
Hawthorn Way Botanical Sanctuary
Healing Wheel Sanctuary
Heartstone Sanctuary
Heartthrob Farm
Mab & Stoke Farm
Midsummer Farm
Perry Hill Farm
Plattsburgh Botanical Sanctuary
Shawangunk Ridge Farm
Shindagin Hollow Woodland
Silver Bough Farm
Taproot Farm
The Green Spiral Herbs
Wise Woman Center

UpS BOTANICAL SANCTUARY NETWORK MEMBERS (CON'T)

The Wellspring Valley
Weeds For Wellness LLC

Rhode Island

Farmacy Herbs Farm
Listening Tree Cooperative
Sagewood Herb Farm

Tennessee

Down to Earth Massage + Wellness
Eaton's Creek Farm
Genie's Dream
Hidden Treasure Herb Garden
High Garden School of Wholistic
Herbalism and Traditional Craft
MoonMaid Botanicals' Woodland
Medicinals Sanctuary
Pipsissewa Herbs/Cherokee
Medicine Woods
Saddleridge Sanctuary
Stomping Ground Homestead
The Spring House
Turtle Mountain Herbs

Texas

Cedar Ridge Farm
Wildflower Herb School

Vermont

Cold Spring Herbals
Fern Hill Nursery
Foodmedicine Farm
Green Mountain Druid School/
Dreamland
Locust Creek Haven for
Woodland Life
Martha Rabinowitz & Joe Earle
Morze Tree Farm
Sage Mountain
Singsong Sanctuary
Sweetwater Sanctuary
The Manitou Project
Three Springs Farm
Trifolium Farms LLC

Virginia

7 Acre Wood Farm
Bear Haven Medicinal & Native
Plant Sanctuary
CA & J Farm
Fonticello Food Forest
Forrest Green Farm
Green Comfort School of
Herbal Medicine
Heartmoor Farm
Hummingbird Hill Native
Plant Nursery
Ivy Forest School
Mill House Native Sanctuary
Sacred Plant Traditions
Sharondale Mushroom Farm
Soothing Herbals
Terra Vita Gardens
Trossachs Woodland
Sanctuary Gardens
Virginia Tech's Catawba
Sustainability Center
Walker Mountain Botanical Sanctuary
Wildcroft Hollow Botanical Sanctuary
Wind Song Sanctuary

Washington

Bastyr University Herb Garden
Cedar Mountain Medicinals
Dragonfly Medicinals
Highwoods Heaven Botanical
Sanctuary
Sacred Plant Sanctuary at Seattle
School of Body-Psychotherapy
Sweet Briar Herb Garden

West Virginia

Nettle Creek Botanicals
Sacred Roots Herbal Sanctuary
Smoke Camp Crafts
Spotted Horse Farm
Yew Mountain Center

Wisconsin

Bull Brook Keep
Lunar Hollow Farmette
Mequon Nature Preserve, Inc.
Peterman Brook Herb Farm
Wild Roots and Wings Sanctuary

Alberta

Senses of the Soul
Sanctuary and Farm

British Columbia

Stark Natural Herb Farm

New Brunswick

Indian Mountain Botanicals

Nova Scotia

Gaspereau Mountain Herb Farm
and Botanical Sanctuary
Harriet Irving Botanical Gardens
Herbalist Association of Nova Scotia

Ontario

Cailli Cnoc
Eden Hyll Botanical Sanctuary
Eden Hyll Botanical Sanctuary
Kina Gegoo Botanical Sanctuary
The Living Centre & Living
Arts Institute

Quebec

The Green Clinic: Herbal
and Traditional Healing
The Place Where the
White Pine Grows

RISING FAWN GARDENS BOTANICAL SANCTUARY

Lookout Mountain, Georgia

Sanctuary Stewards: Steve and Karen Persinger

Rising Fawn Gardens is a privately owned six-hundred-acre parcel located between the banks of Lookout Creek and the western slopes of Lookout Mountain in Dade County, Georgia. Stewards Steve and Karen Persinger have owned the land since 2007 and placed it in a Conservation Easement with the Georgia-Alabama Land Trust nearly five years ago. Home to numerous native and rare species, the land includes riparian, bottomland hardwood, and mountain ecosystems. Also present are community gathering spaces, hiking trails, abundant wildlife, and medicinal herb and vegetable gardens.

Thanks to a multi-generational family tradition of attending Auburn University, the Persinger's son was given the opportunity to work in the crop sciences garden and participate in turmeric (*Curcuma longa*) research during his time at the University. After this introduction and many seasons of trial and practice, turmeric is now one of the main crops at Rising Fawn Gardens, in addition to ginger (*Zingiber officinale*) and blueberries (*Vaccinium corymbosum*). Also grown at Rising Fawn Gardens are various medicinal and culinary herbs, which are dehydrated and used to make herbal tisanes. Rising Fawn Gardens is a living apothecary surrounded by plants, both cultivated and wild, that is dedicated to responsibly

cares for the land in a way that is not only sustainable but regenerative. Recently, the Persingers were invited by the University of Georgia to participate in a program led by the State Botanical Garden of Georgia that recruits private landowners for the conservation of native endangered species. *Silene regia*, royal catchfly, is the first plant to become hosted at Rising Fawn Gardens through this program.

Rising Fawn Gardens believes the earth gives us what we need to live, grow, and heal and that plants have the power to enhance our well-being and restore our health. Therefore, we are incredibly grateful to be a member of United Plant Savers' Botanical Sanctuary Network as we believe it will assist us in furthering our mission of educating the public about the importance of land stewardship and the conservation of native medicinal plant species. Rising Fawn Gardens hosts 7-10 guided programs per year, including scheduled medicinal garden tours from

June through October, guided wildflower walks with local botanists, tree identification hikes, and pollinator walks.

Please view our website at www.risingfawngardens.com, follow us on social media @risingfawngardens, and/or sign up for our newsletter to stay up to date on our programs and events. ■



Royal catchfly (*Silene regia*)



Ginger (*Zingiber officinale*) and turmeric (*Curcuma longa*)



Foam flower (*Tiarella cordifolia*)

WEEDS AND WEATHER— ADAPTING TO CLIMATE CHANGE—ADVICE FROM COMMON PLANTS

Native Earth Teaching Farm, Chilmark, MA
Sanctuary Steward: Rebecca Gilbert

I live on an island where the tides are always turning, and winds of change are born. The dynamic, elemental interaction between land and sea has always meant lots of weather, and islanders everywhere are known to be a tough lot. But as we continue to alter the ecology of the planet, we know that hurricanes and flooding are getting more erratic and destructive, and this trend is going to continue worsening. In other places, it may be fires, mudslides, droughts, tornados. We should all be a little scared, actually. When I get frightened, I like to repeat a comforting mantra to calm myself down. My favorite is: “When in danger or in doubt, run in panic, scream and shout!”

After that, it is best to consider what can realistically be done. I am inspired by other islanders, particularly the herbalist farmers at the Department of Food in Borinquen (which colonists called “Rich Port” or Puerto Rico). They got me started on this train of thought with their presentation about “Herbs and Hurricanes” at the most recent in person International Herb Symposium. And, of course, I am inspired by the common plants—or weeds—that have been some of my greatest friends and teachers in life. Plants are many millennia older than we animals, and they have a lot of experience with adaptation. One definition of a weed is a plant with very successful survival strategies. They have a lot to teach us.

The great advantage of the weedy, common herbs is that they can be found almost anywhere in significant amounts. If you find yourself sheltering in place during a storm or other crisis, it is useful to know a few first aid herbs. They are probably close by. Using herbs for first aid does not require you to be an herbalist. Two weeds, plantain (*Plantago* spp.) and yarrow (*Achilles millefolium*), applied externally by poulticing, are enough for a beginner. Both are common, easy to identify, and non-toxic. Of course, slapping on a few leaves will not be sufficient in most emergency medical situations, but the function of these herbs in first aid rests on their ability to prevent infections from setting in. Yarrow can help stop bleeding as well. There were so many trees down across our road after hurricane Bob (a very small and mild-mannered hurricane) that we would not have been able to access medical care or antibiotics for at least a week. That is long enough for infection to take hold and become systemic and difficult to treat. Had we or our farm animals been injured, first aid herbs could have been helpful and possibly even lifesaving.

Once a crisis has passed, damages have been evaluated, and injuries tended, our thoughts turn to the care and

comfort of the survivors. One immediate concern is food, and it is soothing to be able to look around and see plenty of edible plants nearby. A “mess of greens” goes well with everything and packs a nutritional punch. Also, a small, monotonous, yet important task is a good way to calm people of any age. Simple, necessary group tasks like picking edible greens are helpful in reducing panic and inertia and focus attention on survival and the immediate future during a time of confusion and loss.

