



Ginseng roots from CoP member Bob Beyfuss's farm in New York.

IN THIS ISSUE

Dear Community Members

As 2014 comes to a close we wish all of you a happy and healthy holiday season and best wishes for the New Year. It's hard to believe this is the end of our second year publishing Forest Farming Footnotes. We continue to be inspired by your work and are grateful you are part of the eXtension forest farming community. Our collective momentum carries forest farming forward and this issue lays out a few fine examples. The non-timber forest product / forest farming webinar series hosted in partnership with the American Forest Foundation is one, as is the recent two-day "Forest Farming to Forefront" retreat held at Cornell's Arnot Teaching and Research Forest. Our body of informational videos continues to grow (now over 100!), members are publishing books, and graduate students are leading the charge through their projects. Thanks to all and we look forward to 2015! As always, don't hesitate to let us know if you have something you'd like to share in the next newsletter.

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Partner Update 5

Community members Steve Gabriel and Ken Mudge produce their first book while Jeanine Davis publishes the 2nd edition of her book on forest farmed medicinals.



Grad Student Research 6-7

The next generation of researchers in forest farming showcase their work. Advice and feedback from others in the field is welcome. Contact information is provided.

Non-Timber Forest Products Fall 2014 Webinar Series

For more information on course registration, visit <https://www.treefarmssystem.org/american-tree-farm-webinar-series>

Adding to the community's Internet-based engagement is the Non-Timber Forest Products Fall 2014 Webinar Series which featured eight webinars presented by researchers, extension specialists, educators, and practitioners. The series was only possible through a partnership with The American Forest Foundation's Tree Farm System. We are particularly indebted to MacKenzie Rawcliffe at AFF. Thanks MacKenzie!

We also thank community members Jeanine Davis, Dave Fuller, Jim Chamberlain, Becky Barlow, Ken Mudge, Eric Burkhart and additional speakers Allaire Diamon, Mike Burns and Al Robertson for presenting. The webinars are archived and accessible via links below.

Goodies from Your Woods

Archive: <https://www.treefarmssystem.org/ntfpgoodies14>



Forest landowners often want to make some profit from their land, if only to pay the property taxes. Other than cutting timber, which can only be done so often, how can you generate income from your woods? Jeanine Davis, associate professor and Extension Specialist at NC State University, will go over the wide world of NTFPs and explain how many can be profitable.

The Incredible Edible Ostrich Fern Fiddlehead

Archive: <https://www.treefarmssystem.org/ntfpfiddlehead14>



Wild fiddleheads have long been a part of the springtime diet for folks over the range of the ostrich fern, *Matteuccia struthiopteris*. Ostrich fern fiddleheads are tasty and beautiful in the landscape. Dave Fuller, an Agriculture and Non-Timber Forest Products Professional with the University of Maine Cooperative Extension will teach about the ostrich fern and its spring edible,

Ramping Up to Forest Farm Culinary Delights

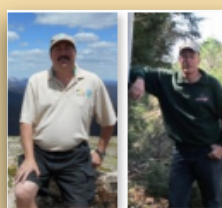
Archive: <https://www.treefarmssystem.org/ntfpramp14>



Edible forest products are becoming more popular in the culinary world. Foraging for wild foods is the latest craze among foodies. Jim Chamberlain, Research Forest Products Technologist with the USDA Forest Service, will focus on forest farming wild onions, also known as ramps, in this webinar.

Forest Brews

Archive: <https://www.treefarmssystem.org/ntfpbrew14>



Mike Burns and Al Robertson will teach how to tap into some non-traditional forest products to create hot, cold, and even adult refreshments. Both men love exploring and experimenting with everything they can find in their forests. Your forest may contain the key ingredients for delicious all-natural beverages.

