



Society For Economic Botany Newsletter

PLANTS & PEOPLE

A biannual newsletter published by and for the members of The Society For Economic Botany

Volume 34

Fall 2020

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Virtual SEB Council Meeting

Highlights

Due to the postponement of our annual meeting, the Council met online a few months later. It was an excellent meeting, with many Past-Presidents in attendance due to the online forum. So, there were plenty of folks with lots of experience and support for the future of SEB. Here are the highlights.

Wendy Applequist gave her Treasurer's Report. Wendy has been an excellent treasurer, cautiously advising us on current expenses and spending. Discussion was held on the benefits and amounts of our travel grants. The Council wants to continue to be as generous as possible to get many people to meetings and researching, etc. There was a short discussion of fundraising possibilities. Please, if you have contacts with companies or foundations that can fund scholarships, symposia, travel, let me know: Newsletter@econbot.org

Wendy's term as Treasurer is over and Blair Orr will replace her. She will be missed, and she has left Blair and the Society with an organized, profitable bank account. Wendy remains the Book Review Editor, See Book awards page 4.

Blair will be researching investment opportunities for our endowment, and if you have suggestions, especially socially responsible organizations, please let him know.

We have some very exciting news about the Journal. Bob Voeks, has been holding the reins for several years and has now welcomed Ina Vandebroek to be Co-Editor. Congratulations to Ina as she brings new ideas and support to the world-renown journal.

Finally, one other point he mentioned during our meeting: he is seeking student reviewers, so students please contact Bob by email: rvoeks@fullerton.edu.

The Newsletter Committee has several new members, Baiba, Aurora, Rebecca, Kajal, so look for some fresh ideas. One suggestion was to create a section for members to send me abstracts of their recent articles. This can only happen if you please send me your titles and where they are published. If you care to include the abstract, that would be best. Please send them to Newsletter@econbot.org. See page 3.

Committees

The best way to get involved with SEB is to join a committee. Make new friends and make a difference in your Society! Please let us know your interests, as we need your participation. Contact me Newsletter@econbot.org

Planned Annual Meetings

2021: Mona, Jamaica, The University of the West Indies (David Picking, organizer), joint meeting with ISE.

2022: Atlanta, USA, joint meeting with SoE. Cassandra Quave, Coordinator. Dr. Quave has many ideas and the SEB student committee is working on social virtual venues. This will be a great meeting.

Can you offer a location for a meeting? How about a National Park where you work, a Botanical Garden, a University? Let us know: we can help you with many of the details.



Plants & People

**The Newsletter of
The Society
For
Economic Botany**

Web site:
<http://www.econbot.org>

Newsletter Committee

Trish Flaster, Editor

1180 Crestmoor Dr.
Boulder, CO 80303

Email: newsletter@econbot.org

Aurora Prehn

Baiba Pruse

Charlotte Gyllenhaal

Gail Wagner

Kajal Darshan Patel

Rebecca Lazarou

Tita Young

www.WordScribe.com

Designer

The articles within the Newsletter are independently submitted and do not represent the position of The Society For Economic Botany as a whole.

Deadlines for submissions are February 1 (Spring Issue) and September 1 (Fall Issue).

Notes from the Field

Wow—who would have ever predicted 2020 to be so unique! I hope all of you and your loved ones are safe and finding ways to hybridize your lives to discover creative avenues for a compassionate future. I know that most of my fieldwork has been stopped, maybe delayed, so I assume others are in similar situations spending time tending to the immediate perimeter of your lives.

One of the changes that has affected SEB the most is the delay of our Annual Meeting. We hope we can meet next year but things are not decided yet. We will give you notice by the beginning of 2021.

In the meanwhile, the Council convened and we have not hesitated to find new ways to gather and share Economic Botany in its various forms. The timing of the newsletter is such that I cannot cover the Fall Online meeting details, but it was a new venue for us to have meetings during isolation and to offer more meetings for folks who often cannot attend. The interim meeting was 12, brief, 10-minute talks over a 4-hour space, with various researchers, students, and post docs. So stay tuned

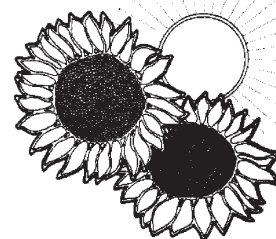
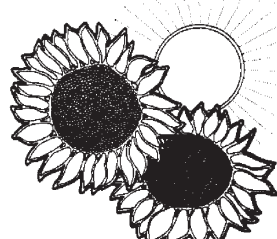
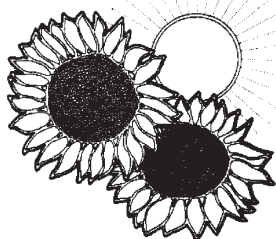
The students are active as ever, and have a meeting, as well, on October 15. See page 16.

Also, at the Council we learned the results of the ballot for 2020-2021. See page one for Council meeting highlights.

Finally I am very excited that as a result of the recent Council meeting to have several new volunteers for the Newsletter Committee. So a grand welcome to Baiba, Rebecca, Aurora, and Kajal. You will see their columns and their contacts. I want to thank Mike Balick and Melanie Congretel for their many years of service.

Stay safe, stay in touch.

Trish Flaster



Newsletter Committee Member Highlights

Kajal Darshan Patel-kajaldpatel@outlook.com

Inspired by the History of Medicine that she studied for her BA in Classics and her experiences with traditional and local remedies, Kajal pursued an MSc in Ethnobotany. For her MSc, she studied the interface between food and medicine. She's now practicing and learning alternative medicines. Kajal is an avid cook and uses traditional methods of preparation and ingredients in her dishes. In 2021, she aims to start her PhD in Ethnobotany.

Rebecca Lazarou-rebecca@rebeccalazarou.com

When I was 16 years old, I knew I wanted to work with plants; I was interested in tapping into nature for healing and wellbeing. It was a completely unscientific realization as it literally came from a dream that I could not shake. However, I am very grateful as it opened up a fascinating world to me.

I complete my degree in Human Biology, as well as a masters in Medicinal Natural Products and Phytochemistry at UCL, where I studied an array of topics from ethnopharmacology, to pharmacognosy, active compounds, and quality control.

Currently I am a research assistant for a project on Ancient Greek medicines at Kew Gardens. We are creating a methodology for which to verify the botanical identification of plants mentioned in ancient texts, with part of the incentive being to find potential leads for modern medicine. A truly fascinating and challenging project! I also work on the Medicinal Plant Naming Services (MPNS), which is a database that collates the Latin names and common names of medicinal plants from around the world. Plant nomenclature and the problems that can arise from this are often overlooked, and so I am very happy to be contributing to this. I am also an associate editor for the Journal of Herbal Medicine, and a pharmacology teacher at Betonica School of Herbal Medicine.

My love for these things has birthed my company



Rebecca Lazarou

Laz The Plant Scientist. It is an educational hub that provides a nexus between science, herbals, healing, and hedonism. I aim to empower people to heal with nature, as well as enjoy plants in many different ways. I do this

through written content, talks, and workshops and I will soon be launching a product line. In addition to educating people on the medicinal properties of plants, I am putting emphasis on educating the public on the quality control of botanical supplements. It is my belief that empowering the public with this knowledge will benefit the industry massively.

I am very glad to be writing for SEB, as I love nothing more than to learn from other people who love plants as much as I do.

Aurora Prehn-hello@auroraprehn.com

As an undergraduate at Marquette University, I was trying to bring a social perspective to my environmental classes, and non-human to my social ones. I created an environmental studies major, finishing along with anthropology in 2013. During this time, I learned about ethnobotany and saw it as a chance to marry my training in two distinct disciplines rooted in a sense of humility with a respect for culture, nature, and their intersection. After graduation I was employed in the specialty, organic tea and botanical industry starting on the factory floor and finishing as a tea taster and educator adopting an ethnobotanical approach in her lessons.

After I completed my MSc in Ethnobotany at the University of Kent and the Royal Botanic Gardens Kew in the United Kingdom, I researched the biocultural relationship between Georgians, their landscape, and the grapevine in the country of Georgia. This research culminated in support of an upcoming exhibit led by Nezka Pfeifer at the Stephen and Peter Sachs Museum at the Missouri Botanical Garden.

Now I am working with Mark Nesbitt, PhD, with tea, *Camellia sinensis*, and teaware objects in the Economic Botany Collection at Kew. The 374 objects are primary sources into the dynamic interactions of late 19th century obsession, industry, and empire. Trade, societal values, and consumption practices are all well-reflected, alongside the role of Kew Gardens in mobilizing both the tea production and the formation of this collection. In January 2020, a series of workshops were hosted at Kew for 42 members of the tea trade and history communities in the UK and Ireland to view and discuss the objects in-depth. Given the bountiful knowledge and experience the collective group had, an intriguing and encouraging outcome is the unfamiliarity of the collection overall. The hope is that an ethnobotanical examination of tea's biocultural diversity in Kew's collection will support tea's resilience in an ever more uncertain

Kitchadi—The Super Food in Ayurveda

Kajal's Simple Recipe of Basic Cultural Food Recipe for 2

1/2 cup of yellow mung beans
1/2 cup of white rice
3 cups of water

Tempering:

1 tsp of cumin seeds
A tiny pinch of asafoetida
1/2 tsp of turmeric
1/2 tsp of coriander seeds
A small piece of ginger (size of a grape)
Rock Salt to taste
2 tbs of ghee (clarified butter)

Directions:

Boil the mung and rice in water.

Meanwhile, add oil into a separate frying pan. Wait till the oil heats up and spreads easily across the pan. Then in the following order add the spices:

- First ginger; wait until golden brown
- Second add cumin and coriander wait 5 seconds
- Third add turmeric powder wait 5 seconds
- Fourth add asafoetida
- Fifth add Rock Salt

Allow it to become fragrant but do not burn it. Should take a few more seconds. Once the tempering is complete, add all the spices to the kitchadi.