Again, it is not necessary to be an expert forager and to know the Latin name of every plant you see. Learn two or three common and delicious weeds, and you will almost always have something to bring to the table. Which plants to focus on depends on what is common in your region—here, I’d recommend lamb’s quarters, plantain, and the amaranths and mustards.

It is possible but not likely that many of us will find ourselves in extreme survival situations in the near future. However, there is another gift the plants offer us which we can all utilize immediately. Beyond practical considerations like finding first aid and food, paying close attention to the natural world around us has other benefits that contribute to individual and group survival.

The mistaken concept that we humans are separate, conscious individuals acting upon an inanimate universe is completely out of touch with reality and is a big part of our society’s existential problems. Lack of awareness and lack of respect for the other lives blooming and buzzing around us have contributed to the heartless exploitation of the natural world and of the people who live close to it. It is because of the systemic warping of our concept of our place in the ecosystem that we find ourselves, and our progeny, facing a fate filled with storms, plagues, and undeniably powerful natural forces. It is a fate we have chosen and continue to choose for the most part.

Breaking free of such crippling misconceptions is aided and abetted by common plants. Careful observation reveals that they never thrive alone. Plants grow in community—with each other, with their pollinators, with the creatures who eat them, with the soil microbes and the mycelial web, and, if we only recognize it, with us.

In a study about how neighborhoods differed in their responses to disaster after Hurricane Katrina, the best survival outcomes were most strongly tied, not to ethnicity, education, or income, but to whether people knew their neighbors’ names. The more you know about the people, plants, and places around you, the more you will be able to work together when necessary to get everyone taken care of.

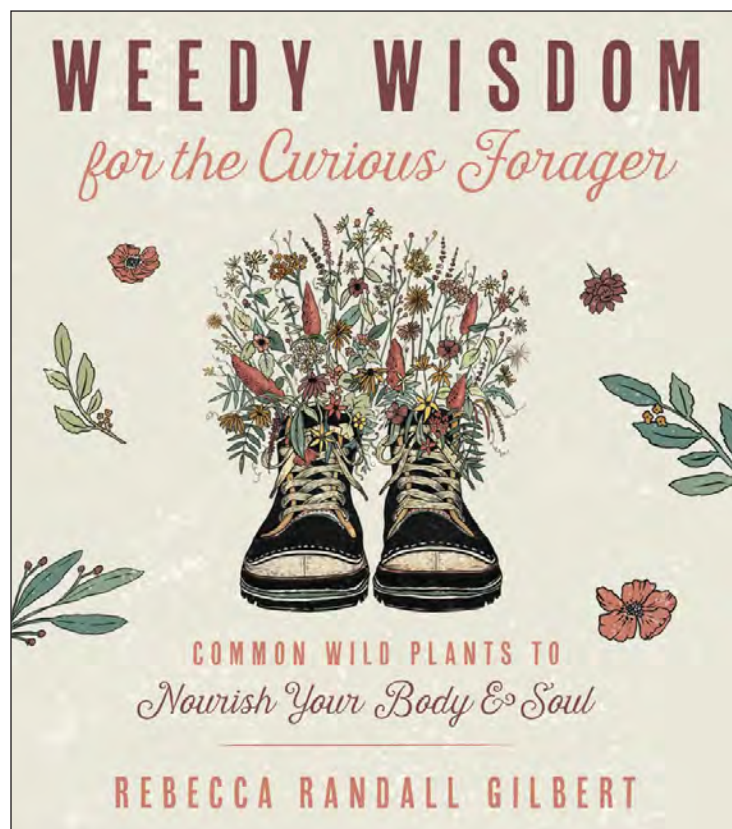
Do you know the names of people within walking distance of where you live? Are there kids who might get stranded without an adult, elders living alone, or people with mobility issues? And what if you need help? Do you know a nurse, a person who can fix a generator, or someone who will have food to share if the food stored in freezers begins to thaw? You cannot offer or

ask for help unless you already know these people. Have you and your neighbors developed the kinds of friendly, generous relationships that lead to mutual aid?

According to the plants, this kind of enmeshed, interconnected, diverse community building, or ecosystemic awareness, is a vital part of both individual and species health, enhancing the ability to adapt and survive and even thrive on the breakdown of the old and the constant recreation of reality that change requires. Diversity is essential to flexibility, allowing many options whenever it becomes necessary to evolve unexpectedly. We don't have to like or get along with everyone, but the denser and more diverse and complex our web of connectedness becomes, the better off we are.

I encourage you to invite some delicious healing weeds into your community circles. Don't wait for an emergency—these circles can be relied upon to enrich ordinary situations as well. Teach the children to put plantain on their own scrapes and bruises. (My grandma called it "the band-aid plant.") Bring a mess of wild greens to a potluck or family gathering. You and your community will be safer and more prepared for anything. And perhaps you will find, as I have, that these weeds are loyal, helpful, funny, and unquenchably optimistic—good friends to have whatever the weather. ■

Rebecca Gilbert is from Native Earth Farm in Chilmark, Massachusetts where they raise the best tasting and healthiest foods and garden plants that they possibly can. At their teaching farm they conduct classes, demonstrate farm crafts, give tours, and host a thriving community garden. www.nativeearthteachingfarm.org



I GOT SEEDS

*A parody to the tune of
THE ONE THAT I WANT from GREASE*

I got seeds, they're multiplying
And I'm losing control
'Cause it's just so satisfying
This stratifying...

You better come up
'Cause I need a plant
And my heart is set on you
You better come up
Help me understand
All the things that I must do
Which green manure is best for you...ooo ooo ooh

You're mullein that I want (the nervine I want)
Tincture, tea, and honey
Mullein that I want (not from by the railroad)
Ooh, ooh, gonna cost me money
The one that I want (gonna nix this cough)
Oooh, cough, oooh

Stinging nettles I need (you ain't no weed)
Won't grow from seed (yes, indeed)

If you're foraging with trepidation
Show you're too smart to taste
Point that plant app in my direction
Feel your way (spoken: is this basal rosette fuzzy?)

I better shape up
'Cause I need a plant
Who can keep me demulsified
I better soil block
If I'm gonna prove
That my faith is justified

Are you sure you're in there?
Yes, I'm here! Down deep inside!

Yarrow one that I want (yarrow, yes I want)
Tea, tincture, and honey
Yarrow one I want (what about mallow)
Ooh, mallow, take my money
Yarrow that I want (here's some foxglove)
Ooooh, oooh, no not you

And then oats I need (to start from seed)
Oh, yes indeed (no need to weed)

Blue vervain that I want (or maybe cohosh)
Ooh, ooh, ooh, honeybees
Mimosa I want (make me one too)
Ooh, the other one, honey
All the stems that I want (so many to cut)
Ooh roots, too, oooh
(fades) Yes, that's one I want...

by Wendy Welch
www.wendy-welch.com

ROBERT EIDUS: GINSENG FARMER

Profile for The Smithsonian Center for Folklife and Cultural Heritage

by Kate Farley

Robert Eidus is an avid American ginseng grower and educator who owns and operates Eagle Feather Organic Farm. To cultivate the next generation of responsible forest farmers, he also hosts classes, workshops, a radio show, and serves as president of the North Carolina Ginseng Association.

“It seems like with the environment, everyone’s up on trees and animals and insects and butterflies. But the plants are just not really defended at all.”

Robert Eidus considers his life’s purpose defending Appalachia’s wild woodland medicinal plants—plants like trillium, goldenseal, and especially American ginseng. At Eagle Feather Organic Farm, a medicinal plant nursery nestled in a mountain hollow north of Marshall, North Carolina, Eidus propagates a wide variety of medicinal herbs that he offers for sale and prepares into medicinal tinctures and capsules.

The heart and soul of Eidus’s work is American ginseng. Eidus got a later start in ginseng compared to many other growers and dealers. His first career was in real estate in Raleigh, North Carolina, but he grew frustrated with the business and yearned for a job that would be more physical and enable him to cultivate a deeper connection with the natural world.

“Whether it was a dream or a vision or whatever, I thought that I had this conversation with Grandfather Ginseng about being a person who could advocate for the plants. And that was kind of it.” In the early 1990s, Eidus built a house on the property that is now Eagle Feather Farm and began to seek prominent herbalists and experts in plant lore to help him learn how to steward the plants. Eventually, he settled on the technique of “wild simulation,” wherein the plant grows organically in a forest plot that mimics ginseng’s natural habitat.

Although the Eagle Feather Organic Farm is not always easy to locate, many people find their way to make purchases, take classes, and tour the grounds, led by Robert Eidus. Photo by Betty Belanus, Ralph Rinzler Folklife Archives

Eidus is also a registered ginseng dealer and occasionally buys wild plants to process into medicine. However, he will buy ginseng only from those who harvest ginseng responsibly. Eidus promotes responsibility among other ginseng farmers, and encourages them not to use chemicals, which he believes poison the plants. He seeks to cultivate the skills of others through site visits, phone consultations, and workshops, as well as information



Robert Eidus at Eagle Feather Farm in Marshall, NC

made available through his website and local radio program.

