



This year, we celebrated the 20<sup>th</sup> Anniversary of the Farmscape Ecology Program. From its beginnings as a part-time, volunteer effort by Conrad and Claudia (often with their small son Otter in tow), working out of their home or from a temporary desk space in the “old farm store,” the program has evolved into a well-established part of Hawthorne Valley Association and is now composed of a team of six year-round staff and operates from its own building, the Creekhous. Trying to be a positive force in this world by giving back to society and the environment has always been the motivation for the work of the Farmscape Ecology Program. We continue to do that by learning which other-than-human species share the landscape and farms with us, trying to understand their needs and contributions, and then sharing what we learn with land managers and the wider public in an attempt to make us all better stewards of the land and all its life.

Below, we describe some of our more memorable activities during 2023.

## Sharing—in person, in print, and online

### FEP Presentations, Workshops, and Displays

During last winter, we offered a four-part, public winter lecture series on insects, which highlighted some of our research related to ants, bees, wasps, and ground beetles in the farmscape. FEP was featured in “To the best of our Knowledge” on public radio (with an [interview of Kyle Bradford on ants](#)) and in an episode of “Roots to Renewal,” a podcast in celebration of Hawthorne Valley’s 50<sup>th</sup> Anniversary (with an [interview of Conrad and Claudia Vispo by Martin Ping](#)). Kendrick Fowler served for the second year as a coordinator and lecturer in an international, online course on wasp identification. The agroecology research was presented to and discussed with academic groups in Germany (Univ. of Wuerzburg) and Austria (Univ. of Innsbruck), as Claudia and Conrad spent their winter focusing on elaborating related manuscripts.



Closer to home, FEP gave a presentation about native bees in the Philmont Library; shared the results of our Biodiversity Study at Hawthorne Valley Farm with the farmers, teachers, and other colleagues; hosted a visit by forest ecologist/historian Tom Wessels; offered a total of five workshops on gardening with native plants, butterflies, and the identification of asters and

goldenrods; presented our experimental agroecology research to the public during a field day at the Hudson Valley Farm Hub; brought an engaging display of our historical weather station and phenology research to the Martin Van Buren National Historic Site; and offered an interactive exhibit of many aspects of our work at the Hawthorne Valley Fall Festival. We invited the public to visit the butterfly house and to take tours of the native plant garden on three “field days,” the last coinciding with our day-long “World of Wonder”



Open House-style celebration of FEP’s 20<sup>th</sup> anniversary. During this well-attended event, our guests had the opportunity to explore the world of singing insects, the beauty of small creatures seen through the dissecting scope, the wonders of skulls and what they can tell us about the animals they came from, the historical weather station, the animated 3-D map of Columbia County, and Conrad’s extensive collection of natural history illustrations.

### **FEP Walks & Outings**

This year, we offered fifteen free public ecology walks featuring vernal pools, nature photography, spring flowers and geology, bats, meadow life, mushrooms, and land use history. For some of these walks, we partnered with geologist Becky Nesel (@geobeck on social media), Churchtown Dairy, Mountain Top Arboretum, Partners for Climate Action, and the Columbia Land Conservancy. We also offered several customized ecology walks for Spanish-speaking farmers at the Hudson Valley Farm Hub; customized ecology walks for staff at Camphill Copake, Camphill Triform, and the Forge Project on their respective lands; and here at Hawthorne Valley Farm, we facilitated two half-day field ecology workshops around the theme of on-farm habitats for participants in the Climate School; three sessions with school classes in the Visiting Students Program; and one with a group of young people from PlaceCorps.



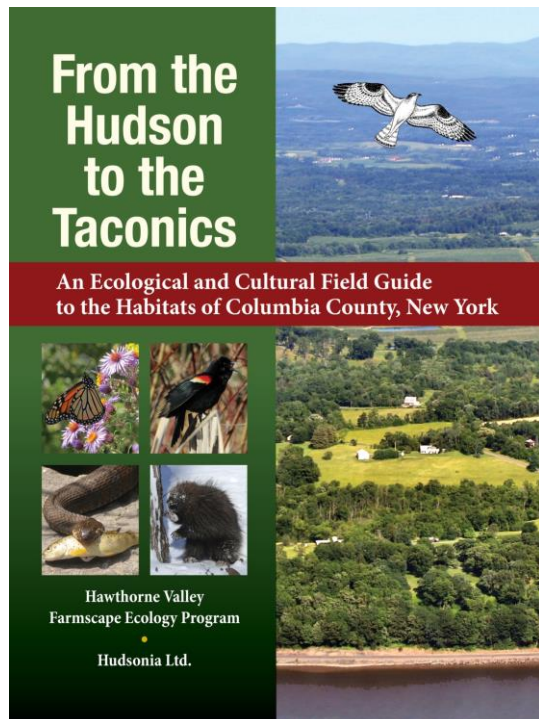
We also created two different entomology-themed self-guided StoryWalks along the small loop trail at the Creekhouse. These were featured at the field days but also left up throughout the summer and fall for camp groups, school classes, and other visitors to enjoy.