Manage Your Forest for Pine Straw and Rake in the Profits

Archive: <https://www.treefarmssystem.org/ntfpstraw14>



Becky Barlow, Alabama Cooperative Extension Forestry Specialist, will present a webinar on harvesting pine straw and cover other decorative NTFPs. Pine straw is a non-timber forest product that is produced when southern pine trees such as longleaf, slash, or loblolly pines drop their needles in the fall.

Art from the Forest

Archive: <https://www.treefarmssystem.org/ntfp-art14>



Nontimber forest products include plants, lichens and mushrooms used for specialized art and craft practices: basketmaking, fiber dyeing, and more. Allaire Diamon, Conservation Ecologist with the Vermont Land Trust, will discuss a variety of species used by master artisans and the unique opportunities for landowners to build relationships with artisan-gatherers.

Forest Cultivated Mushrooms- A Rotten Business

Archive: <https://www.treefarmssystem.org/ntfpmushroom14>



Ken Mudge, associate professor at Cornell University, will explore the four stages that a prospective mushroom grower must consider for forest cultivation of shiitake mushrooms. Acquisition of substrate logs, inoculation, resting, fruiting and harvesting of mushrooms will be covered in this webinar.

Forest Botanicals- Deep and Tangled Roots

Dec12th- 2-3 pm. We will post the archive link as soon as we have it.



In this talk, Eric Burkhart, Program Director with Shaver's Creek Environmental Center (Penn State University), will share insights from his studies and involvement with this complex and little understood trade, and highlight the opportunities and challenges facing forest farmers interested in production of forest botanicals for market.





Forest Farming stakeholders gathered on October 24 and 25, 2014 at Cornell University's Arnot Teaching and Research Forest in Central New York. The meeting was a two-day retreat designed to discuss and plan for the future of forest farming as an agroforestry practice in the cold temperate regions of the eastern United States. Researchers, educators, forest farmers, industry representatives, NGO leaders, media specialists, and government agency personnel attended. Three forest farming experts even made the trip down from Canada! Focus crops included log grown mushrooms, ramps, ginseng and other medicinal plants, and fiddlehead ferns. Also discussed were the state of the industry and public awareness.

The meeting was organized as part of our eXtension CoP effort and was both a celebration of forest farming and an opportunity to address critical issues and develop strategies. It helped seed new ideas, identify road blocks, and cross-pollinate insights about the vast world of non-timber forest products. Meeting results suggest adoption of forest farming on a broad scale could potentially have potentially critical implications for food security and nutrition, plant diversity and abundance, proactive responses to environmental and social change, and resilient and productive forest management in the northeast and beyond.

Many members of our community attended and we would like to thank them for participating! We also picked up a few new members along the way and would like to welcome and thank them as well. A summary report is due out in the near future based on working group findings. But in the meantime, take a look at the video synopsis prepared by CoP member and videographer Priya Jaishanker. You're sure to like it...



Forest Farming to the Forefront - Summary Video

Have You Seen Our YouTube Video Series on Walnut Syrup?

Tapping walnut trees is very similar to tapping maple trees. However, there are important differences such as potential volume due to amounts of heart versus sap wood. Walnut trees have less white sap wood which effects relative yield. In this video series, Michael Farrell, Director of Cornell University's Uihlean Forest, discusses characteristics of walnut tree sap collection and cautions anyone who is allergic to nuts from trying the syrup just yet. It is thought that problematic proteins within the syrup can be denatured during boiling and reduce any allergic response. However, there has not been enough research to verify this is the case. Efforts to improve this and other aspects of production and quality are underway. It's a safe bet many of those that have tried the syrup would certainly say the work is well worth it! More to come.