As president of the North Carolina Ginseng Association (NCGA), Eidus supports sustainable ginseng growing and harvesting even further. He has used the NCGA to build community among younger, newer ginseng growers in North Carolina. The NCGA also advocates for state-level policies in North Carolina that incentivize organic ginseng growing and preserve wild populations.

Robert Eidus wears many hats, from consultant to association president, but above all he is a champion of ginseng stewardship and intends to see the plant thrive for many generations to come.

As of this printing, Mr Eidus would like to let our readers know that his farm is for sale in North Carolina. ■



*To read more featured profiles on diverse people who share a passion for ginseng, visit the Smithsonian folklife website!
<https://folklife.si.edu/american-ginseng>*

DEEP ECOLOGY ARTIST FELLOWSHIP PROGRAM

Deep ecology is an ecological and environmental philosophy promoting the inherent worth of living beings regardless of their instrumental utility to human needs, plus a radical restructuring of modern human societies in accordance with such ideas. Deep ecology argues that the natural world is a subtle balance of complex inter-relationships in which the existence of organisms is dependent on the existence of others within ecosystems. Human interference with or destruction of the natural world poses a threat therefore not only to humans, but to all organisms constituting the natural order.

2022 Deep Ecology Artist Fellows

Celeste Amparo Pfau – Alabama

Visual Artist – Mixed media
Instagram: @amparo_creative_house

Cheryl Durgans – Ohio

Visual Artist – Mixed Media

Clara Haizlett – West Virginia

Videographer, Plant Journalist
Instagram: @clarahazlett

Danica Marsh – Oregon

Visual Artist – Mixed media

Delilah Miske – Pennsylvania

Visual Artist – Mixed Media
Instagram: @adapt.tarot

Gabriella Ceberville – Michigan

Visual Artist – Photographer, Writer, Mycologist

Grant Adams – Colorado

Visual Artist – Painter, writer

Heather Wood Buzzard – North Carolina

Writer, herbalist

Katherine Ziff – Ohio

Visual Artist – Painter, flower essences
Instagram: @briarwoodstudiosfloweressences

Marie Despres – Massachusetts

Visual Artist – Painter, weaver

Nina Lawrin – Michigan

Visual Artist – Ethnobotanist
Instagram: @lovern_collections

Ryan Eilbeck – Ohio

Musician, Writer
naturalsway.bandcamp.com

Sarah Greenman – Oregon

Visual Artist – Creative Alchemist, painter
Instagram: @sarah.greenman.creative

Shay Clanton – Virginia

Visual Artist – Watercolor

Nastassja Noell – Southern Appalachians,
Cherokee Territory

Visual artist – Lichenologist
Instagram: @beinglichen

Sara Riegler – Vermont

Visual Artist, Mixed Media
www.saraelenariegler.com

MESSAGE IN A DREAM

by Julia Orquera Bianco

Then, Mugwort whispered:

“The love you sought elsewhere
- seemingly so long ago -
you found in the rain falling,
in the soil opening up to welcome the sprout,
in the flower and her mission of sharing.

“In your cats’ eyes.

In the sourdough bread, the Mushroom Medicine, and
the warmth of your neighbor’s smile.

“In every leaf of every plant
and every branch of every tree.

In this Land, who held your heart when it broke open and
bathed the tiny ants with your tears when the pain was
overbearing and omniscient.

“Seemingly - so long ago.

“The love you had to give
was poured into cooking,
and in singing to the Sacred Birds
- your spirit companions -
to care and to comfort yourself and others.

“Shared through joy and laughter with dear friends,
dearer by the day,
given generously in shapes and colors that became this art;

“Offered in nursing, growing and chanting to the plants,
your ultimate soulmates.

“The love you dreamed of is already here.
It has always been, it will always be.
It’s never reduced to a person or a thing;
our hearts are meant to hold and to give so much more
than that.

“The love of your life is the love
that you give, and the love that you receive throughout
your passing

- like a traveling cloud leaving flakes behind,
filling herself with the sun -

on this Earth.”

www.juliaobianco.com



Spore prints process

UpS ARTIST RESIDENCY

By Jessica Maffia

My two-week artist residency at UpS in the middle of the summer of 2021 could not have come at a better time. I had been working on a large-scale semi-sculptural permanent outdoor mural installation for the Audubon Society's Audubon Mural Project back in New York City, and it was driving me mad. I had proposed an ambitious agenda that involved a host of processes that were new to me including cement casting, mosaic-making, and mural painting. I was halfway done with fabrication and feeling stuck with the design. Two weeks away from the city, away from the project, were exactly what I needed to reset.

I arrived at the sanctuary with no agenda other than to slow down and listen to the forest. I was overcome with gratitude for the gift of quiet, solitude, and unfettered time to learn from and connect with the plants. On my first full day at the residency, Chip took me and two very special, incredibly botanically-knowledgeable volunteers out on an ID walk. It was a marvelous introduction to the woods. I learned the names of the medicinal plants as well as trees, fungi, and more. One of the women on the walk brought up mushroom spore prints, and I was immediately enthralled with the idea. That very day I went home and made my first spore print. I let it sit overnight and the next morning was astounded by the magical work of art that the fruiting body of the mycelium had left behind! Everyday afterwards, I collected a small sampling of mushrooms and attempted to make spore prints.

During that first day's ID walk, Chip mentioned that the terminal leaf of the pawpaw tree was historically used to paint. I was delighted by the idea and spent many days

painting on fallen leaves with a pawpaw paintbrush.

Having recently finished the autobiography of Suzanne Simard, I was wildly enthusiastic about mycelium and mycorrhizal networks—those underground communication and nutrient transport networks that link fungi and trees and yield forest intelligence. I got the idea to paint a representation of the spore print of the various fungi in mycorrhizal association with each of the native trees of New York City onto the leaves themselves. This is a project that I have temporarily shelved but am eager to resume.

Early on in my stay, another phenomenon that caught my attention was the beauty and delicacy of the leaves that were partially eaten by insects. They created a lace-like, intricate design that I felt compelled to recreate by hand-cutting paper. In the process of cutting, I accidentally discovered the magic of shining light through the cut leaves. That same day, I was serendipitously introduced to the Japanese word *komorebi*, for which we do not have a direct translation in English, but which roughly means "sunlight leaking through trees." I look forward to pursuing my investigations into *komorebi* and the shadows produced by these lace leaves as well.

It is now winter here in New York, and I hold the memory of being alone on the 400-acre sanctuary forest close in my heart. The magic of UpS will stay with me for a long time to come. ■

Jessica Maffia is a visual artist born and raised in New York City. She works across a wide variety of media to celebrate the familiar and honor the natural world of the city, through repetitive, meditative processes. You can see more of her work at www.jessicamaffia.com.

IF YOU LISTEN... NOTES FROM A UNITED PLANT SAVERS DEEP ECOLOGY ARTIST FELLOWSHIP

By Katherine Ziff, PhD

"If you listen, they will teach you." That is what the United Plant Savers sticker on the front of my notebook says about the plants. And it is true.

February of this year brought my second Deep Ecology Artist Fellowship at the UpS Botanical Sanctuary in Rutland, Ohio, 23 miles south of my home. The first fellowship was in 2017, and I spent most of my time with the prairie area and up on the Sanctuary's Reclaim Trail. This time I went to the forest.

Arriving for my first visit I worried about whether I would be able to walk the trails and cover much ground at all. For several months a tendon injury had kept me from walking any substantial distance, and I wondered if I would make it up the hill to reach the woods. But I did, and by the end of February, I was walking the Medicine Trail with ease in its entirety, hills and all.

The process unfolded in a spiral of walking, noticing, listening, perceiving, wondering, writing, distilling the writing into learning, and walking some more. Art making and library research deepened the process. I brought along my not-quite-filled field notebook from 2017, writing in it when I stopped to eat my lunch and at the end of the day. I made a journal in which to organize and distill the field notes and make drawings, hand printing the cover and endpapers with botanical material harvested from the Sanctuary. And then I stitched the whole thing together with linen thread and made a pocket in the back cover to hold extra research materials. The following are excerpts from this journal along with wisdom from the plants.

Week One: Standing up at the forest edge by the yurt, so quiet. A silence. Slowly I begin to hear faint sounds: a melting icicle drips, birds chirp and cheep, way in the distance a rooster crows. Quiet. Peace. My shoulders drop. Remembering that greenbrier (*Smilax rotundifolia*) grows here, I searched for a few minutes to no avail. Back down and now I am over by the pond, having fetched a folding chair from the Gazebo where I sit in the snow

and listen, be, observe. Reverting to analog time with a wristwatch. In the distance a train makes a slow semi-circle around going north from the Ohio River up and around. I wonder about the train. Would I have heard it here a hundred years ago?¹ Before me, a gray-black-brown hillside of trees with snow that in the shadows is deep violet turning to white in the sun. A slower, less exact time...birds call softly, melting snow drips. I eat my lunch (hot soup in a thermos) sitting next to "Young Sycamore" according to the sign marking the presence of this forest being growing out in the open sun.