## Social Media Sharing

We continue to post Wonder Wanders and other offerings at least weekly on our Farmscape Ecology Program Facebook page and to our blog, the [Progress of the Seasons Journal](#), where we share informal observations and musings about the natural world. Our posts this year covered a wide range of topics, from celebrations of migratory amphibians and spring ephemeral flowers to adventures in overlooked habitats such as railyards and powerline cuts (we found rare species in both!), spotlights on little-known species, and even a deep dive into natural history illustration in the 19th century. We also contribute a weekly glimpse into wild nature on Hawthorne Valley's Instagram.

## Hawthorne Valley Waldorf School Ecology Club/Biodiversity Trail

This fall we coordinated a weekly after-school ecology club for high school students at the Hawthorne Valley Waldorf School, where we facilitated an in-depth exploration of one part of Hawthorne Valley Farm from ecological and agricultural perspectives with the ultimate goal of the students presenting a proposed route and interpretive points for a future "biodiversity trail." We will continue to work with the students and the leadership at Hawthorne Valley to help facilitate the eventual creation of this interpretive biodiversity trail.



## Publications

[\*From the Hudson to the Taconics: An Ecological and Cultural Field Guide to the Habitats of Columbia County, New York\*](#) by the Hawthorne Valley Farmscape Ecology Program and Hudsonia Ltd. (publication date April 2024).

This Field Guide, based on years of original research, provides a fun, accessible, in-depth resource for exploring local habitats from many perspectives. We are looking forward to sharing this widely, and see the *Field Guide* as a foundation upon which we can build an exciting and interactive outreach program as well as new research directions (see below).

[\*A Hudson Valley Perspective: The Pond Boom and its Implications for Nature\*](#) by Conrad Vispo in the Winter 2022 Issue of the Journal of NALMS (North American Lake Management Society)

[\*Extensive regional variation in the phenology of insects and their response to temperature across North America\*](#) by Peter. O. Dunn and 77 collaborators, including Kendrick Fowler, in *Ecology* Volume 104, Issue 5, May 2023.

In 2020 and 2021, we collected insects at Martin Van Buren National Historic Site as part of a continent-wide effort to study patterns in insect biomass, and the findings from that study are presented in this paper. The authors examined patterns in insect biomass in relation to temperature and time of season at a regional scale across North America and found that patterns in insect biomass varied among regions. For example, the biomass of nematoceran flies declined over the course of a ~50-day sampling period in southeastern North America, but increased over the corresponding time period in the midwest. Regional differences in how insects respond to temperature and the timing of the seasons may have implications for how scientists study the health of insect populations in the face of climate change and other anthropogenic threats.

[\*Biodiversity and Classification of Wasps\*](#) edited by L. F. Nastasi, R. L. Kresslein, K. O. Fowler, & S. R. Fernández Flores.

Created as a companion to the WaspID Course, this open access digital publication offers readers a basic overview of wasp biodiversity, biology, and identification. One of the most complete resources available to support the study of wasps, it is a must-have for anyone with an interest in insects! A revised and updated second edition will be released alongside the January 2024 session of the WaspID Course in order to bring the text up to date with the latest advances in wasp taxonomy.

## **New Resources on FEP's Website**

### [Public Areas of Columbia County](#)

We have compiled a map of (most) public natural areas in Columbia County and offer a brief summary, including directions, dog policies, links to trail maps (if available), and our own descriptions, to help people find natural areas to explore.



### [Mushrooms of Columbia County](#)

Within the biodiversity section of our website, a new group of organisms has been included, mushrooms! Diving into this group of organisms has been on our mind for a long time and with the hiring of Josie, our botany tech, it has finally come to fruition. She has begun to put together this page on the website to document what she has found throughout the county and especially at Hawthorne Valley, in addition to providing tips and resources for identifying species and documenting them on iNaturalist. A series of identification guides using FEP photos and descriptions is currently in the works. For now, [check out](#) what is on the horizon!