Cook the kitchadi until it has the texture of porridge and the lentils are no longer visible. The rice should be soft.

This recipe is eaten in nearly every state in India with a few variations in the spices or the texture. In Ayurveda, yellow mung beans are considered the most superior lentil. They are easy to digest, thereby not burdening the digestive system. This allows the body to focus on healing.

The spices (especially cumin, ginger, and coriander) are a must. These spices kindle the gastric fire. Many cultures around the world believe that we have a kind of fire within us that "cooks" the food and breaks it down into components that make sense to the body.

Continued on page 12

future. Despite the interruption the pandemic has caused, this project continues with plans to return to the UK in spring 2021. Stay tuned for developments in the Spring Issue of the Newsletter.

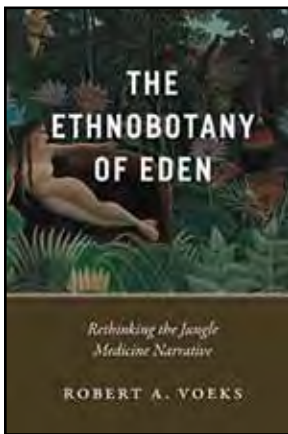
Awards-Congratulations to All!

Book Awards Committee Report
Submitted by Wendy Applequist
wendy.applequist@mobot.org

The current book awards committee consists of Wendy Applequist (chair), John Rashford, Rick Stepp, and Jillian De Gezelle. Because the awards committee was unable to complete its work in 2019 due to exigent circumstances, the 2019 and 2020 Klinger Awards were both made at this year's meeting. In addition, the second Austin Award for excellence in an edited volume was awarded. The recipients of these awards are as follows:

2019 Klinger Award: *The Ethnobotany of Eden. Rethinking the Jungle Medicine Narrative.* Robert A. Voeks (2018).

This powerful and entertainingly written book, informed by careful historical scholarship and the author's personal experience in South America, questions the popular assumption that tropical



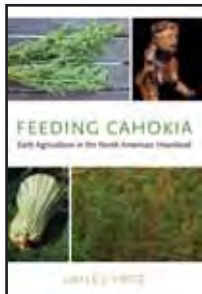
rainforests are a particularly rich source of plant-derived medicines. Subjects addressed include Western perceptions of tropical forests and peoples, the history of biopiracy, the effects of migration on knowledge, and the importance of gender.

Numerous ill-considered beliefs—not all from the comfortably distant past—are deftly debunked.

2020 Klinger Award: *Feeding Cahokia. Early Agriculture in the North American Heartland.* Gayle Fritz (2019).

This excellent paleoethnobotanical work explores the agriculture of the civilization centered on Cahokia, commonly envisioned as having been corn-dependent. With detailed archaeological evidence, yet a very readable style (even including a few recipes), Fritz demonstrates that this culture's food supply was far more diverse and complicated.

This book will be essential reading for scholars in several fields.



2020 Austin Award: *Indigenous Food Sovereignty in the United States. Restoring Cultural Knowledge, Protecting Environments, and Regaining Health.* Devon A. Mihesuah and Elizabeth Hoover, eds., (2019).

This volume includes diverse contributions describing food sovereignty initiatives by, and issues involving, a wide variety of Indigenous peoples in the United States, including Alaskan and Hawaiian Native people. Food security and quality are increasingly crucial issues, and this volume provides great “food for thought” and ideas that other groups might duplicate. Individual chapters are consistently well written, and the excellent editing creates a sense of continuity.

Schultes Award: This year's award was given to Julia Douglas, Masters Candidate at the University of Hawaii, for her research proposal in Oaxaca on sustainable harvest of orchids

I am very excited to see this type of research. We have very few published articles on sustainable harvesting. Thanks to Judges Drs. Robbie Hart, Natalie Miller, and Victoria Reyes-Garcia as well as the other submitters who reviewers said were highly ranked and worthy of funding. (Editor)

Julia Douglas's Project Summary Proposal

The harvest of forest resources by rural communities can put pressure on the preservation of plant diversity, yet these traditional land-use practices also generate cultural and economic incentives for sustainable management. An example of the social-ecological impetus for conservation is in Mexico, where 30% of the country's 1,300 native orchid species are wild-harvested for ornamental use in religious celebrations. In Oaxaca, the

Zaachila community harvests ~5,000 *Prosthechea karwinskii* (Orchidaceae) to adorn local chapels during Semana Santa. The practice is an important component of Oaxaca's cultural heritage, but due to harvest pressure, climate change, and deforestation, *P. karwinskii* populations are in decline and under consideration for endangered species listing. We initiated a biocultural approach to test the feasibility of reintroduction as a conservation measure, identify the microhabitat preferences of *P. karwinskii*, and understand the cultural contexts of orchid harvest. In 2019, growth of *P. karwinskii* pseudobulbs after utilization was measured in a nursery experiment; 46% of harvested pseudobulbs displayed new root and shoot growth after three months, suggesting potential reintroduction success. In 2019, interviews with nine orchid-harvesters were conducted, transcribed, and coded. The distance traveled by harvesters increases as orchid populations decline and forest access is restricted, and harvesters support conservation methods that do not discourage traditional practices. In collaboration with the Zaachila government and orchid-harvesters, in 2021 we plan to establish an experimental reintroduction site in an effort to restore epiphyte-degraded forests, allow for the perpetuation of harvesting traditions, and prevent *P. karwinskii* extirpation. After harvest and use in Semana Santa 2021, ~3,000 *P. karwinskii* pseudobulbs will be reintroduced to the pine-oak canopy at three elevations. Monitoring will occur to answer the following question. How do survival, growth, and reproduction rates of reintroduced *P. karwinskii* vary as a function of phorophyte species, elevation, and precipitation? Results will be used to identify sustainable harvest limits and inform reintroduction protocols for orchids harvested by communities across Mexico.



Julia with some monjita (*Prosthechea karwinskii*) orchids in Oaxaca.

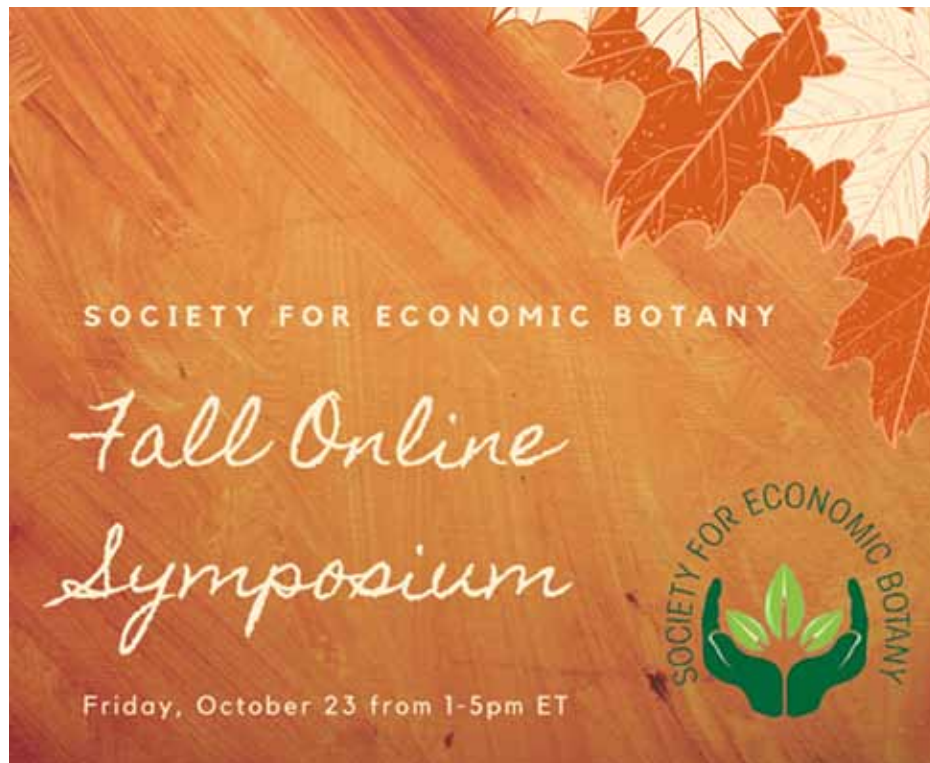
A “Crisp” President’s Report

*Submitted by Nanci Ross—
nanci.ross@drake.edu*

It’s apple season. If there is one thing that all my students can attest about me, it is that I am obsessed with apples. Like an avid birder, I have a “life list” of heirloom apple varieties that I have sought out, tasted, and savored like wine. Every September since moving to Iowa 10 years ago, I have made the four-hour round-trip journey to Wilson’s Orchard near Iowa City to pick apples. Rows and rows of apple trees, a mix of dozens of both heirloom and modern apple varieties, sprawl across rolling farmlands. It was there that I tried Irish Gold, a 14th-century Irish apple, and Snow, a French apple from the 1600s. Last year alone, I brought home almost 20 pounds of Cox Orange Pippin, 30 pounds of Song of September, and another 20 pounds of a mélange of apple varieties of all colors, shapes, flavors, and aromas. Even though apples are my favorite food, I rarely eat them outside of apple season. So, when I finally go picking in September, I practically live on them for the next month or two. I eat three to four per day as I get to work making pie. I love making pie, even more than I love eating pie, which means that my students end up with the bounty. Over slices of apple pie, my classes talking about plant genetics, hybridization, extreme heterozygosity, crop biogeography, and how the apple is emblematic of the world-changing power of plant-people relationships. The apple is so deeply embedded in the cultural history and mythology of the United States that it provides my primarily Midwestern U.S. students with something familiar to help them connect to ethnobotany and, from there, to conservation, ecology, social justice, and what it means to be human in the world. The apple has transcended its role as just a food to serve as a symbol of truth, knowledge, and our connection to the landscape we call home.