Tapping walnut trees



Sap flow in walnut trees



Collecting walnut sap with a bucket



Maple vs Walnut



Walnut syrup and nut allergies

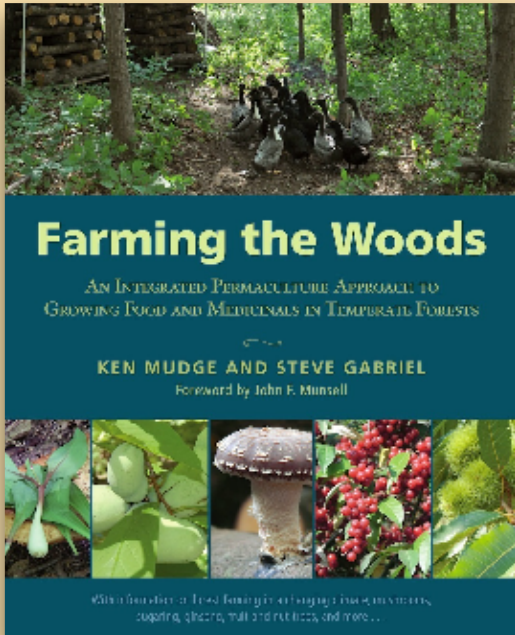
Check out the suite of syrup videos on our YouTube channel such as the series led by Cornell's Steve Childs on reverse osmosis.



MEMBER PROJECTS

An update on some of the work community members are involved in...

Remember - it's helpful to our members if you've read their book and like it that you leave comments on sites like Amazon and other book review websites.



"At last, a comprehensive forest farming guide for cool temperate climates! The authors have done a superb job explaining forest ecology and describing how to integrate fruits, nuts, mushrooms, medicinals, animals, and more into forest systems. A must-read for anyone interested in agroforestry, forest gardening, or utilizing forests for specialty crops."

Martin Crawford, author of Creating a Forest Garden

Community members Ken Mudge and Steve Gabriel recently released their much anticipated book *Farming the Woods - An Integrated Permaculture Approach to Growing Food and Medicinals in Temperate Forests* published by Chelsea Green. Their work is a comprehensive tour of forest farming possibilities that uses technical guidance, financial projections, and case study examples to outline adaptive and resilient management systems. The book also situates forest farming as part of a larger movement to manage forests in the face of rapid environmental and social change.

If you would like to find out more about the book that Joan Bailey of Permaculture Magazine dubbed "... a trusted companion for all farmer types" and "a tome destined to become a classic.", visit Chelsea Green's [book homepage](#) or go to Ken and Steve's [website](#). You also may want to check out [Steve's blog](#) to follow the development of permaculture and forest farming practices on his farm - Wellspring Forest



"...an instant classic in the fields of medicinal plant horticulture, sustainable agriculture, and agroforestry." CoP member Eric P. Burkhart

CoP member Jeanine Davis along with co-author Scott Persons has released the second edition of the widely recognized and thoroughly revered book *Growing and Marketing Ginseng, Goldenseal, and other Wood Medicinals*. The new edition offers readers the same definitive information as the first, such as rich historical overview and a companion focus on practical production aspects for more than a dozen woodland botanicals. But it also addresses new topics of interest like home gardening, wild harvesting, and the rules and regulations associated with cultivation and sale.

If you would like to find out more about the book visit New Society Publisher's [book homepage](#) or go to Jeanine's [website](#). For more information on Jeanine's research on medicinal herbs check out: <http://www.ces.ncsu.edu/fletcher/programs/herbs/>

Graduate Student Research

Below are research highlights from some of our graduate student members. We hope you will explore what they are doing and take the time to contact them with advice or questions. Mentors are one of the key ingredients in career inspiration and success. Being a mentor offers the opportunity to pass on your expertise and insight. If you know of a graduate student working on projects related to our interests please send their information to Catherine Bukowski (cjbukows@vt.edu) so we can list them in a future edition.