From Young Sycamore: Welcome back. Come again and rest with us here. Rest, learn, rest.

I sit awhile, resting in the sun and then walk up to the entrance to the Medicine Trail. There I come upon greenbrier, a little starter vine with three green leaves, only eight inches or so tall. Nodding and shimmying in the breeze. Bending and dipping and waving, the happy sight of a seemingly energetic little plant dancing in the snow. Continuing on a few paces I notice Eastern red cedar (*Juniperus virginiana*) trees on the sunny side of the trail and wonder about clipping a small branch or two to take home to my studio.² As I walk past, cedar brushes my face: a Grandmother cedar, she is tall, old, full, and bent. She takes me back to my childhood in North Carolina, of cedars growing in abandoned fields and of our prickly cedar Christmas trees. Never an elegant balsam from the mountains, always a local cedar. My father used to split cedar logs into beautiful kindling

and brought my husband and me boxfuls to make our fires. Warmth, home, a welcome from cedar.

Week Two: Lots of snow. Everything is frozen, but beneath the ice the creek flows and the springs trickles. Up on the Medicine Trail—sounds: creek rushes, spring trickles, water sounds, rattle of dry beech leaves still on the trees. The wind comes through the treetops—far away, and now it is here. I look for the little dancing greenbrier, searching, but do not see it. Maybe the snow and ice got the little plant. Perching on a fallen tree, I eat my lunch. Halfway through the hot soup I notice, right by the trail in front of me, a greenbrier vine growing all around and with berries! For several years I have searched to find one with berries, and here it is. And walking back, about to step off the Medicine Trail, there at my feet is the little dancing greenbrier, waving and shimmying.



Medicine Trail Entrance, photo by Katherine Ziff



Juniperus virginiana Monotype by Katherine Ziff

From *Smilax rotundifolia*: Whatever you are searching for, you won't find it by hunting. It will appear, unbidden and in its own time, for you. And it will be all the more delightful this way.

Week Three: The snow has melted, water everywhere—the creek rushes, a spring trickles. And wind. On the Medicine Trail I hear it first from the far side of the ridge. Then the rattle of the dry beech leaves still on the trees, pale golden tan in the sun. The leaves on the ground skitter and rustle. I hear a constant quiet roar all around and seemingly behind the ridge in front of me where I sit on the fallen tree for lunch with greenbrier. The roar of the wind travels and circles like last week's train. A ghost train maybe. I wonder, Was the Underground Railroad active in this area?¹ A lone beech leaf vibrates furiously in the wind. A big whoosh of wind comes through, everything all at once from the ground to the treetops. Flutter, rattle, whoosh, big waves of whoosh. Behind and underneath it all the roar of the wind undulates and travels around me where I sit. I look up at the trees cautiously. It is warm sitting here in a patch of sunlight. The wind roars, branches creak and groan. I get up and move along on the Medicine Trail. Rounding a turn in the trail I am in the heart of the beech forest. Peaceful, sunlit, big, strong, American beech trees. I hear the low roar now right above me, louder, and the clatter and brushing of the high branches. From across the creek a loud CRACK. Was it a rifle? A minute later—CRACK and a crashing of branches through the trees and then a tremendous thundering THUD. A big tree falls to the ground way up the ridge on the other side of Main Hollow Creek. I keep moving and complete this circuit of the Medicine Trail. Sitting at a picnic table by the Yurt, I reflect on how moving it is to witness the moment when the enormous body of such a being as a tree falls. I feel I now know something of why tree sitters do as they do. And I ask the trees: What can we do?

my soup in its thermos. Perched on a fallen tree and had to wrap my left arm around a 3' young Beech (a Beechlet). I ate lunch embracing the little tree - otherwise it insistently poked me in the side. So many Beech trees. About halfway through my soup I notice just to the side, the trail in front of me was Smilax growing all around, and with blue berries! For several years I have looked + searched for Smilax with berries and here it is. Pretty sure it's Smilax. I clipped a strand, having asked at the office for permission + saw a dried leaf attached to the strand + wire. It did not look like a Smilax leaf. Unfolding the leaf I saw that it was Beech, entangled in a curlique to the wire! Turning around here + walking back I spotted more Smilax - small on the ground not in the air. And reaching the end - the trail left - when I was not searching - there was the little, dancing Smilax, waving + shimmying.

Lesson from Smilax:

"You won't find it by hunting. It will appear, unbidden, in its own time, for you. And it will be all the more delightful this way."

Bringing fresh plant material into my studio brings the presence of the Sanctuary, the landscape, the plants. Fills the space with this palpable presence of Nature. Combining a green, a real presence of Eastern Red Cedar, who touched my cheek with a familiarity + companionship from a Grandmother Cedar Tree. And Smilax rotundifolia. With

- Eastern Red Cedar
- Juniperus virginiana
- also known as
- Pencil cedar + Virginia Juniper

semi-blind contour drawing of Smilax • 20 FEB 2022

Smilax rotundifolia
Also known as:
Horsebrier, Common
cat brier, Common Green brier
Roundleaf greenbrier

JOURNAL PAGE WITH SEMI-BLIND CONTOUR DRAWING OF SMILAX

The Trees: We are afraid for our tree friends. As we connect with them, there is much fear in which their wisdom becomes entangled, and they can no longer transmit this wisdom to their young brethren or to each other or to anyone who chooses to listen. They are absorbing fear from the planet. We fear for the young trees that struggle to take hold. As you—humans—send us care and strength, we pass it on to where it is needed. It matters not which trees you choose to illuminate with your care. We receive and pass it along, each tree according to their connections.

Week Four: Warm, sunny, a breeze. I open the car door and step into quiet, peace. My shoulders drop, and I inhale the smell of fresh grass and damp earth. Heading out the Medicine Trail, clockwise from the Yurt this time, I have lunch on a log next to Pignut hickory (*Carya glabra*), a big one. A bird's trills continue for a good while. The big creek burbles busily, and the spring trickles; there is plenty of water. The wind shifts and rustles the treetops a little. Quiet. Lunch of toasted cheese and soup with this old Pignut hickory that holds many years of history. The fallen tree I sit on also holds history and tree wisdom. I imagine as it slowly disintegrates, it sends this wisdom into the soil creating soil wisdom. I continue on the trail, across the creek, up through the beech woods, past my lunch spot with greenbrier. Then a Barred owl calls out twice, from the east out over the Reclaim Trail: "Hoo hoo hoooo hoooo." And from the west comes a faint reply, "Who Cooks for You." My mother taught me the Barred owl call this way. Two owls calling to each other at midday—could there be a more magical way of ending this February's time in the woods at United Plant Savers? Heading back and feeling somewhat spent, I sit in the sun on a large flat rock embedded in the ground. Looking around I see greenbrier, bringing one more message:

There is no need to travel far and wide to find the Heart of Nature. It is always at your feet and right above your head. Once you make such a connection as is found here in this forest it will remain always in your heart, for that is where Nature resides. ■

1. A century ago, a person collecting medicinal plant material in Paynes Woods (as the Sanctuary lands used to be called) would have heard the train running along the route that it does today: from south of the Sanctuary at the Ohio River, up to Rutland, and then on upward to the west of the Sanctuary toward Albany, Athens, and points beyond. This line opened for passengers and freight in 1870. Rutland received its first railroad depot in 1886; painted olive green, it had three rooms. Edgar Ervin's (1950) *Pioneer History of Meigs County* notes that the freight room was interesting with a variety of articles such as baby chickens, furniture, produce, and an occasional "occupied" coffin. The last passenger train left this depot in 1951, and the freight line continues. (Jordan Pickens, *Pomeroy Daily Sentinel*, 9 January 2019).
2. With an okay from the UpS office I clipped a few small branches from Grandmother cedar. Fresh plant material in my studio at home brings the presence of the plants and landscape of the Sanctuary and fills the space with a palpable presence of Nature.
3. Rutland, just a few miles from the Sanctuary, was known as a station on the Underground Railroad. Those traveling from Pomeroy where they had crossed the Ohio River were met, hidden, and transported north via "by-roads, paths, across lots and ways known only to pioneers and hunters" to Albany and from there northward. (A Letter from Mrs. C. Grant, Pomeroy, Meigs County, Ohio August 28, 1884. In *The Underground Railroad - Gallia and Meigs Counties*, Part 1. By Lorna Hart for the *Pomeroy Daily Sentinel*, 26 February 2021.)