But this year, I cannot share pies with my students. The pandemic leaves us peering at one another over our masks, trying to connect. The explosion of resistance to deeply ingrained racism and injustice in the United States right now has inspired many of us in SEB to look for ways to build stronger, more integral connections across our Society. A diverse group of SEB members have offered to serve on an ad hoc committee on Diversity, Equity, and Inclusion to explore issues that include advocacy, antiracism, and decolonizing actions. This is essential because our community of ethnobiologists represents the very diversity of experience, belonging, and knowledge that define what it is to be a member of this landscape.

One incredibly exciting development is the announcement of an SEB Fall Online Sym-



posium (<https://www.econbot.org/news/display/2020/8/26/seb-fall-online-symposium>). Having been robbed of our annual conference by the pandemic, several Council members offered to host a free online symposium where we can share our passion for our science together in an online medium that can reach our members in nearly every corner of the globe. A huge “thank you!” goes out to John de la Parra who agreed to spearhead this event. Our hope is that the success of this symposium will allow us to organize and host others throughout the year to keep us connected between the main annual Symposia.

As for the regular Symposium, we still hope that we will meet up in person in Jamaica in the summer of 2021. The intimacy and spontaneity of in-person conferences is hard to beat; however, we recognize that this may not yet be possible next summer. In discussion with the organizers in Jamaica and the Council, we will decide by the end of the year whether our main conference in 2021 will be in-person or online. Whatever we choose, I have been inspired and excited by opportunities provided by having at least some online or asynchronous components in the annual SEB Symposium. The organizing committee will be working on ways to integrate contributions of members who cannot attend in person. The challenges are myriad, but I think the benefits for our community are worth it.

The SEB Student Committee has also been active with new ideas and energy for the future of

our Society. The SEB student blog highlights the amazing diversity of science that our students represent and SEB students are acting members of various SEB committees. The Student Committee is working with the Council on developing several ideas for distance-based activities and events for students and members as well as ways to support student participation in the Society. The expansion of opportunities for inclusion of all our members goes to the heart of our discipline. Ethnobotany is grounded in the diversity of perspectives, histories, approaches, and inheritances of people-plant relationships. Increasing virtual access at our meetings is a great step, but another goal for the coming year is working to develop creative ideas for how to connect the inherent diversity of our discipline to meaningful action.

Our new Council is already working hard at these goals. I also encourage everyone who has an idea to contact me or another member of the Council directly and share those ideas. I look forward to seeing our Society continue to grow and flourish as a source of understanding, respect, and connection across the landscapes of home.



Publications

“Scientists’ Warning on Climate Change and Medicinal Plants”

Wendy L. Applequist, Josef A. Brinckmann, Anthony B. Cunningham, Robbie E. Hart, Michael Heinrich, David R. Katerere, and Tinde van Andel—

Planta Medica, January 2020

The recent publication of a World Scientists’ Warning to Humanity highlighted the fact that climate change, absent strenuous mitigation or adaptation efforts, will have profound negative effects for humanity and other species, affecting numerous aspects of life. In this paper, we call attention to one of these aspects, the effects of climate change on medicinal plants. These plants provide many benefits for human health, particularly in communities where Western medicine is unavailable. As for other species, their populations may be threatened by changing temperature and precipitation regimes, disruption of commensal relationships, and increases in pests and pathogens, combined with anthropogenic habitat fragmentation that impedes migration. Additionally, medicinal species are often harvested unsustainably, and this combination of pressures may push many populations to extinction. A second issue is that some species may respond to increased environmental stresses not only with declines in biomass production but also with changes in chemical content, potentially affecting quality or even safety of medicinal products. Therefore, we recommend actions including conservation and local cultivation of valued plants, sustainability training for harvesters and certification of commercial material, preservation of traditional knowledge, and programs to monitor raw material quality in addition to, of course, efforts to mitigate climate change.

Link: <https://www.thieme-connect.com/products/ejournals/html/10.1055/a-1041-3406>

“Implications of Climate Change for Medicinal Plant Distribution and Composition”

by Mariann Garner-Wizard

HerbalGram, July 2020; American Botanical Council

In 1992, the Union of Concerned Scientists published a “World Scientists’ Warning to Humanity,” with 1,575 signatories that alerted the public that human damage to the Earth, its resources, and its lifeforms must be curbed to avoid catastrophe. In 2017, a second notice, with 15,364 signatories from 184 nations, noted that few concerns raised in the 1992 statement had been adequately addressed, and most had worsened. They named climate change (CC) as one of the major threats. After the publication of the second notice, the Alliance of World

Scientists called for additional, discipline-specific “Scientists’ Warnings” that highlight the effects of CC on environmental and human well-being. Early responses addressed impacts on wetlands, microbial communities, and wildfire regimes. In January 2020, the journal *Planta Medica* published a new Scientists’ Warning that assessed threats to medicinal plants due to CC, habitat loss, and overharvesting.

Link: <http://cms.herbalgram.org/herbalgram/issue126/hg126-resrvw-climate.html>

Plants, People, and Culture the Science of Ethnobotany, 2nd Edition, Michael Balick and Paul Cox. CRC Press

Is it possible that plants have shaped the very trajectory of human cultures? Using riveting stories of fieldwork in remote villages, two of the world’s leading ethnobotanists argue that our past and our future are deeply intertwined with plants. Creating massive sea craft from plants, indigenous shipwrights spurred the navigation of the world’s oceans. Today, indigenous agricultural innovations continue to feed, clothe, and heal the world’s population. One out of four prescription drugs, for example, were discovered from plants used by traditional healers. Objects as common as baskets for winnowing or wooden boxes to store feathers were ornamented with traditional designs demonstrating the human ability to understand our environment and to perceive the cosmos. Throughout the world, the human body has been used as the ultimate canvas for plant-based adornment as well as indelible design using tattoo inks.

Plants also garnered religious significance, both as offerings to the gods and as a doorway into the other world. Indigenous claims that plants themselves are sacred is leading to a startling reformulation of conservation. The authors argue that conservation goals can best be achieved by learning from, rather than opposing, indigenous peoples and their beliefs.

Botanicals with Benefits, by Kerry Hughes

This is a delightful first book of a series. It explores the benefits of common garden plant varieties. But, it extends beyond the basics and takes a holistic approach to the multiple uses and some “magic,” and incorporates global issues so the reader will find interests on various poignant topics. The graphics are wonderful and for each species, Kerry includes headings on the growing zone, edible flower, food, medicine, aroma, cosmetic, cut flower, and industrial and agroforestry uses.

Available from Amazon, reasonably priced for Kindle at \$5.00. What a fun gift series!

Funding Opportunities

Sustainable Regional Systems Research Networks (SRS RNs)

Program Solicitation—NSF 20-611

Sustainable regional systems are connected urban and rural systems that are transforming their structures and processes collaboratively with the goal of measurably and equitably advancing the well-being of people and the planet. The goal of this solicitation is to fund convergent research and education that will advance sustainable regional systems science, engineering, and education to facilitate the transformation of current regional systems to enhance sustainability. To further the advancement of SRS science, engineering, and education, NSF will support Full Scale proposals and Planning Grant proposals for Sustainable Regional Systems Research Networks (SRS RNs).

The purpose of the SRS RNs competition is to develop and support interdisciplinary, multi-organizational teams of investigators and stakeholders working collaboratively to produce cutting-edge convergent research, education, and outreach that addresses grand challenges in sustainable regional systems.

SRS RNs will study multiscale regional systems to further SRS science, engineering, and education. Key elements will include new data, methods, and models to understand interactions between natural, human-built, and social systems; improved understanding of interdependencies, mutual benefits, and trade-offs of different wellbeing outcomes for humans and the environment; new and generalizable theories of change relevant to SRS; the co-production of knowledge; and exploration of concepts of social equity in sustainable regional systems across spatial and temporal scales. SRS RNs will conduct innovative and pioneering fundamental research and education that is of a scale and complexity that would not be possible within a single organization, center, or through the normal collaborative modes of NSF research support in core programs. SRS RN outcomes will have the potential to inform societal actions for sustainability across urban systems and the connected rural communities that make up regional systems.

Continued on page 7



Funding Opportunities

continued from page 6

Subject to availability of funds and quality of proposals, this SRS RN solicitation will support projects in the following categories:

- **SRS RNs Full Scale Awards (Track 1):** These awards will support fundamental convergent research, education, and outreach that addresses engineering, environmental (biology, chemistry—including sensing, chemical analytics, and recyclable plastics, atmospheric sciences, hydrology, geology), computer and data sciences, and social and behavioral sciences of sustainable regional systems in partnerships that may embrace universities, colleges, practitioners, non-profit organizations, local governments, industry, and community groups. The award size is up to \$15 million total with a duration of five years.
- **SRS RNs Planning Grants (Track 2):** These awards are for capacity building to prepare project teams to propose future well-developed SRS RN Full Scale (Track 1) proposals. Each of these Track 2 awards will provide support for a period of one year and may be requested at a level not to exceed \$150,000 for the total budget.

Eligibility: Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs)
- Non-profit, non-academic organizations
- For-profit organizations

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time): January 11, 2021

NSF Webinar

NSF will hold an informational webinar on October 27, 2020, from 2:30-3:30 pm EST to discuss the SRS RNs solicitation and answer questions. To REGISTER for this webinar, please visit https://nsf.zoomgov.com/webinar/register/WN_nh16JLVfQ3qzYtRqLlxA7g



American Herbal Products Association Research Grant

The AHPA Foundation for Education and Research on Botanicals (AHPA ERB Foundation) has announced a request for proposals to award grant funding to eligible applicants in order to enhance and promote knowledge and understanding of sustainable harvest of slippery elm (*Ulmus rubra*). The grant supports research effects of varying rates of wild slippery elm bark harvest on tree population health and recovery across multiple harvest sites in order to inform sustainable harvest and management decisions for the species. The anticipated amount of funding available for a sustainable wild slippery elm bark harvest research project is up to \$10,000 annually for up to five years.