## iNaturalist Project

iNaturalist is a citizen science website and mobile application that allows anyone to log observations of plants, animals, fungi, and more! FEP has a profile on iNaturalist and we have created a project called [Life in Our Farmscape: The Biodiversity of Columbia County](#), which gathers all the uploaded observations located in Columbia County, NY. Throughout the summer, FEP made an effort to confirm and thoughtfully respond to intriguing observations. Someone uploaded a butterfly that we had not seen in the county before (an Oak Hairstreak). Josie used the project to make estimates of mushroom diversity in the county thus far. We recommend contributing to this platform—this could be important historical data at some point in the near or far future.

## Research

### Agroecology Monitoring and Experiments at the Hudson Valley Farm Hub

Last winter, Conrad and Claudia took a four-month sabbatical in which they started to take stock of nearly a decade of research at the Farm Hub and began preparing this work for publication with the help of virtually visiting researcher Megan Garfinkel. During the summer, these studies continued with an eighth year of insect sampling along our standardized transects and a seventh year of plant and insect sampling in our Native Meadow Test Plots. Analysis to date is helping document both the slow, long-term changes that occur as meadows evolve and the varying interactions that occur between the fields and forests of our landscape. Our latest reports on this work are available on FEP's [Agroecology page](#). Conrad continued to co-coordinate the Applied Farmscape Ecology Research Collaborative (AFERC) at the Hudson Valley Farm Hub. Also coordinated by Farm Hub colleagues Anne Bloomfield and Teresa Dorado, AFERC brings together researchers from various regional institutions around the theme of on-farm habitats for nature conservation and ecological farm production.



### Mushrooms of Columbia County

As previously mentioned, Josie has begun FEP's foray into the world of fungi. Since her arrival last year, she has been informally documenting the mushrooms of Columbia County through photo documentation, cataloging, and uploading observations to iNaturalist. She has especially become familiar with the fungi of Phudd Hill, the forested hillside behind the Hawthorne Valley School.



### Spotted Turtles at Hawthorne Valley Farm

We began a new project looking at Spotted Turtle movements at Hawthorne Valley. Our hope is to contribute to both localized farm management (what is the potential for positive or negative interaction) and broader understanding of the biology of this rare species.

### Other Field Projects

We worked with several other regional organizations, including Mountain Top Arboretum, Scenic Hudson, the Dutchess Land Conservancy, the Columbia Land Conservancy, the Forge Project, Camphill Copake, and Camphill Triform to help them better understand the lands they steward and the biodiversity they harbor, inform their management and/or habitat creation efforts, and/or educate the public about the ecology of these lands.

### Behind the Scenes, in the Net, and through the Dissecting Scope

The entomology team is diligently working to identify the wasps, ants, bees, ground beetles, and dragonfly exuviae we collected during our field research. Over the summer, they also collaborated with the New York Natural Heritage Program (NYNHP) to identify the wasps and ants collected at Fort Drum during the [Empire State Native Pollinator Survey](#). Below, we highlight some exciting early findings from their work:

We continue to discover and document rare and little-known wasps at the Hudson Valley Farm Hub, as we have done every year since we began collecting insects at the site in 2016. Kendrick wrote a post for our Progress of the Seasons Journal about [one species, \*Sierolomorpha canadensis\*](#) (pictured), that we encounter frequently, but is rarely collected by other researchers, and another about our [specimens of the wasp genus \*Eritrissomerus\*](#), which might represent one or more undescribed species.



During biodiversity surveys in Dutchess and Greene Counties, we documented many uncommon insect species. At a newly acquired Dutchess Land Conservancy property we observed two regionally rare ant species, and, amongst the odonates, the rare New England Bluet damselfly and Spatterdock Darner. In Greene County, we observed two species of threatened bumblebees at Mountain Top Arboretum, the Yellow-banded Bumblebee (*Bombus terricola*; pictured right) and the Golden Northern Bumble Bee (*Bombus fervidus*). Also at Mountain Top Arboretum was the Two-spotted Skipper, a rare wetland butterfly (pictured below).



## Other Highlights and Ongoing Projects/Collaborations

### Collaboration with the Martin Van Buren National Historic Site:

We are in the fourth year of our collaboration with the Martin Van Buren National Historic Site, which included collaborating with Cornell researchers to complete a full year of bioacoustic monitoring in different on-farm habitats within the historical boundary of the Martin Van Buren National Historic Site. Research objectives include studying the phenology and diversity of singing insects, birds, and bats, and looking at differences in acoustic complexity between habitats. We plan to continue developing outreach materials from this data to share the exciting world of sound in nature with FEP and Martin Van Buren audiences. We also continued long-term ecological monitoring at the site and public outreach related to the phenology and meteorology.