United Plant Savers Botanical Sanctuary

THE RECLAIM TRAIL

∞ Rutland, OH ∞

Funded in 2016 by an Ohio EPA Environmental Education Fund Grant, the Reclaim Trail guides hikers through the story of past land use and its consequences, current restoration efforts both intentional and natural, and how the power of sanctuary can heal the land and spread biodiversity.



United Plant Savers Center for Medicinal Plant Conservation
Original artwork by Philippe Grenade XIV

THE COMPLETE GUIDE TO
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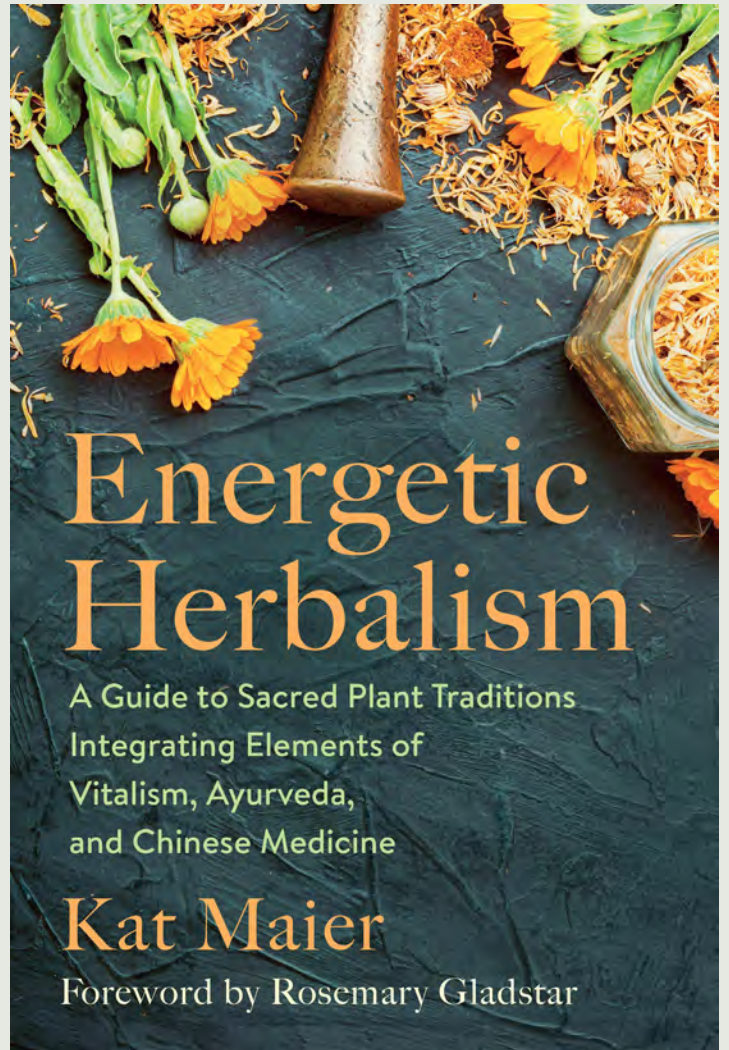
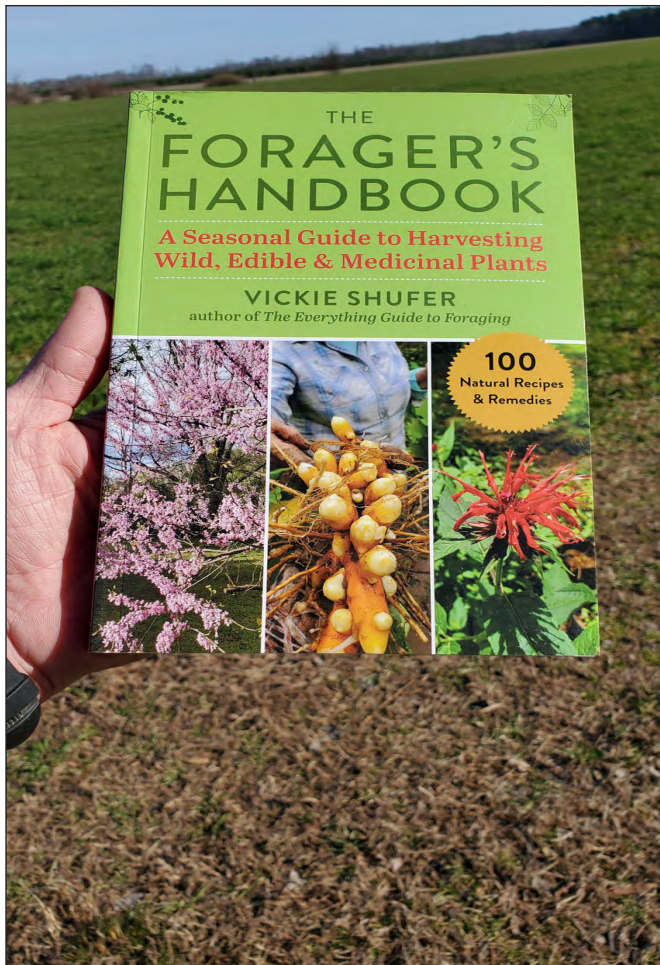
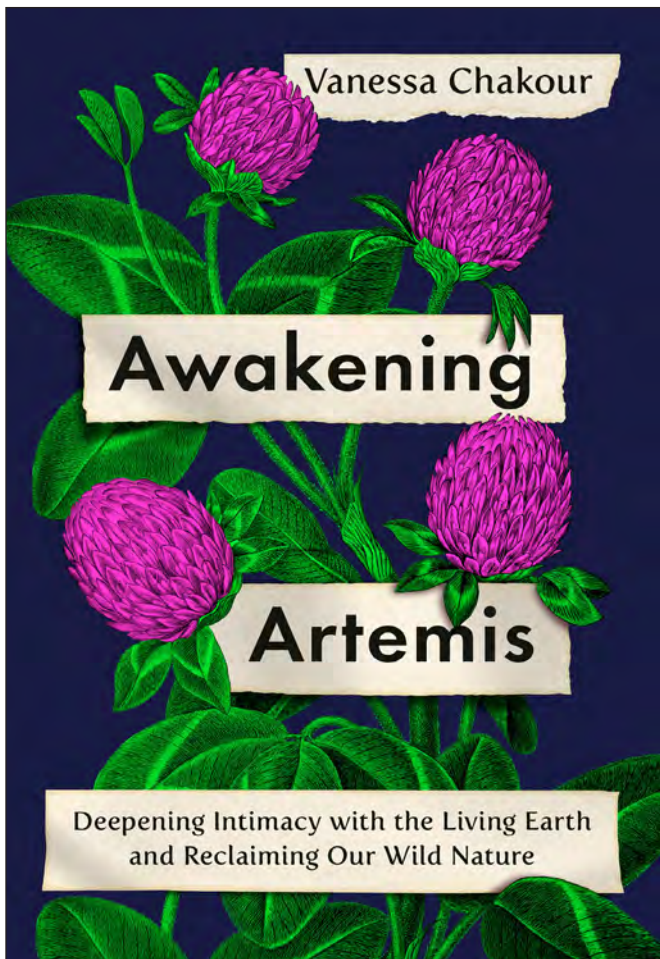
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Energetic Herbalism: A Guide to Sacred Plant Traditions Integrating Elements of Ayurveda, Vitalism, and Chinese Medicine by Kat Maier (Chelsea Green Publishing, November 2021) is an indispensable new resource for both the home apothecary and clinical practitioners that brings alive the elemental relationships among traditional healing practices, ecological stewardship, and the sacredness of essential plant medicines. Including profiles of 25 essential healing herbs, along with simple practices and recipes, "Energetic Herbalism" is a user-friendly guide for those seeking the best natural, holistic health care for themselves and their family. Foreword by Rosemary Gladstar.

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ADAPT TAROT
by Delilah Miske

Adapt tarot was created from self-healing art practice to study tarot. I found many parallels between the world of tarot and medicinal herbs and included a variety of plants in the card imagery. For the death card, I used underworld plants such as foxglove. It's exciting when two parts of myself can meet in an art project, and although herbs were not the focus here they still chose to show up in ways to help heal others.

Limited 2nd Edition Available for Pre-Order Now

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▲ The Herbal Womb Wisdom Podcast

Curious about herbal and holistic approaches to womb wellness? No matter what phase of life you are in, or what you've been told is - or isn't - possible, if it's related to your wombspace, it's covered here. Clinical herbalist and integrative health educator Kay'aleya Hunnybee will guide you through a range of topics by combining traditional wisdom, embodied practice, and modern science. With her years of experience as an herbalist and history as a student midwife, doula, and massage therapist, she brings a broadly integrative perspective. Expect inspiration, stories, research, some interviews, plenty of plant talk, occasional humor, a whole lot of being real, and a compassionate heart.