Proposals must describe how the project will develop new information related to wild harvest impact of slippery elm, defining clear objectives that this project will specifically address using well-defined and sound methodology. Applications should clearly explain what will be done to achieve the project objectives, and how tangible, measurable results will be collected and reported. Applications should describe the outreach plan (i.e., reporting of results) with clear deliverables and realistic expectations for reaching target beneficiaries of the research. Proposals must include a timeline appropriate to the work and proposed outreach, describe applicant familiarity with related work, and include a sensible budget. Applications should describe the key people involved in the project and their relevant experience, including their commitment, expertise, and ability to see the work through to its conclusion.

****Note that only proposals that directly address wild harvest impact of slippery elm will be considered for this funding opportunity.****

See the full Request for Proposals, including submission instructions: <http://www.ahpa.org/News/LatestNews/TabId/96/ArtMID/1179/ArticleID/1368/Request-for-proposals-Slippy-elm-sustainable-wild-harvest-study.aspx>

Program Contact Person: Holly Johnson, PhD, AHPA Chief Science Officer; 301.588.1171, x103; hjohnson@ahpa.org

General proposals for research projects outside the scope of this RFP are accepted on a rolling basis and interested researchers are encouraged to direct inquiries regarding any other botanical research or education project ideas to Holly Johnson, AHPA Chief Science Officer at hjohnson@ahpa.org, or Holly Chittum, AHPA Project Scientist at hchittum@ahpa.org.

Where Is the Ethno in Ethnobotany?

The Work with and for Local Communities: A Snapshot of Experiences

Submitted by Baiba Pruse (baiba.pruse@unive.it) with contributions from J. Barstad, J. Alipio, F.G. Alipio, C.A. Arias, T. Sauini, and E. Rodrigues.

As a Research Fellow on the team of ethnobotanists as part of a DiGe project led by Assoc. Prof. Dr. Renata Sôukand at Ca' Foscari University of Venice (Italy), I am eager to learn about the diversity of ways to engage and work with local communities. As for me—learning always happens through collaborative work and shared discussions. Thus, I am happy to be able to reach out to the practitioners from diverse fields who have worked directly with local communities on various subjects such as participatory ethnobotany and citizen science. I am thrilled to present answers on three questions from Johan Barstad (The University College for Green Development, Norway), Jp Alipio and Francis Gerard Alipio (Cordillera Conservation Trust, Philippines), Carlos A. Arias (Aarhus University, Denmark), and Thamara Sauini and Eliana Rodrigues (Center of Ethnobotanical and Ethnopharmacological Studies, Brazil).

Baiba Pruse (BP): Would you, please, introduce the reader to the recent work you do/did with local communities?

Johan Barstad (JB): From 2016-2019, I worked as an advisor to three Norwegian municipalities (Stavanger, Randaberg, and Tysvær) in Rogaland County. They participated in a national project to introduce qualitative research into public health at the municipal level. My task was guiding in methodology, with a special focus on using participative methods, and Citizen Science in particular. The Directorate for Public Health each year issues a "Public Health Profile" for every Norwegian municipality, based on quantitative metrics, showing how each municipality ranks compared to national and regional results on more than 40 indicators. The problem was that selected metrics are poorly suited to describe qualitative aspects—and also sub-municipal disparities. The main goal of the project was to find if qualitative descriptions could enhance these parts. I worked closely with dedicated personnel from the municipalities, the County, and the Directorate, assisting and advising in choices and approaches.

Jp Alipio (JA): We work with communities by leveraging adventure sports for conservation. We use trail running, hiking, mountain biking, and

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Ethnobotanews

COVID-19 in Indian Country - A Conversation with Indigenous Leaders

This recorded session, described below, was part of the Skoll Foundation's Virtual World Forum held on April 1, 2020. https://www.youtube.com/watch?v=o_VTcmG75dI&t=40s.

The panel comprised four native people speaking about the hope and fear for the future post-COVID from their indigenous worldview. It was so heartfelt, compassionate, and wise on the current issues of native people and COVID.

They spoke about how do we shift from a highly extractive society to recreate a more creative, humane society?

They expressed grave concern, due to past experiences with surviving pandemics, about the inequalities within the system, medical and other resources, for native people.

What would be the economic impact?

They were concerned about the invisibility of the Indians and toxic stereotypes.

They have made changes such as in their spiritual practices, they smoke their own "peace pipes" while meeting in ceremony and prayer.

They rely on messaging from their ancestors to sustain and adapt to pandemic guidelines.

I hope your heart swells when you listen to this. www.herbgram.org

NIH Centers for Advancing Research on Botanical and Other Natural Products (CARBON) Program Announce New Research Awards: June 24, 2020

The Office of Dietary Supplements (ODS) initiated the Centers for Advancing Research on Botanical and Other Natural Products (CARBON) Program in partnership with the National Center for Complementary and Integrative Health (NCCIH) in 1999, in response to a Congressional mandate.

The purpose of the CARBON Program is to promote collaborative, transdisciplinary research on the safety, effectiveness, and mechanisms of action of botanical dietary supplements that have a high potential to benefit human health, and to support the development of methods and resources that will enhance the progress of this research.

The CARBON Program includes Botanical Dietary Supplements Research Centers (BDSRC), two Centers focused on enhancing methods

and resources for research on the health effects of complex natural products, and pilot projects collaborating with the Centers. All the Centers are jointly funded by ODS and NCCIH, with additional funding from the National Institute on Aging (NIA) for the 2020-2025 project period. The BDSRCs focus on foundational research expected to increase the value of future clinical trials, while providing a rich environment for training and career development. A Natural Product Technology, Methodology, and Productivity Optimization Center will focus developing methods to accelerate research on complex natural

products such as botanicals for human health and on collaborations to develop applications of these methods. A Natural Products Nuclear Magnetic Resonance (NMR) Open Data Exchange will facilitate the accessibility and utility of natural product chemical structure data (NMR raw data). The ODS-supported pilot projects, to be awarded in response to [PAR 20-228](#), will collaborate with these Centers, to extend understanding of products studied in the Botanical Dietary Supplements Research Centers, or to leverage methods in use in the CARBON Program for early phase research relevant to natural product dietary supplements.

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Denver Botanical Garden Highlights One of the World's First-Known Female Botanists.

Janaki Ammal (1897-1984) was one of the world's first known female botanists. Here is a brief summary of her prolific career, despite battling prejudice and obstructions.

She was born in Tellichery, Kerala, and earned an honors degree in botany in India before teaching at the Women's Christian College, Madras. She took a break from teaching to earn a master's from the University of Michigan and later earned her Doctor of Science at University of Michigan in 1931.

During WWII (1940-1945), she worked in the United Kingdom at the John Innes Centre, which recently announced they are offering a doctoral scholarship in her honor. She was an expert in cytogenetics (the study of chromosomes to identify structural and inherited abnormalities) and in 1919, the Centre named a hybrid rose after her!

In 1946, she became first salaried female at the Royal Horticultural Society in Wisley, England. She worked with magnolia kobus seeds and planted magnolias (*Magnolia kobus* Janaki Ammal) there that continue to bloom in the spring.

In 1951, India's Prime Minister, Jawaharlal Nehru, invited Dr. Ammal to act as Special Officer to reorganize the Botanical Survey of India (BSI). She was interested in ethnobotany just like her ancestors, who were generally known as Vaidhyars (ethnobotanists who were practitioners of indigenous medicine). She also developed several hybrid crop species still grown today, including notably sweeter sugarcane that could grow in India instead of being imported.

This information was curated by the Gardens' Helen Fowler Library.



The magnolias in this photo montage are an essential part of the charm of Battleston Hill in London's Wisley neighborhood. Not many people realize those pink blooms have a touch of Kerala to them. They were planted during the war years by Dr. Janaki Ammal, a world-renowned botanist, cytogeneticist, and global plant geographer when she was working at Wisley, close to the famous Kew Gardens. It was an extraordinary journey for a young woman to undertake in the early years of the 20th century.

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Botanical Dietary Supplements Research Centers awards for 2020-2025

- Botanicals Enhancing Neurological and Functional Resilience in Aging (BENFRA), Oregon Health and Science University, Portland, OR
- Influence of Dietary Botanical Supplements on Biological and Behavioral Resilience, Icahn School of Medicine at Mount Sinai, New York, NY
- Spirulina Oral Supplement for Enhancing Host Resilience to Virus Infection, University of Mississippi, MS

TRUE FACTS Series

Hummingbird biology. Please watch this and others in this series. I thought this YouTube series link was so informative and also quite humorous, but it is not for those under 18.

- True Facts: The Hummingbird Warrior: By zefrank1 <https://www.youtube.com/watch?v=Biagyb7AcK8>

The Shuar Arutam Will Not Be Divided by Canadian Mining Company Solaris Resources News@Amazonwatch.org

The company has led a divisive public relations campaign in attempts to manufacture consent for the Warintza mining project

- September 25, 2020
- Carlos Mazabanda

Amazon Watch, together with local and international organizations, has supported the Indigenous resistance by the Shuar Arutam (PSHA) against large-scale extractive projects such as mining in the Ecuadorian Amazon. These projects have the potential to cause irreversible impacts on the environment, local Indigenous communities, and their culture. The harm caused by such projects is well-documented. In fact, Ecuador's first large-scale mining project, "Mirador," is a tragic example of the damage mining can create on Shuar Arutam territory. Since its inception, the project has caused mass deforestation, contaminated headwaters, displaced Indigenous communities, and it has led to the breakdown of social agreements within the communities because organizational structures have been co-opted.