Bryan Sobel
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In a project funded by a NE SARE Graduate Student Grant, former Cornell University Graduate Student, Bryan Sobel, explored production and marketing aspects of log-grown shiitake mushrooms. On the production side often debated variables were explored, such as tree species selection, log-size, soaking time, and moisture management aspects that help to increase production. On the marketing aspect, this work explored shiitake's role as a functional food by analyzing select bio-chemical qualities and comparing that to consumers' tastes, perceptions, and seasonality for purchase of shiitake mushrooms. One notable outcome of this work is a list of descriptive adjectives that were developed, through focus groups, to help shiitake growers market mushrooms that have been grown on different tree species. More information about this work can be seen on the SARE reports database. Since graduation, Sobel has been working on a project to commercialize the cultivation indigenous mushrooms in Haiti.



Katie Trozzo
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Graduate Teaching Assistant
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Katie Trozzo is a PhD student at Virginia Tech. Her graduate project landed her in Virginia's Grayson and Carroll counties to live and study community-based agroforestry economic development. She facilitates the Agroforestry Network, a group of 100 stakeholders focused on building sustainable land-based economies through the development of agroforestry systems and products. Her research focuses on the impact of this network on overall community capacity and collective impact for change. Projects emerging from and being conducted by the community include hybrid hazelnut yield and market testing, woodland medicinal test plots, scaling up wild harvest of autumn olive berries, and most recently a partnership of eleven local organizations coming together to write a grant for agroforestry demonstrations, business development, workshops, and youth engagement. Her master's degree focused on multifunctional riparian buffers where she researched the social factors that influence agroforestry establishment and developed technical guidelines for installing these systems. Katie also organizes agroforestry extension programs and co-taught an undergraduate agroforestry class Fall 2014.



Badger Johnson
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Columbia
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Badger Johnson is studying the optimal environmental conditions for production of native wild crop species, growing under existing forest canopies in the Missouri Ozarks. Though many private, State and National Forests permit or tolerate harvest of these species from their properties, most do not have the money or expertise allocated to manage their forests for the production of non-timber forest products (NTFPs). Badger is currently setting up demonstration and research plots of several NTFP herbs (*Hydrastis canadensis*, *Colinsonia canadensis*, *Allium tricoccum*, *Actaea racemosa*). These growth trials will be used to explore how these four herbs perform across soil fertility and sunlight level gradients created by single tree selection timber harvesting methods. Badger is also analyzing data from the Nature Conservancy's Chilton Creek prescribed fire research project, and from the timber harvest focused Missouri Ozark Forest Ecosystem Project. Some forest farming questions arising from working with those studies are: how do the frequencies of prescribed burns in Ozark forests effect the wild populations of economically sought-after medicinal herbs? How are timber harvest intensities (clearcut, thinning, group selection, single tree harvest, no harvest) affecting these wild populations?



Steve Kruger
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Collecting and selling herbs and roots is an important source of livelihood, income and cultural identity in the Appalachian region. This relationship between people and plants is often a multi-generational locally distinctive practice. Simultaneously, it is part of a lucrative global trade going back to the 17th century. Ginseng may be the most iconic and lucrative, but a host of other medicinal, edible and decorative species are harvested in Appalachian forests. Outside of the trading community, little is known about the structure and size of the market for these other products, and how they get from the forest to consumers.

Based on an ongoing multi-method study at Virginia Tech, Steve Kruger's research explores the history and current state of the trade in a variety of native medicinal plants. Through qualitative interviews with medicinal plant buyers he hopes to identify potential challenges and opportunities for non-timber forest products. These include a growing market at home and abroad, changing governmental policies, local economic pressures, cultivation and local manufacturing of non-timber forest products, the effect of harvesting on wild plant populations, changing harvester demographics, portrayals of the industry in media, and a perceived disconnect between industry participants, researchers and policymakers.



Katie Commender
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Katie Commender's study seeks to discover if non-timber agroforestry production in the floodplain can increase riparian forest buffer (RFB) retention among cost-share program participants. Although RFBs provide numerous environmental benefits, they also take arable land out of production resulting in decreased farm income, and in some cases, long-term retention of the practice. The introduction of non-timber forest products (NTFPs), however, creates a multifunctional riparian forest buffer (MRFB) that provides an alternative crop to farmers in the way of native fruit and nut trees and shrubs.