### Long-term Monitoring of Plant Phenology at Hawthorne Valley Farm

We have completed another year of weekly monitoring of the phenology of 70 individual plants, including species of trees, shrubs, and herbaceous plants along two phenology trails here at Hawthorne Valley Farm. Our data contribute to a national phenology database through Nature's

Notebook and are included in an analysis by Vicky Kelly from the Cary Institute and the Environmental Monitoring and Management Alliance (EMMA).

### **Affiliation with Cary Institute**

In order to help facilitate FEP's greater integration with the scientific community, Conrad is now a visiting scientist at the nearby Cary Institute. Claudia and Conrad presented an introductory seminar at Cary describing their agroecology work.

### **The WaspID Course**

Kendrick continues to serve as an instructor and executive member of the [WaspID Course](#), a 2-week, online course on wasp biodiversity and identification taught by an international team of 20 entomologists specializing in wasp research. The course has been a remarkable success: since its inception

in 2022, it has reached over 700 students from around the world and from a wide variety of backgrounds. The next session will run from 15–26 January, 2024; for more information and to register, visit the WaspID Course website at [waspidcourse.wordpress.com](https://waspidcourse.wordpress.com).



### **Looking Ahead** (Some Highlights of Planned Work for 2024)

With the upcoming release of *From the Hudson to the Taconics: An Ecological and Cultural Field Guide to the Habitats of Columbia County, New York*, we plan a year of engaging outreach to familiarize more people with the habitats in their own backyards. Building on the habitat work behind the *Field Guide*, we are also starting to develop a county-wide research project to document and highlight three particularly rare county habitats: Ancient Forests, Dry Meadows, and Wet Meadows. Our work to date suggests that each of these might support unique native biodiversity. We are hoping to document that richness, popularize it, and then create conservation plans for each of those habitats (see [hvfarmscape.org/fleeting](https://hvfarmscape.org/fleeting) for more details).

The mushrooms will likely become a focal group in the documentation of the biodiversity of Ancient Forests and we are considering a citizen science component for this work.

We continue to develop our historical weather station and are hoping to begin digitizing the extensive historical meteorological data that were collected by the NYS Academies Network (the network whose phenological data were core to some of our previous work).

We are collaborators on a USDA CIG grant application by the Wildfarm Alliance looking at tools for facilitating on-farm bird conservation. If funded, we plan to undertake avian habitat evaluations at three farms, including Hawthorne Valley.

As an outgrowth of various previous projects, including our work at the Farm Hub, our farm biodiversity inventories, and the Farmers' Research Circle, we are seeking to build a network of regional farms interested in assessing and improving their on-farm natural habitats. This work will be conducted in collaboration with Will Yandik and our colleagues at the Farm Hub.

Finally, we are going to continue the long-term monitoring efforts at the Hudson Valley Farm Hub. These are now among the longer running monitoring programs of this type in the Northeast, and long-term data reveal patterns not evident in shorter data sets, while also clarifying (or debunking) patterns suggested in shorter data sets.

## Acknowledgements

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**Volunteers.** Much appreciation goes to the lovely group of weekly volunteers, the “Soil Sisters” (Margot Carrol, Anne Codey, Elvy Ferrario, Mayuko Fujino, Eve Kaplan, Joanne Klein, Tracy Pennea, and Deborah Thomas) who are crucial in helping us keep up with weeding, seeding, and transplanting in the Native Plant Garden and in the beneficial habitats throughout Hawthorne Valley Farm. Numerous volunteers also collected seeds of native plants to keep our seed bank well stocked for next year’s planting and seed sharing. We also wish to thank Paul Wagner for generously volunteering his time to map historical field delineations throughout Columbia County, and Joanne Leah Henders and Margot Carrol for their help curating the insect collections. Sophia Madey was an energetic member of the summer botany crew.

**Learners (aka Interns).** Finally, a big thank you goes out to this year’s group of FEP learners, Jess Cartmell, Maya Clark, and Elyse Talley. We believe our internship program has been one core of our educational programming, and we hope our interns this year appreciated their experience. We know that we appreciated their energetic, diligent, and even joyful (despite heat and brambles) presence!



*The FEP team in 2023 (from left to right): Anna Duhon, Josie Laing, Kyle Bradford, Elyse Talley, Claudia Knab-Vispo, Conrad Vispo, Jess Cartmell, Maya Clark, Kendrick Fowler, and Delia*