In recent months, the Canadian mining company Solaris Resources, Inc., licensee of the Warintza project, has launched an aggressive public relations campaign in an attempt to coerce communities to allow the extractive project to move forward on Shuar Arutam territories.

The PSHA are resisting these strategic attacks by the mining company, but the fight is rigged. They are up against a company with significant economic

power and resources. This is why we need international solidarity for their cause and to amplify their campaign, "The Shuar Arutam Have Already Decided: No Mining in Our Territories." We have an opportunity to learn from the past and make history so that mining projects can never again cause displacement, pollution, and the violation of Indigenous rights on Shuar Arutam territory.

It is urgent to demonstrate to executives and shareholders that the practices of their company are not innovative, but instead reproduce the same colonialist model extractive companies have used for decades to violate Indigenous land rights and evade the faithful compliance of the rights established in the constitution of Ecuador and international human rights treaties.

The Shuar Arutam People call for the solidarity of the national and international community to support their struggle for the defense of life, forests, water, their territory, their culture, and their rights. You can support the demands of the Shuar Arutam by taking action. Tell Solaris Resource to immediately withdraw from Shuar Arutam territory, cease physical activities, and end its conflict-inducing public relations activities!

FAO—15 July 2020, Rome

FAO, the International Tropical Timber Organization (ITTO), and the International Union of Forest Research Organizations (IUFRO) today launched a comprehensive survey on forest education across the world. The survey is an ambitious effort to assess the state of forest education globally and at all levels of formal education -- from primary school through university and including technical and vocational training programs. It will result in 6 regional assessments, including one for North America.

Share the FAO global survey on forest education! Contribute to the first comprehensive assessment of forest education at all levels, from primary school to university, technical and vocational training programs, and share the survey with your networks. The survey is led by FAO, the International Tropical Timber Organization (ITTO), and the International Union of Forest Research Organizations (IUFRO). This effort seeks input from three target groups:

- Organizations/Nongovernmental to Governmental
- Teachers/Educational Administrators
- Students/Recent Grads

July 15 news release and link to survey:

- <http://www.fao.org/forestry/news/97465/en/> More about the Global forest education project:
- <http://www.fao.org/forestry/forest-education/en/>

USDA—September 10, 2020

USDA is looking for ready-to-go technologies and practices to achieve its goal of increasing agricultural production by 40% to meet global population needs in 2050 while cutting U.S. agriculture's environmental footprint in half.

"Across America, we have seen significant advances in agricultural production efficiency and conservation performance during the past two decades," said Under Secretary Bill Northey, who leads USDA's Farm Production and Conservation mission area. "We want to keep the momentum. As part of our Agriculture Innovation Agenda, USDA wants to continue helping farmers access new approaches."

Through this notice, USDA's goal is to identify the best "ready to go" innovations, as well as request input on how to best incorporate these innovations into USDA programs and accelerate their adoption. Input is requested from a range of stakeholders including, but not limited to: Private sector, not for profits, farmers, forest sector, trade associations, commodity boards, and others involved in the supply chain or development of widely applicable practices, management approaches, or technologies (for example, robotics, applications and end-use tools, and in-field management activities). For the purpose of this notice, "ready to go" means a practice, technology, or management approach that is fully developed, has been field tested, has completed independent research trials, is publicly available, and end-user accessible. Submissions will be most helpful if they include reference citations or website links to research, on-farm trials, end-user group evaluation or other supporting documentation that the product is "ready to go" and has already been reviewed by the scientific or other appropriate community.

Based on stakeholder input from the RFI, USDA will develop a comprehensive U.S. agriculture innovation technology strategy for our customer-facing programs.

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Where Is the Ethno?

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adventure development such as trail mapping to create alternative economic opportunities for communities to create more sustainable ways to earn money, rather than extracting from the environment. In this way, we are able to make conserving the environment the base capital for doing business rather than simply extractive. We train the communities in basic hospitality skills, homestay development, marketing, etc... and in many cases have raised household income up to 500%, moving them away from less sustainable practices.

Francis Gerard Alipio (FGA): I would like to highlight what has been mentioned by Jp Alipio about creating sustainable economic opportunities for the communities we work with. This does put us in the position to raise environmental awareness for local communities while at the same time creating income for them. This, in turn, highlights the need to protect and preserve the source of their income—the environment.

Thamara Sauini and Eliana Rodrigues (TS/ER): In recent years, the need to combine ethnobotanical research with aspects of conservation and local development, considering participatory methodologies, has been supported. However, little progress is available in practical terms in the case studies. What we present here was developed in two “quilombola” communities. Our work with local communities is a participatory approach that involves residents in all of the project phases, providing tools that will empower their decision-making related to sustainable use and management. This work was divided into three phases, with the participation of local members. In Phase I, the objectives and activities were defined with residents in meetings to carry out ethnobotanical surveys between two quilombola communities. In Phase II, we offered training courses to the local partners about how to collect plants and ethnobotanical data. And in Phase III, using the participatory mapping method, residents indicated plot locations and collected plants to calculate the Conservation Priority Index for native species that had been recorded in Phase II.

BP: Would you, please, share the main challenge (and possible ways to overcome) while working with the local communities from the activity you mentioned above?

JB: Many challenges will arise in a project like this. A project about public health, planning, participation, and involvement always is challenging when the focus is “on the ground,” with people and communities. Public Involvement has been a crucial element in the national planning law since the 1970s and has evolved from mere

information to attempting broad participation in all stages and most public activities. One of the challenges we came upon was the “discontinuity” element. When an issue arises, there is a (often strong) mobilization of people and resources to achieve active participation. After a decision has been made—or even after the required involvement has been fulfilled—the participation is ended and will need to be “rekindled” the next time an involvement issue occurs. This is inefficient, cost-wise; it slows down the response time; and it is stressful for the communities/participants. A more continuous approach, establishing local entities that function over time, is a dire need for improved action. Further, the general design of typical public processes is aimed at solving a managerial problem rather than finding applicable and sustainable solutions. This is often the consequence from a strong focus on the formal rather than the informal elements. For example, time schedules are often strict to ensure process can input when management is ready for it, rather than when the participants are happy with the result.

Finally, there is the issue of involvement. Involvement is both time- and resource-consuming (expensive), unclear and fudgy (interest-based rather than representative) and public input is generally only advisory, so involvement in process often is felt to be unsuccessful. Thus, we need to focus on why we use involvement and what is expected to be the outcome(s). The simple answer is that we use involvement to strengthen involvement (which, we know, eases the implementation) and to improve the search for better alternatives. We found that Citizen Science (CS) comes in handy. Using local people to look into and investigate issues of local importance (e.g., like in how the SDGs can be turned into active assets for welfare and public health improvement at sub-municipal levels).

Working with municipalities, and with processes related to development, we often came across the co-creation understanding. This implies that the (research) process is part of a larger setting where the aim is to find actions/solutions that are to be implemented and contribute to a more sustainable development. The flip side to this is there must be a form of cooperation between both the formal and informal actors, partnerships must be established, and stakeholders must learn to relate to each other in planning, decision-making, implementation, and evaluation.

JP: One of the main challenges in working with communities is really balancing all the different interests that exist within these communities. You can come into these areas thinking that they will work together as a community, but in our experience, this is not the case. In many cases, members

of the community will only work for their own family/household and sometimes we are even accused of favoritism where certain members of the community will get certain contracts from us such as catering or cleaning, homestays, etc.... So it is always a delicate mix of trying to help whole communities while managing personalities and personal interests involved.

TS/ER: For the local partners involved in the study—“time” was different from that of urban society, a fact that caused difficulties throughout the absorption of concepts during the ethnobotanical study and in data collection. And, local partners (community researchers) perform other daily activities that guarantee their livelihoods (farming, home and family, and restaurants) and must reconcile these activities with fieldwork.

Therefore, a faster process for obtaining the necessary authorizations to carry out research in the community can help local partners to participate. In addition, budget for the longest possible time of the technical team in field work, in the event of unforeseen events due to partners’ routine.

BP: Would you, please, share a project/activity/initiative that you were/are inspired by the work done with the local communities and that might serve as an inspiration for the readers as well?

JB: We found real CS to be very helpful (though time-consuming, so we are barely seeing the results yet), and real CS was employed to build knowledge of problems/goals such as risk-factors and assets in a community, how they can be used—by the community and the public together in a co-creation process, and we started to look at how to use the SDGs.

Case: Input to the municipal Public Health Plan (side effect: better ways of designing/presenting the Public Health Profile). Some main approaches follow:

- Local community meetings where participants were empowered to become active in discussing, evaluating, and suggesting improvements in their community. Further, they were invited to be active in implementing new action (action-contracts) and meet at intervals to report on progress (evaluation).
- Working with schools to engage students to become local investigators regarding traffic and transportation issues.
- Having politicians and municipal authorities spend time meeting, discussing, and learning from the communities.

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Where Is the Ethno?

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The school (level 8-10) was invited in a design-process for a town playground. An area in the town was available and had potential. The students were invited first to work on health and safety issues, then on issues related to their daily use of the town area. A virtual map was made (through support from municipal technicians and external resources) showing hotspots with comments. Then, a series of design workshops where students were tasked with designing a (small) multi-ages activity park and bringing the case to the point where it could be put on the politicians' agenda for evaluation and potential approval. The project stalled in the municipal budget debate. No money was found, so it was not realized.

Evaluation: The process was led by, and also owned by the experts. We had been suggesting a stronger link between the project, the municipal authorities, and the business sector (in case such a monetary-deficit situation were to occur), but it did not prevail.

Conclusion: Real CS was helpful and adequate for the planning process but turned out as insufficient for successful implementation by itself. We learned about the need for linking CS to co-creation to build implementation strength (resulting in several options—not only one!). The project continues in one of the three communities, where we currently are looking at how we can build “lasting structures” for local cooperation, how to design real CS projects, and conditions for enabling real CS projects to reach to and implement their potential.