In order to assess the impact of NTFP production on RFB retention, semi-structured interviews will be conducted with RFB cost-share program participants in Virginia. A MRFB cost-benefit analysis, known as Buffer\$, will be enhanced and used to create various NTFP production models that consider various marketing options, including wholesale, farmer's market, leasing and u-pick operations. These models will be used to generate scenario-based interview questions that gauge the impact of NTFP production on RFB retention and landowner preferences of production models. The data collected will inform policy recommendations for RFB cost-share programs that can increase the long-term retention of this valuable conservation practice.



Catherine Bukowski
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A community food forest (CFFs) is a perennial polyculture food production system modeled after a forest ecosystem open to the public for harvesting. They are emerging across the United States in urban areas to address a variety of concerns from food security to social justice. Food forests, also known as forest gardens, mimic young forests rather than the mature forest stands that forest farming is typically practiced in. However, some public food forests contain a mix of newly planted areas mixed with older growth or are being used to extend the forest edge in recreational parks. Ten food forests have been visited thus far and while all include fruit trees, some also include medicinal plants and shiitake logs.

CFFs offer a recognized area for the public to use for foraging as well as offer an introduction to non-timber forest products that can be grown in a forest setting. The research is looking at the agroecological and community development factors influencing the design and management processes of CFFs. Goals of the research are to understand which of these factors are most important to stakeholders and to produce guidelines for best management practices. Cathie also helps coordinate forest farming eXtension information, is currently installing a food forest within a YMCA community garden with the help of the Virginia Tech agroforestry club she organized and co-taught an undergraduate agroforestry class Fall 2014.

Tricks of the Trade - Community Members Bios



Community member biographies automatically rotate on the Forest Farming eXtension home page. See the example of our very own Bill Hubbard in the homepage image to the left. But we currently only have six biographies in the rotation! So we're seeing Bill and a few others a lot. We would love to have all our members represented. There are two ways to get your biography information into the rotation:

1) Got to <http://create.extension.org/>

Login and then under the Forest Farming group, create a new article, fill in the information below and tag it as Bio.

2) Send the information below with *Subject line: eXtension Bio* to Catherine Bukowski - cjbukows@vt.edu.

eXtension Biography Instructions

Bio Elements that must appear on each expert bio page must be in the specific order listed below.

Bio Page Title: The title of bio pages should be First Name, Last Name and then Institution Name. This is critical in maintaining consistency across all bio pages that are published.

Bio Photo: The rendered image size on a home page is 223 px by 130 px (72 dpi). You could use that as the image size in the bio article, but we recommend uploading (DO NOT ATTACH) a 446 px x 260px (72 dpi) - horizontal orientation, because that's a nicer proportion for the bio page itself. Bio photos should feature you, other elements should be minimal. *When uploading your bio photo be sure to select "Original" size when asked in the menu options during the upload to ensure that the image's size is retained and not cropped.*

Bio Message: The actual bio message should be the first text in the article because the home page features will pull the first few sentences (the first 320 characters of text) from the article for display along with the image. Bios should be written in a public friendly way using terminology that your customers will understand and can relate. This IS NOT a professional society or academic biography.

Expert Contact Information: Contact information should appear after the bio. For consistency we encourage the use of a header named **Contact Information**. This is accomplished by using the format type of a "Heading 2" to make the words "Contact Information" larger and bold. The format type of "Heading 2" can be set by highlighting or selecting the text of "Contact Information" in the edit mode of the article and then clicking on the Format menu drop down and selecting "Heading 2". Experts can provide whatever contact information they wish to share. **Linking:** It is acceptable to link to other web pages from a bio page to support the individual's bio information and credentials. Linking to a full resume or vita may be of interest or to a local institution's web site page