▲ Sipping Teas & Hugging Trees Podcast

Ever wanted to feel more at home when outside or long for a larger community? We are missing out on a huge part of our family, and it's time we get to know them a little better - the Wildlings. Join Joel and Leah Larabell {creators of High Garden Tea} as they carry on lighthearted conversations about different neighbors in nature and how we can welcome them into our daily lives. They'll be teaching herbalism, talking wild foods, meeting animals, sharing nature connection, ecotherapy and forest conservation tips, all the while sipping on tea and inviting you in for a cup. So be warned, this may lead to chronic actual tree hugging.

How's It Growin'? - Your Weekly Gardening Connection ▶

A radio show (and now website Podcast) hosted by Bob Henrickson, with the Nebraska Statewide Arboretum, on KZUM, 89.3 FM, Lincoln, NE.

Barbara Salvatore is a monthly guest for the "Plant Stories, Life Medicines" series, which focuses on the traditional, folk, food, and medicinal uses of wild and cultivated plants and trees

<https://www.bighorsewoman.com/event/category/KZUM+PODCAST>



PARTNERS IN EDUCATION (PIE)

United Plant Savers Partners in Education program is designed to enrich school programming and students' education through instilling awareness and ethics in regards to the conservation of our native medicinal plants. Schools and apprenticeship programs that have enrolled in the Partners in Education program have provided their students the opportunity to receive all of the benefits of membership at a discounted 'student-friendly' price. These schools and programs are also given educational

resources and curricular support as well as provided the opportunity to promote classes and workshops on our website and social media channels. For more information about our Partners in Education program, please visit www.unitedplantsavers.org/pie-membership.

United Plant Savers holds a special place in our heart for our Partners in Education Schools and would like to **thank our participating schools and programs:**

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2022 ANNUAL MEDICINAL PLANT CONSERVATION AWARD

— Recipients —

ROSE RAMIREZ AND DEBORAH SMALL

Submitted by Susan Leopold

When I first started reading about arrests for harvesting white sage in the Etiwanda Preserve, it led me down a path to try and understand what was really happening. I traveled to the Etiwanda Preserve and reached out to various people. Two people who provided valuable insight were Rose Ramirez (Chumash/Yaqui), passionate native plant gardener, basket weaver, and photographer, and Deborah Small, artist, photographer, and professor at the School of Arts at California State University in San Marcos. Rose and Deborah are also co-authors of *Ethnobotany Project: Contemporary Uses of Native Plants*.

Over the last few years, I have seen how they gathered their communities, working on developing valuable partnerships with activists and the California Native Plant Society. All this work has culminated in an incredible web page on the California Native Plant Society's website. Their "Saging the World" page (www.cnps.org/conservation/white-sage) presents in-depth information on the white sage trade and its impact. "Saging the World" is about supporting an indigenous-led effort to safeguard white sage. Earth Day 2022 was the premiere of a short documentary that Rose and Deborah brought to fruition as co-directors along with David Bryant.

The film is incredibly well done and visually captures the people and their interconnected relationship with the land. It can be so challenging to advocate for plants that are facing a changing environment compounded by the trending demand in the marketplace. This brings into question the management of wild places, enforcement,



Ethnobotany Project by Rose Ramirez and Deborah Small
deborahsmall.wordpress.com

and legalities from increasing pressures of online marketing and popularized trends. The movie had my head spinning with the insight into not just what was taking place in California, but in Mexico as well.

It is with a humble heart and deep gratitude that we award Rose Ramirez and Deborah Small the Medicinal Plant Conservation Award for 2021. They are trailblazers in uniting the California Native Plant Society, the indigenous peoples of land, activists, and legislators on how we can create impactful change.

Stay tuned as this campaign is just emerging. We have work to do! I see "Saging the World" as a model for meaningful engagement in how we think about culturally significant plants and shift our perspectives.

What can you do? Share this work with your community. If you go to a store where they are selling sage, kindly ask them to watch this film. Thank you to Rose and Deborah and all involved in the creative way this work is being communicated to the world. ■



SAGING THE WORLD



"I ask everybody to learn about the sage...before thinking that taking a match or a lighter to it is the way to go."

—Nick Rocha, Gabrieliño-Shoshone

A film by
Rose Ramirez
Deborah Small
The California Native Plant Society

Directed by
Rose Ramirez
Deborah Small
David Bryant



cnps.org/sagingtheworld

Photo: Kimberly Morales Johnson, Gabrieliño-Tongva

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BILL CHIOFFI

Thirty-one years ago I took a job as an Herb Buyer for Bread and Circus in Brighton, MA. One of my first tasks was to set up the bulk herb section for the store. Through that process, I engaged with Frontier Co-Operative and learned about the various pricing and supply of the culinary and medicinal herbs and was introduced to United Plant Savers and have been a member ever since. My career has taken me across the globe in search of sustainable supplies of medicinal plants and their products. It is imperative that if we want any supply of medicinal plants at all for the foreseeable future, cultivation, conservation and education about those plants are absolutely necessary. I consider the work that I do to support the Mission of UpS “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” of primary importance in giving back to the community of plants that has provided so selflessly for all of us in more ways than can be counted.



BEVIN CLARE

Bevin Clare is a professor at the Maryland University of Integrative Health and the program director of the MS in Clinical Herbal Medicine program. A strong belief in the power of plants for food, medicine, and companionship and the importance of human stewardship in their preservation have given her the opportunity to serve on the UpS board for many years. Bevin holds a MSc in Infectious Disease from the London School of Hygiene and Tropical Medicine and has studied herbal medicine around the world. She is the author of *Spice Apothecary* (Storey Books, 2020). Bevin enjoys interacting with her students online as she wanders the globe with her two kiddos. You can find her musings at www.bevinclare.com and on Facebook and Instagram @spice.herb.wander



ALICIA COOK

Wolf Clan of the Kanienkehaka Nation, Mohawk

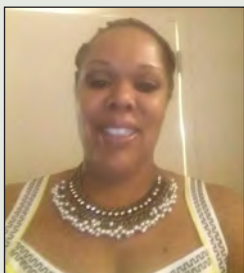
LPN, Master of Traditional medicine, has recently taken a new position with the Mohawk Council of Akwesasne Kononkwaseri:io (to make good medicine) Health Facility under the Traditional Medicines Program as a Traditional Medicine Specialist and continues to maintain her own small apothecary called Canoe Woman Herbs.

“Our cultural perspectives of reciprocity are the key to maintaining balance while we walk on Mother Earth. If we need something, we are to harvest only what we need and never pick the first plant. We offer tobacco and give words of gratitude for the plants.”

Raised off the lands, I have always held respect for traditional plants. When I first learned about United Plant Savers about 10 years ago I found most of our traditional medicines are on the critical or endangered list with United Plant Savers and this has been a game changer for me.

I now have integrated this knowledge within community and instill the education of preservation – focusing on transference of this knowledge to the younger generation. We now encourage them to not only offer tobacco when harvesting plants but to somehow give back, by spreading seeds or propagating and reentering those medicines back into the forests.

I give my thanks and greetings to all who mind the medicines.



RUBY DANIELS

Ruby D. comes from a creative and inventive family who were enslaved in Virginia and moved to the Southern coalfields of West Virginia to build a new life after emancipation. Ruby Daniels (“Ruby D”) refers to her heritage as “Afro-lachian.” She spent many childhood summers in Beckley with her great aunts and grandmother, learning about African American traditions, spirituality, native plants, agriculture, and herbal remedies. This motivated her to start experimenting with plants on her own and later form her business, Creasy Jane’s, named after her great-grandmother, Creasy Jane Pack. After earning her Master’s in Therapeutic Herbalism she returned to Beckley, where she works for NRCS and West Virginia Forest Farming Initiative. Her business, Creasy Jane’s, offers custom-made herbal teas and tinctures, herbal soaps, and other topical herbal remedies. Ruby’s mission is to change the narrative of African American relationships to woodland botanicals and educate others of the herbal traditions and practices African Americans have had with plants and the forest.



LONNIE GALT-THEIS

Growing up spending most of her time outdoors in the beautiful foothills of southeast Ohio, Lonnie developed a deep love and respect for nature. With herbalist and woodsman Paul Strauss as her stepfather, she learned about many of the At-Risk medicinal herbs of the forest and fields at a young age. Her first memories of the UpS Botanical Sanctuary begin with frolicking in the woods and connecting to plants and animals as Paul and Dr. Jan Salick conducted the inaugural Goldenseal (*Hydrastis canadensis*) research on the property in the 90s. Today, Lonnie is the co-owner and manager of Equinox Botanicals, an ecologically conscious herbal products company, and stewards the Equinox Botanical Sanctuary and Farm where she does everything from gardening, forest farming, and making medicine. Through her experience, she has learned what it takes to run a sustainable and ethical herbal products business and wants to be an example for others who are interested in pursuing careers in the herbal products industry in an earth honoring way. She also teaches yoga, hosts retreats, and is the owner and manager of Sassafras Camp, an outdoor nature and arts experience for children. Her greatest passion is teaching about plants and nature and guiding experiences that deepen a connection to the surrounding environment and local ecology. In a world with so much environmental destruction and lack of respect for the plants and natural world, Lonnie is passionate about her work with United Plant Savers and sees it as one way of helping create change in the herbal products industry and world.