JP: Mt. Pulag is one of the protected areas in the Philippines—quite a famous one because of its unique flora and climate. However, many of the communities around it have not benefited much from its development as a tourist area, resulting in high amounts of clearing of the mossy forests for farming. In 2014, we started engaging with the community of Babadak in order to help them set up homestays for trekkers to create a more viable income. I am happy to say that five years after that project, we have seen the rise of not just the homestays in Pulag, but also associated industries are locally run by the villagers. They range from tourist transportation to catering, and even putting up their very own travel agencies—which to me after climbing those mountains for almost 20 years is amazing. Seeing that kind of development in just five years in a village that only got their electricity 10 years ago and had a paved road only less than four years ago is exciting. This has totally shifted the economy in the area, pre-COVID19, to be more supported by adventure tourism. The pandemic might cause a slip back into land clearing for agriculture, due to the lack of tourism, but at least the infrastructure, skills, and value chain are

The Hopi and the Planet

The Hopi have always had their fingers on the pulse of the planet. And they do now...check this out. Are you going through a portal or down a hole?

Message from White Eagle, Hopi indigenous

“This moment humanity is going through can now be seen as a portal and as a hole. The decision to fall into the hole or go through the portal is up to you.

If you repent of the problem and consume the news 24 hours a day, with little energy, nervous all the time, with pessimism, you will fall into the hole. But if you take this opportunity to look at yourself, rethink life and death, take care of yourself and others, you will cross the portal. Take care of your homes, take care of your body. Connect with your spiritual House.

When you are taking care of yourselves, you are taking care of everything else. Do not lose the spiritual dimension of this crisis; have the eagle aspect from above and see the whole; see more broadly.

There is a social demand in this crisis, but there is also a spiritual demand—the two go hand in hand. Without the social dimension, we fall into fanaticism. But without the spiritual dimension, we fall into pessimism and lack of meaning. You were prepared to go through this crisis. Take your toolbox and use all the tools available to you.

Learn about resistance of the Indigenous and African peoples; we have always been, and continue to be, exterminated. But we still haven't stopped singing, dancing, lighting a fire, and having fun. Don't feel guilty about being happy during this difficult time.

You do not help at all being sad and without energy. You help if good things emanate from the Universe now. It is through joy that one resists. Also, when the storm passes, each of you will be very important in the reconstruction of this new world.

You need to be well and strong. And for that, there is no other way than to maintain a beautiful, happy, and bright vibration. This has nothing to do with alienation. This is a resistance strategy. In shamanism, there is a rite of passage called the quest for vision. You spend a few days alone in the forest, without water, without food, without protection. When you cross this portal, you get a new vision of the world, because you have faced your fears, your difficulties.

This is what is asked of you:

Allow yourself to take advantage of this time to perform your vision-seeking rituals. What world do you want to build for you? For now, this is what you can do—serenity in the storm. Calm down, pray every day. Establish a routine to meet the sacred every day.

Good things emanate; what you emanate now is the most important thing. And sing, dance, resist through art, joy, faith, and love.”

there now from the seed we planted, so that when tourism starts up, they will be ready to welcome all those people again.

I find this topic crucial and I thank the interviewees for sharing their experience as well as their teams' experience. I particularly appreciate the sharing of the lessons learned and the ways to overcome the challenges. Thank you.

P.S.: Please, get in touch with me by email if you would like to share your experience and/or set up a working group on participatory work with local communities.



Kitchadi...Its Transliteration and Recipe

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On the Internet, there is a lot of divergence in the transliteration of the word. It may be spelled as any of the following:

Kitcheri
Kitchadi
Kitchari
Kitchdi
Khichdi
Kichri

This is because the sound (er/ad/ar/r) is the retroflex flap, which is written in Hindi with the Devanagari letter—this sounds like a soft D or a strong R sound. However it's spelt and whatever the variations of the dish and the name all around India, the main two ingredients are mung beans and rice!

It's prized for its nutritional quality and lightness. It contains all nine essential amino acids, it can be eaten as the first weaning food and by the most debilitated or elderly members of the family and is loved by kids and adults alike.

The dish takes around half an hour to make and doesn't need to be watched if left on a low flame. For this reason, it's a go-to dish if you're short on time.

It can be jazzed up and diversified with the types of vegetables you add, with meat and the way you flavor/ spice it. Accompaniments include traditional amla (*Phyllanthus embilica*) achar (pickle) or mango pickle.

Amla is known as a rasayana - the anti-aging food of India, but that's for another post.

Try this is is delicious and one food I rely one for comfort and stomach health (Editor).



Kajal Darshan Patel

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USDA has launched a new AIA website where visitors can access information on the latest research and data, innovative conservation technologies offered via USDA programs, and other conservation resources. Visitors can also stay up to date on USDA's accountability metrics and learn about the experiences of producers who share similar paths to success.

Link to FR Notice: <https://www.federalregister.gov/documents/2020/09/10/2020-20020/innovative-technologies-and-practices-for-the-agriculture-innovation-agenda>

View the RFI on the Federal Register

For more information about the Agriculture Innovation Agenda, please visit www.usda.gov/aia.

Resources from the National Socio-Environmental Synthesis Center (SESYNC) <https://www.sesync.org/about/socio-environmental-research-resources>

Introduction to Socio-Environmental Synthesis Video Series

<https://www.sesync.org/visitor-resources/video-series/introduction-to-socio-environmental-synthesis-series>

What are socio-environmental systems, what is synthesis, and how does one conduct synthesis research? In this three-part video series, we address those questions and provide examples that highlight the complexity and rewards of studying the relationships and dynamics between social and environmental systems. The video series also helps to clarify the importance and the process of forming diverse interdisciplinary teams, and provides an overview of some analytical tools used to conduct synthesis research.

Part 1: Understanding environmental problems through a socio-environmental lens

Part 2: Synthesis research and team science process to address socio-environmental problems

Part 3: Approaches and methods to integrate diverse socio-environmental data

S-E Synthesis Tutorials

<https://www.sesync.org/for-you/educator/teaching-resources/ses-tutorials>

Socio-environmental (S-E) synthesis advances the understanding of S-E systems. These tutorials introduce fundamental concepts about S-E systems. Each tutorial consists of written text and accompanying resources that illustrate some of the key concepts for understanding S-E systems.

Glossary

<https://www.sesync.org/for-you/educator/glossary>

Terms and definitions integral to socio-environmental research and SESYNC's mission to bring together the science of the natural world with the science of human behavior and decision making to find solutions to complex environmental problems.



In Memorium

MongaBay, News and Information from Nature's Frontline

<https://news.mongabay.com/2020/08/covid-is-killing-indigenous-leaders/>

COVID is Killing Indigenous Leaders

(commentary by Mark Plotkin, 11 August 2020)

- *Jose de los Santos Sauna Limaco, a political leader of the Kogi peoples of the Sierra Nevada of Colombia, died last week of COVID-19. He was 44.*
- *Santos Sauna is one of several indigenous leaders who've fallen during the pandemic. Mark Plotkin, an ethnobotanist who founded the Amazon Conservation Team, says the world is a poorer place with the loss of people like Santos Sauna.*
- *"Not only have the Kogis lost a great, wise and inspiring leader, but so has the entire world," Plotkin writes. "Those of us who were blessed enough to know him will mourn him forever."*
- *This post is a commentary. The views expressed are those of the author, not necessarily Mongabay.*



Santos Sauna at a sacred coastal site where the Sierra Nevada meets the sea.

Sunday—Indigenous Peoples' Day—felt like anything but a celebration. We are supposed to be celebrating and honoring Indigenous Peoples but—instead—we are mourning the passing of many fallen friends and colleagues. The infernal COVID virus threatens everyone, everywhere, but it is decimating marginalized communities the hardest. And of these marginalized communities, the Indigenous groups often seem to be suffering the most.

Here in the United States, COVID-19 is ravaging the Navajo Nation, unbeknownst to most Americans who have been besieged with news stories on how the virus was on the rampage in places like New York and Houston. The lack of access to timely information and adequate western health care as well as the malnutrition that almost always spikes upward after contact with the industrialized world combine to make these unfortunate friends and colleagues relatively easy prey for this killer virus. And there exists another aspect of this lethal microbe that makes it seem an embodiment of evil: it is slaying some of Native America's most important voices and heroes. In June, it felled the great Kayapo Chief Paulinho Paiakan, one of the first to have emerged from the Brazilian Amazon in 1970s to warn of the dangers of rainforest destruction. Antonio Bolivar, who played the unforgettable shaman in *Embrace of the Serpent*, had passed away in Colombia just before that. Chief Aritana Yawalapiti of the Xingu—one of the world's most charismatic and effective spokespersons for the rights of Indigenous peoples—perished last week. And just a few days ago, our beloved friend and colleague Jose de los Santos Sauna Limaco of the Kogi peoples passed away, two years to the



Kayapo Chief Paulinho Paiakan

day after cosigning a decree to protect the "Linea Negra," the invisible line that connects the sacred sites of the Kogis. Jose de los Santos Sauna Limaco was a political leader of the Kogi peoples of the Sierra Nevada of Colombia.

With the exception of Antonio Bolivar, I had the honor and privilege of having known these three extraordinary people—of these, I knew Santos the best. Suffice it to say he was one of the most remarkable and truly inspiring people I have ever met. He was kind, generous, patient, insightful, and wise. Santos was a truly spellbinding orator—and I never use those terms lightly.

Today, his remains were flown to the heights of the sacred mountain that was his home. Not only have the Kogis lost a great, wise, and inspiring leader, but so has the entire world. Those of us who were blessed enough to know him will mourn him forever.

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In Memorium

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Kayapo tribesmen fight for their land



Botanist Steve McLaughlin leading a group from Friends of the Inyo for a wildflower walk/talk in 2018.

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Steven McLaughlin had been a very active member especially when he was at the Arid Land Studies at the University of Arizona where he studied hemp as possible paper use in teabags. We have had many enjoyable conversations. He will be missed.

Steven McLaughlin, 71, died at home in Santa Fe, NM, on December 29, 2019. He had lived with prostate cancer since 2003 and with metastatic prostate cancer since 2014. In 2007, Steve and his wife retired to Owens Valley, CA, where they lived southwest of the small town of Big Pine until 2019. In retirement, Steve finally had time to direct his long-standing interest in conservation into practical activity. He served on the board of directors of Friends of the Inyo, as president of the Bristlecone Chapter of the California Native Plant Society, and as a member of the Owens Lake Planning Committee. He gladly shared his knowledge of local flora and fauna and was a popular leader of botanical and birding field trips in Owens Valley and Mono Basin. Steve earned his Bachelor of Science at the University of Washington in Seattle and his PhD in Botany at the University of Arizona. He spent his entire career at the University of Arizona, where he taught courses in crop ecology, economic botany, and plant systematics. He also served as curator of the herbarium. His main areas of research were drug discovery and new-crop development, particularly fiber crops that could be used in making specialty papers. On the side, he compiled a number of local floras. Alone or with others, he authored more than 100 scientific publications and presentations. Steve is survived by his wife, Janice Bowers; his mother and father, Gloria and Winfred McLaughlin; his brothers, Gary and Scott McLaughlin; his stepdaughter Heather Urry and her husband, Bryan Clapper; his step-grandson Kyle Clapper; his sisters-in-law, Vici McLaughlin and Judy Bowers; his brother-in-law, Stan Book; his nephews, Bryan McLaughlin and Vaughn Book and his nieces, Kelsey McLaughlin and Jennifer Hudson; as well as four great-nieces and four great-nephews.



University of Hawai'i News April 6, 2020

Art Whistler, world-renowned botanist and University of Hawai'i at Mānoa alumnus and lecturer died April 2, 2020, after contracting COVID-19 at the age of 75. He is survived by a sister in Seattle and his adult children, Sean in Vancouver, and Kira Matangi in New Zealand.

Whistler specialized in the tropical plants of Hawai'i and Pacific Islands. After earning bachelor's and master's degrees in California, he served as a Peace Corps volunteer in Samoa. He then moved to Hawai'i and earned his PhD in botany from UH Mānoa in 1979, with his research focused on the vegetation of Samoa.

Whistler's robust professional career spanned Hawai'i and the Pacific. At UH, he was a lecturer and adjunct faculty member in botany as well as at the Lyon Arboretum. He held a postdoctoral appointment at the National Tropical Botanical Garden on Kaua'i and was a research affiliate at the Bishop Museum. He spent a year as a visiting professor at the University of the South Pacific in Fiji.

Whistler founded a small consulting company

in Honolulu, Isle Botanica. As a consultant, he worked on botanical projects across the Pacific Islands including Samoa, Tonga, Niue, Fiji, Tuvalu, Kiribati, the Marshall Islands, Yap, Chuuk, Guam, and the Northern Marianas. He was a prolific author of scientific articles and books focused on plants of Pacific Islands.

Tributes from around the world remembered Whistler not only for his deep knowledge of plants and the thoroughness of his research, but for his love of the people and communities he worked with and befriended.

"Samoa has been enriched, the 'King of the Forest' has been laid to rest with his boots on, literally and figuratively. We will all hear his footsteps in the forest for years to come," wrote Tupaemaia Steve Brown, James Atherton, Alice Campbell, and friends.

"Art will be sorely missed," wrote UH President David Lassner in a message to UH Mānoa faculty and staff. "He was a scientist, naturalist, and educator who touched the lives of students, colleagues and communities throughout the Pacific."



Free Online Student Event

Reflections and Focused Discussion on "Reshaping the future of ethnobiology research after the COVID-19 pandemic"

(Vandebroek et al. 2020; Nature Plants)



Are you a **student or young researcher** and member of the **SEB**?

Do you want to **discuss** and **enhance** your **knowledge** while exploring **strategies** for future research after the **COVID-19 pandemic**?

If so, feel free to **join** this **discussion session** organised by the SEB student council.

With Guest Speakers **Ina Vandebroek** (New York Botanical Garden) and **Andrea Pieroni** (University of Gastronomic Sciences)



October 15th, 2020. 1 pm EDT (19:00 CEST).

Zoom access link to be sent out via SEB email the week before the event. No registration required.
Make sure your membership is up to date to ensure you receive the link.

Recently Published Articles

Journal of Ethnopharmacology 2018 (225):42-52.
Production from both wild harvest and cultivation: The cross-border Swertia chirayita (Gentianaceae) trade

A.B. Cunningham, J.A. Brinckmann, U. Schippmann, and D. Pyakurel

ABSTRACT

Ethnopharmacological relevance: *Swertia chirayita* is the most widely traded species in a genus of 150 species, many of which are used in traditional medicine. *S. chirayita* is used mainly in Ayurvedic and Tibetan systems of medicine and the homoeopathic system of medicine as well as in regional folk medicine. Primarily wild collected, with some cultivation, *S. chirayita* is traded as a medicinal substance and exported in the forms of dried whole plant or extract of whole plant individually and/or as active ingredients of Ayurvedic medicines. *S. chirayita* export valuations continue to make *S. chirayita* one of Nepal's highest foreign exchange earning medicinal plant species.

Aims of the review: The aims of this review were first, to assess the scale of the global trade in *S. chirayita*, second, to review evidence from plant population biology and from studies on the impacts of wild harvest on *S. chirayita* populations and cultivation as an alternative source of supply.

Methods: The taxonomy and trade names for *S. chirayita* were reviewed, followed by a synthesis of published information on *Swertia* population biology and studies on impacts of wild *S. chirayita* harvest from across the geographic range of this species. Data on the prices paid for *S. chirayita* were then compiled for the period 2001–2017, followed by an analysis of global trade data for *S. chirayita*.

Results and conclusions: Based on India import data and assuming an estimate in an earlier study that 60% of Nepal's *S. chirayita* production goes to India and 35% to Tibet, then Nepal's 2013 annual production was about 711 metric tons (MT) of which about 675.6 MT would be exported (India + Tibet). Nepal's 2014 annual production would be an estimated 503.25 MT of which about 478 MT would be exported. Declines in *S. chirayita* populations have been widely noted across its range. In India, since 2004, a ban was placed on the export of wild harvested *S. chirayita* by the Government of India, where the Director General of Foreign Trade prohibited export of *S. chirayita* plants, plant portions, and their derivatives and extracts obtained from the wild with the exception of "formulations." Cultivation of *S. chirayita* to meet commercial demand has been an important part of a solution to over-exploitation of wild stocks in eastern Nepal for 25 years, producing

significant quantities that enter the export trade to India and Tibet. In Sankhuwasabha district, for example, 53.1 MT of *S. chirayita* were produced in 2013/2014, just over half of which (27 MT) were exported to India, with the remainder exported to Tibet. Based on value-chain analysis and cost-benefit assessments, *S. chirayita* cultivation has been shown to be profitable in Nepal. However, since the first cost-benefit assessment was done (2013), prices dropped from 750 NRs/kg in April 2013 to a low of 250 NRs/kg in December 2017. Taking inflation into account further highlights the steep decline.

Archaeological and Anthropological Sciences 2020:12:214

<https://doi.org/10.1007/s12520-020-01171-6>

First experimental evidence of hop fibres in historical textiles

Git Skoglund, Bodil Holst, and Hana Lukešová

ABSTRACT

Hop (*Humulus lupulus*) has been used in Scandinavia since at least the ninth century AD, as documented through archaeological findings and

written, historical records. The written records are mainly focused on the use of cone-shaped flowers for beer brewing and medical purposes, but there are also records, for example, from the famous Swedish botanist Carl von Linné, who mentions the use of hop fibers for textile production. However, until now no experimental investigations have been published on the use of hop fibers in cultural heritage objects. A major reason for this has been the lack of a suitable characterization method. Hop is a bast fiber, just as flax and hemp and bast fibers cannot be distinguished from each other by simple optical inspection.

Recently, a new identification method for hop fibers was published by the authors of this article. Here we apply the new method in an investigation of two Swedish cultural heritage objects: (i) a woman's garment from the nineteenth century, which was labeled as having an upper section made from coarse linen and a bottom section made of hemp and hop and (ii) a textile fragment from an eighteenth-century textile sample book, which was labeled as being made from hop. We show that the woman's garment is made with hop and hemp fibers and the textile fragment from the textile.



COVID-19's Effect on Botanical Use and Supply Chains

How has COVID-19 affected botanical use and supply chains? We spoke with industry experts to find out.

Submitted by Rebecca Lazarou rebecca.lazarou@rebecalazarou.com and Trish Flaster tflastersprint@earthlink.net

Wondering why you can't get your favorite immune botanicals to protect you during the COVID-19 pandemic? Here are some insights from U.S. Dietary Supplement suppliers.

Botanical supplements for health has increased by an unprecedented 20% over 2020. While this has its benefits, it has also caused major issues in quality control as every step of the supply chain has suffered upheaval. An increase in buying is common during a crisis, but this leads to a shortage of stock, which in turn leads to products being adulterated with other plants and plant parts (for example, a medicinal leaf is replaced with a useless stem). Companies have seen a big increase in logistics, cost, and even the hike in price couldn't prevent stock getting stuck due to transport immobility. Companies have had to pick between quality, or lower quality products and going out of stock.

Angela McElwee, CEO of Gaia Herbs, said that "Weaknesses in the supply chain have been exacerbated and people are looking for back up. This has been a stress test on growers too as inequity has been magnified. Disadvantaged and BIPOC people have been struggling extra and are not represented well." Interestingly, Loren Israelsen from UNPA has stated that he believes this is a stress test for what we are going to see when climate change kicks in.