ELEANOR KUNTZ

Geneticist, Environmentalist, Entrepreneur, Cannabis Advocate

Eleanor Kuntz, PhD, is a trained herbalist and entrepreneur who is bridging the gap between traditional herbalism and modern science. Eleanor works with plant genetics to design and implement Best Agricultural Practices for improving medicinal qualities and implementing responsible raw ingredient choices to mitigate supply chain risk for natural product companies. As a U.S. Forest Service volunteer, Kuntz researches plant population demographics and dispersal dynamics to develop guidelines for sustainable wild collection and permitting regulations in southeastern native plant populations.

Devoted to honoring the benefits of plant-based medicine, enhancing our connection to the wild world around us, and deepening our understanding of the relationship between plant, ecosystem and planet, Eleanor recently merged her two plant passions by cofounding LeafWorks Inc., a botanical verification company using genetics to improve medicinal quality, sustainability and transparency in the supply chain for the best possible plant experience. She is also co-founder of Canndor, the People's Herbarium, the first herbarium committed to documenting and preserving cannabis cultivars and varieties along with the collective knowledge gained through community engagement.

Eleanor has a B.A. degree in Biology with a focus in Botany from Smith College and a PhD in Genetics from the University of Georgia. Her academic work focused on population diversity and gene flow, along with the evolutionary history and current genetic exchange between wild and cultivated plants. She graduated from the Sage Mountain School of Herbal Studies, where she studied under the mentorship of Rosemary Gladstar.



MICHAEL MCGUFFIN

My introduction to herbs began with making sassafras tea during my youth in pre-paved Maryland suburbs. I later relocated to California, and my interests in health, herbs, and good food led me to be a co-founder of Venice Fruit Tramps in 1974, a retail store and accidental collective that sold fresh fruits and vegetables and bulk dried herbs in a diverse urban community. A few years later, a friend and I scraped together \$2,200 and founded an herbal tincture manufacturer and marketer that turned into a successful national brand over the next 20 years. Our company joined the American Herbal Products Association (AHPA) in 1985, and I became actively involved as a volunteer for many years and was hired as AHPA's president in 1999.

I have served on the United Plant Savers Board of Directors since 1998. I was invited to join as someone who could bring an industry perspective as a company that was buying thousands of pounds of herbal ingredients every year – including wild-harvested and organically grown North American herbs – and which had invested resources in learning to move some of these herbs into cultivation. My role at UpS continues to involve attention to the pragmatic side of things, in service to the plants.



HELEN LOWE METZMAN

The nexus of natural history, ethnobotany, and environmental conservation has been a passion of mine since young adulthood. I worked as a naturalist and artist and became aware of the important outreach of United Plant Savers and the Goldenseal Sanctuary while studying and creating plant medicines. Perhaps it was the jars and jars of Black Cohosh in big box stores and grocery chains that further stoked my concerns and advocacy of the quickly growing herbal industry. I often wondered, "Where is all the plant material coming from and how is it managed?" As an educator and a prior Director of Jim Duke's Green Farmacy Garden, I have shared and taught humans' long and evolving history with plant medicine ~ the traditional uses, current scientific research, gardening with the plants, the commoditization of natural products, and the urgency of plant conservation. While growing up, I was not exposed to the wisdom of herbal medicine, but studied and deeply honored the indigenous uses of native plants. As an elder now, I am committed to seeing that current and future generations learn to respect and use native and all plant medicine with reverence ~ not only for themselves but also for the survival of the species and the biodiversity of ecosystems.



MARC WILLIAMS

Ethnobiologist Marc Williams has studied the people, plant, mushroom and microbe interconnection intensively while learning to employ botanicals and other life forms for food, medicine, and beauty in a regenerative manner. His training includes a Bachelor's degree in Environmental Studies concentrating in Sustainable Agriculture with a minor in Business from Warren Wilson College and a Master's degree in Appalachian Studies concentrating in Sustainable Development with a minor in Geography and Planning from Appalachian State University. He has spent over two decades working at a multitude of restaurants and various farms and has traveled throughout 30 countries in Central/ North/South America and Europe as well as all 50 states of the USA. Marc has visited over 200 botanical gardens and research institutions during this process while taking tens of thousands of pictures of representative plants and other entities. He has taught hundreds of classes to thousands of students about the marvelous world of people and their interface with other organisms while working with over 100 organizations and particularly as a Board of Directors member of United Plant Savers, Plants and Healers International, and online at the website www.botanyeveryday.com. Marc's greatest hope is that this effort may help improve our current challenging global ecological situation.



NATHAN WRIGHT

Nathan Wright is a Citizen of the Sault Ste. Marie Tribe of Chippewa Indians and the owner of Herbal Lodge. Herbal Lodge creates salves, teas and herbal remedies using locally sustainably wild foraged ingredients. Wright combines both indigenous and conventional herbal knowledge into his products. Wright has diverse experiences not only as an Indigenous Herbalist, but also in business, serving in the military and as an Indigenous and Environmental activist. Wright is also a certified mycologist. He shares his knowledge as an educator focusing on plants used in Anishinabek healing, and emphasizing the traditional sustainable practices. He makes himself available for herbal and Indigenous presentations, both online and in person. In accordance with his beliefs to honor the plants and trees, Wright is also a Water Protector. In 2019, Wright founded MackinawOde, a collective group that addresses Indigenous and Environmental concerns and has garnered national attention. He has been featured in various media outlets, Water Protector music videos and a documentary. Wright likes to say, "I used to be a Marine who fought for a country, now I am a Water Protector fighting for Mother Earth." For more info: @Spiritman | <https://linktr.ee/spiritman>



STEVEN YEAGER

Steven Yeager has been studying Oregon's flora and ecology since 1995. He enjoys botanizing, wildcrafting, and exploring the Pacific Northwest. Steven is the former co-owner of the Columbines School of Botanical Studies. He believes cultivating a relationship with plants and the natural world is vital for a healthy existence on this planet. Steven also works at Mountain Rose Herbs as the Director of Quality. He serves on the board of directors for the American Herbal Products Association, AHPA's Foundation for Education and Research on Botanicals, United Plant Savers, and the Native Plant Society of Oregon. When not at work or volunteering with various non-profits, Steven enjoys spending time with his family, pretending to be a chef, hiking, camping, wildcrafting, and botanizing in the Cascade Mountains.



INTERNATIONAL HERB SYMPOSIUM

VIRTUAL LEARNING CENTER

A huge thank you to all the teachers who have shared their knowledge!

IHS is unique because we feature Regenerative Herbalism classes that go deep into conservation, sustainability, and cultivation with classes that highlight traditions from various cultures and perspectives - plus vet botanical medicine classes. There is also an app available from Teachable so you can listen on the go!

Registration is still available and all classes will be available until Dec. 2022.



15th International Herb Symposium Class List

CLASS TITLE	TEACHER NAME
Herbal Medicine for Internal and External Infections	7Song
Common Medicinal Plants of the Northeast	7Song
Medicinal plant collection in sacred and community forests in a village in far western Nepal	Alex Greene
Medicinal Plant Conservation and Use at Tafi Atome Sacred Grove in Ghana	Alison Ormsby and Robert Kwaku
Writing The Business of Botanicals: A Conversation with Ann Armbrecht and Kate Gilday	Ann Armbrecht and Kate Gilday
Responsible Sourcing in the Botanical Industry, a panel discussion	Ann Armbrecht
What is Sustainable Herbal Medicine?	Ann Armbrecht
Boreal Balsams, phytochemistry and applications	Annie Bazinet
GMP & Marketing Claims Demystified: Workshop	Asa Waldstein & Steven Yeager
Herbal Synergy	Bella Donna
Herbal Honey Infusions	Bella Donna
An ecological approach to the human microbiome	Betzy Bancroft
Herbal Care for Men's Reproductive Health	Bob Linde
Medicinal Herbs of Florida and the Caribbean	Bob Linde
Serenity Now - Herbal Support for the Nervous System	Christa Sinadinos
Lubricate Yourself - The Virtues of Demulcents	Christa Sinadinos
Medicinal Mushrooms--a deeper look	Christopher Hobbs
Traditional Kava preparation at home for sleep, tension, and stress	Christopher Hobbs
Conservation of neglected organisms: what's about fungi?	Claudia Perini
The beauty and the popularization of science: discovering the artistic and historical value of botanical and mycological collections	Claudia Perini
Fairy Magic for Emotional Trauma	Dana Hutchinson
Our Miraculous Heart; Wisdom Medicine for The Soul	Dana Hutchinson
Organizing and Implementing Native Medicinal Plant Restoration on Public Lands	Dara Saville
Anemopsis californica (Yerba Mansa): A Plant's Ecological, Cultural, and Medicinal Importance	Dara Saville
Forest Therapy - How to Create a Medicinal Forest Sanctuary from Seed to Fruition	Diana Beresford-Kroeger
How Health Freedom Concepts and Current Policies Impact Herbalism	Diane Miller
Mullein Deep Dive: Lung Ally & Global Weed. How to Identify, Harvest and Prepare it!	Dina Falconi
White Pine Love	Dina Falconi

Aromatic Herbal Medicine: Matricaria and Chamaemelum	Gabriel Mojay
Restoring Earth: Simple TCM Methods for Correcting Digestion Imbalances	Geoffrey Edwards
Music by Høly River and tour of Fonticello Food Forest	Høly River
Ethnobotanical knowledge of the traditional medicinal practices in southwestern Nigeria	Israel Borokini
Spiritual Flower Bath	Jacquelin Jinpa Guiteau
The Breath of the Divine	Jacquelin Jinpa Guiteau
Gardening by the Moon's Phases	Jane Hawley Stevens
Herbs for Emotional and Physical Pain Management	Jessica Daigle
Using and Protecting Monotropa uniflora	Jessica Daigle
Paul Strauss: The Ohio Herbal Elders Project	Jess Lamar Reece Holler
Germanic Tree Medicines	Julia Graves
Sustainability in Plant Medicine	Karen Lawton and Fiona Heckels - Seed SistAs
Introduction to Western Energetic Herbalism	Kat Maier
Aromatic Resins: Threats and Therapeutics	Kelly Ablard
Clinical approaches to working with trans, non-binary, and gender fluid youth	Kristin Henningsen
Shifting Focus: Constitutional Assessment through a Global Lens	Kristin Henningsen
Deepening Plant Knowledge Through Illustration	Kristine Brown
Early Morning Plant Study	Kristine Brown
Let's Meddle with Nettles	Kristine Brown
Plant Drawing for Kids	Kristine Brown
Heart Healing Self-care Yoga	Lanier Cordell
Oral Care: Why it matters and how to work with clients	Leslie Alexander
Healing Herbs for Pirates and Ancient Mariners	Leslie Alexander
The Medicinal Mushroom Boom: How to be an informed, empowered consumer	Lindsay Chimileski
Indigenous Cabecar Plant Medicine	Luis and Cherli Salazar
Woody Ethnobotany	Marc Williams
Mediterranean Flavors: Exploring Ancient Herbal Medicine in Greece, Rome, and Egypt	Maria Christodoulou
Till the Last Drop: Herbal Wine in Ancient Greece	Maria Christodoulou
Menarche to Menopause	Maria Noël Groves
The Art of Herbal Formulation	Maria Noël Groves
Going barefoot: the touch between our extracellular matrix (inner biome) and the environmental biome around us	Matthew Wood
Microdosing with Plant Medicines: When Less is More	Maya Shetreat, MD
Yoga Through The Senses	Meredith Bury
Rue Rose & Resin	Mimi Prunella Hernandez
HEALTH & Healing from the Garden	Monica Giacomini
Growing Medicinal Herbs on your Small Farm or Garden	Nancy Phillips
Herbal Preparations 101	Nancy Phillips
Herbal wisdom in Russia from ancestors to modern days	Olga Ivanova
Apitherapy Products for Medicinal Use	Patrick Fratellone
Botanicals in Heart Disease	Patrick Fratellone
Whole Food & Herbs for Feeding Cellular Health	Paula Youmell
Navigating Menopause the Wise Woman – Functional Medicine Way	Paula Youmell
Calming Inflammation - Soothing Auto-Immunity	Paula Youmell
Giving Back It's Good For the Soul ~ Kina Gegoo Botanical Sanctuary	Penelope Beaudrow
Sacred Plants – Spiritual and Medicinal Uses	Penelope Beaudrow and Lauri Hoeg
Epigenetics & Methylation	Phyllis Light
Herbs for Recovery	Phyllis Light
Botanical Medicine in the Ancient World	Rachel Thomas
Beginning Medicine Making	Renee Crozier-Prince
Herbs of the Tropics: Addressing Chronic Issues	Renee Crozier-Prince

Herbs to Deepen Intuitive Wisdom	Robin Rose Bennett
Herbs for your Nerves-Radical Self Care with Herbal Medicine	Robin Rose Bennett
Limpia ceremony using aromatic plants	Dr. Rocio Alarcon (PhD, Curandera)
Spiritual co-evolution between plants and hummingbirds	Dr. Rocio Alarcon (PhD, Curandera)
Enhancing the Edibility of Northeast Landscapes with Native Species	Russ Cohen
Alchemy in Modern Herbal Medicine	Sajah Popham
The Path of the Practicing Herbalist	Sajah Popham
Mood swings in the playground of life — taming your inner bullies with natural remedies	Sara Chana Silverstein
Creating a Kid Friendly Clinic	Sara Chana Silverstein
Integrating Cannabis/Hemp into your Herbal Business	Stephanie Boucher
Entheogenesis and Entrepreneurship	Stephanie Boucher
Herbalists as Social Impact Entrepreneurs: The mindset shift to build a sustainable business with passion, purpose and prosperity	Stephanie R Trager
Botanically Speaking	Steven Yeager
Radiant Body, Mind and Spirit	Susi Wahlrab
Innate Immunity - The Goods you're born with	Tammi Sweet
Connecting to Our Roots: Rekindling our Healing Relationship with Plants	Taylor Rae
Herbal Allies for Surgery Recovery	Taylor Rae
Traditional Cacao Use of the Bri Bri People	Timoteo Jackson and Seidy Vanessa Moreno Morales
Self-Care for the Resistance	Tonya Lemos
A Deep Dive into the Mediterranean Apothecary	Tonya Lemos
Awakening Artemis - Book Release	Vanessa Chakour and Lily Kwong

Herb and Mushroom Walks

CLASS TITLE	TEACHER NAME
Mother Knows Best Herb Walk	Christopher Hobbs
Wild Salad	Dina Falconi
The Mediterranean Basin - The Greek Islands and Mt. Olympos	Jacquelin Jinpa Guiteau & Julia Graves
A walk through the Ethnobotanical Gardens at Ocean Forest Ecologde	Jonathon Miller Weisberger
Visit a Downtown UpS Botanical Sanctuary	Kat Maier
Botanical & Fungi Herb Hike New England	Lindsay Chimileski
Immune & Respiratory Garden Herb Walk	Maria Noël Groves
Herb walk through Strictly Medicinal Seeds fields and greenhouses	Richo Cech
Tropical and Island Herbal Traditions: the clinical and ethnobotany history of our tropical climates	Renee Crozier-Prince
Edible Wild Plant Walk	Russ Cohen
A walk along the Indus Rose Valley!	Saad Admani
Awakening Artemis - Plant Walk	Vanessa Chakour

Veterinary Botanical Medicine Courses

CLASS TITLE	TEACHER NAME
Addressing the Alpaca	Alexia Tsakiris, BVetMed, GDVWHM, CVA, RH (AHG)
Herbs for Grief supporting yourself, clients and patients using herbal medicine	Alexia Tsakiris, BVetMed, GDVWHM, CVA, RH (AHG)
Chinese Food Therapy Categories Part 1, Fruits and Vegetables	Constance DiNatale
Chinese Food Therapy Categories Part 2, Meats and Grains	Constance DiNatale
What Feline Infectious Peritonitis (FIP) can tell us about COVID	Cynthia Lankenau, DVM, RH (AHG)
Metabolic Syndrome: Interaction of the Chinese Liver and Spleen	Cynthia Lankenau, DVM, RH (AHG)
Cannabis in Veterinary Medicine	Gary Richter, MS, DVM, CVA, CVC, GDVWHM
Herb-Drug Interactions	Gary Richter, MS, DVM, CVA, CVC, GDVWHM
Herbs and Mushrooms for the Veterinary Cancer Patient	Gary Richter, MS, DVM, CVA, CVC, GDVWHM



United Plant Savers

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We have received incredible submissions from across the globe and we can't wait to share these herbal stories from the U.S., France, UK, Switzerland, Turkey, Syria, Portugal, Peru, Italy, Ireland, Iran, India, Chili, Canada, Brazil, Belgium, and more.

The festival presents a curated collection of inspiring works from talented filmmakers and photographers telling stories of herbalism and plant conservation through diverse voices.

**Stay tuned for ticket info and details on
hosting your own summer screening party!**

www.ihsfilmfestival.org

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FILM & PHOTOGRAPHY
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