Wilson Lau, Nuherbs, when asked about COVID-19 issues affecting his supply chain, answers that, "perhaps the biggest challenge that the pandemic has brought is uncertainty. We just don't know what the future will bring."

The issues that we face have evolved since the beginning of this pandemic. Initially we were trying to get information to help us know what to do; things changed daily. As more was learned, we were able to figure out how to operate safely. Logistics are still more complicated than pre-pandemic, but things aren't as difficult as it was in the beginning of it.

Projections have become a big challenge: forecasting how much material our customers, and their customers, will need. With botanicals you can't just turn on the spigot, you have to plan far ahead. But no one really has any good projections—we just don't know what demand will be like this winter. Will it be like March-May of this year when demand was off the charts, or will it be just slightly elevated?

Since all our herbs come from specific areas of China, it helps us and our customers that China has bounced back strongly, and things are relatively normal there.

Both Steven Yeager (Mountain Rose) and Ed Fletche, (Native Botanicals) have told us that labor issues are one of the biggest issues during COVID-19. The resource is lacking, and there are fewer laborers. Why? The reasons vary. In the United States, migrant laborers are not as mobile during COVID-19 due to the fear of the virus. Also, the recent U.S. government relief support checks sent to all citizens has allowed citizens to cover their immediate expenses, and folks are not motivated to work. Sad, but true.

Also, due to fewer laborers, harvests are delayed. In the Natural Products Industry, harvest times are critical for capturing actives, quality, and seasonality. Ed referred specifically to *Panax quinquefolius* L. (ginseng) and *Hydrastis canadensis* L. (golden seal) harvests being affected as the migrant laborers are the Hmong folks and their relatives who are not as mobile due to COVID-19. Thus, with fewer hands, the quality is reduced as details to tasks performed are compromised. Cleanliness is one area of concern. Steve Yeager noted that incoming fresh plants for their extract line were less sanitary and they found more extraneous matter in their incoming dried materials.

The increased delays from South America then affect the laborers who are waiting to process materials, so the entire supply chain is being affected. Shipments from China and India have been stopped or are quite limited, compounding these issues.

Labor shortages are also present because buyers' funds are not abundant for raw ingredients. Often budgets are lowest for the cost of goods, and instead the funds are spent on Sales and Marketing. Companies focus on the short term, and all of this forces labor to seek full-time jobs. Also, some of the older wild harvesters are fearful to venture out due to COVID-19. This causes a shortage, but the greater loss is that these folks are the knowledge holders, resulting in additional spikes in adulteration and quality due to lack of training and experience.

COVID-19 has forced increased demand for more immune-support botanicals; for example, as Steven Yeager mentioned, *Phyllanthus emblica* L., *Achillea millefolium* L., *Echinacea* spp., *Sambucus nigra* L., *Eupatorium* sp., diaphoretic herbs, and vitamin C containing herbs. Ed Fletcher spoke of *Echinacea angustifolia* being imported from cultivated fields everywhere possible, such as from the European

Union, in addition to the U.S. crop. Also, he said that fields are being harvested too soon, one year earlier due to these pressures. Also, suppliers are having to short orders due to the lack of supply.

Sambucus is a plant that can be adulterated by other species as it is not taxonomically easy to ID. People are being asked to plant more of this power-packed herb.

Since Nuherbs sells only Chinese botanicals, different plants are in short supply for them. Many people routinely utilize herbs, such as astragalus, to support immune health, and sales of such herbs usually grows in the fall. According to Lau, demand for herbal supplements, immune-support herbs in particular, escalated rapidly starting in March for most of Nuherbs customers who have been reordering in high volume. This is happening throughout the industry. The responsible companies in the industry have been careful not to make drug or disease claims.

Nuherbs has worked with the same growers and processors for decades, so they have stability in terms of supply and consistency in quality. When you have long-term relationships, companies take care of each other, which has been particularly important in these past few months.

It's far more difficult for those who buy by price alone from a variety of random material brokers or use just-in-time inventory management. The tariffs that the Trump administration put in place had already created a lot of uncertainty, and because they kept changing, some companies held off purchasing material in the hope that the tariffs would be lowered or removed. Those companies were in the worst position when the pandemic hit, and may well have ended up without access to quality material.

Wilson Lau continues to say in agreement with Ed's and Steven's statements, that the best ways supply chain risk can be mitigated are planning and looking toward the future. We want to plan what our needs could be and how to meet those needs, versus just spot buying. We all must provide a little more certainty to those involved in the supply chain, especially the people who are growing the herbs that we are using. We should aim to have collaborative long-term partnerships with our partners. For us, Lau points out, we have very long-term relationships with growers and our processing partners in China, so we're not at all concerned about maintaining supply.

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COVID-19 and Botanical Supply Chains

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Whenever there is a change in the supply chain, whether it's a shortage of material, rising prices, or anything else that has buyers going outside their usual supplier network, manufacturers need to place more scrutiny on material they are buying. Vetting a new supplier in person is not an option right now, so other means are required, including rigorous identity, potency, and purity testing.

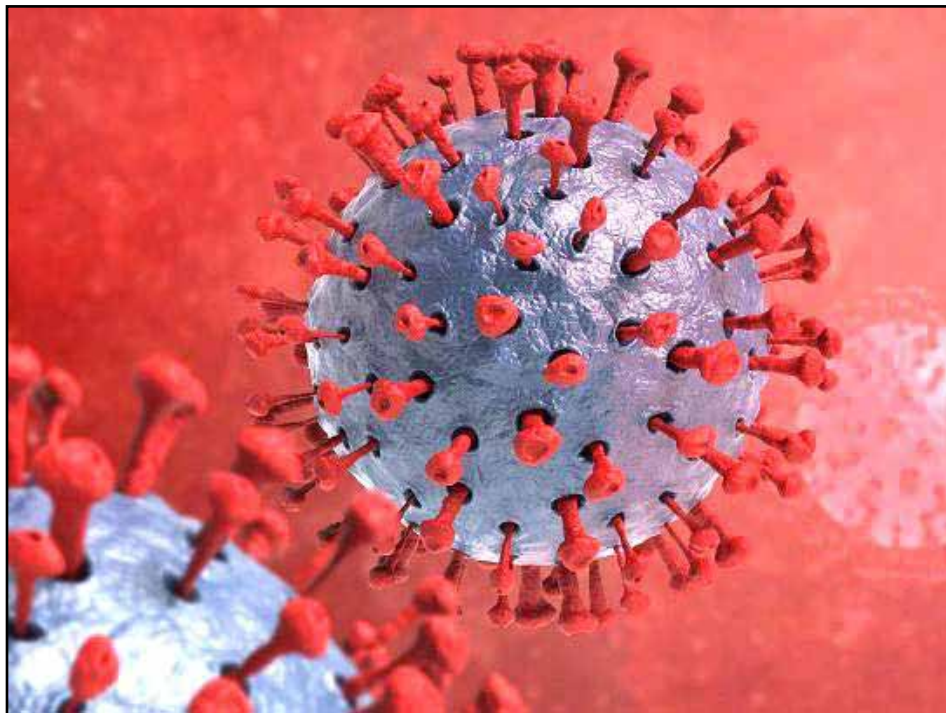
These shortages have forced some suppliers to seek herbs that can be used as substitutes and to seek new suppliers. This is a great opportunity for new suppliers to create new relationships.

Wilson Lau emphasized loyalty, in that retail brands that qualified multiple suppliers before the pandemic are in a stronger position. Obviously, suppliers are making sure to meet the needs of customers with whom they have solid relationships before taking care of new customers. Mr. Lau points out "As we enter our 41st year of business, our belief in collaborative, long-term relationships has uniquely positioned us to get orders out of China quickly, thanks to the systems and protocols we have in place with our partners."

All suppliers spoke about slowed transport. In the United States, as many imports arrive at the California ports, truckers are limited due to the raging forest fires in that state. There was a concern that labor shortages at the port would allow for fewer inspections, but that was not confirmed. Shipping transport has also slowed.

Mr. Lau said that this all started in March for most of the United States, but it has been impacting Nu-herbs since January. "Because we're China experts, we had prepared for the annual Lunar New Year shutdown by filling our warehouse in California and having additional material ready to ship to us when everyone came back from their holiday. That left us in a better position to meet the rapid increases in demand from our customers when the impact of the pandemic on the industry hit."

"Shipping material immediately became an issue with everything shut down, and when it finally resumed, space was limited and prices were higher. Medical cargo such as PPEs took priority. Today, the supply chain is flowing from China again, fortunately. The prices may increase, primarily due to higher shipping costs with sea cargo space less available and in high demand. Air freight shipment is faster than cargo, but costs approximately 10 to 15 cents a kilo for container sea freight vs \$4 - \$9 USD per kilo air shipment. It's made worse by the tariffs, which are still 25% on dried herbs, and other items at 7.5%."



Sarah Vito from Yellow Emperor believes an emphasis on social equity, sustainability, and transparency is the way forward for quality botanicals. "A healthy and thriving supply chain starts with regenerative farming practices, fair wages to farmers and processors, and supply chains that are smart (local as much as possible and trusted, always). Brands are transparent about their supply chain with their customers. This demands that brands also have trusted relationships with their vendors and contract manufacturers. There is so much that stands in the way of this, but I believe that as Gen Z and Millennials take over the spaces that Baby Boomers and Gen X leave, we will see these practices become more widespread. It's starting now, here

in the United States, but we are far behind other countries since we are operating with a significant education deficit."

Now more than ever it is imperative that consumers are able to question the people they buy their products from. There is no quick answer to how consumers become aware of these issues, but with social media and increased awareness of problems behind products, it is clear that a lack of transparency will not serve companies much longer. Asking your retailers the difficult questions is the best place to start. Also contact your branded products to ask them how they maintained quality control over COVID-19.





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