



Fern Valley Field Station Annual Report, 2024

The College of Wooster

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LETTER FROM THE DIRECTOR

10 January 2025

Greetings all,

The year 2025 represents the 15th anniversary of the College of Wooster's ownership of the Fern Valley Field Station. It is hard to believe how quickly the time has gone! Over these 15 year, Fern Valley has continually supported exploration of the natural world by our students and faculty and we will continue to do so into the future. Inside this report you will find updates, information and reminders about the Fern Valley property. Whether you use Fern Valley for class visits, for student or faculty research, or just for hiking and nature exploration (or all of these), I hope you find something useful in the following pages. Feel free to contact me if you have any questions or concerns about Fern Valley!

Best wishes,



Rick Lehtinen

Biology Department, Fern Valley Director



Biologists seeking aquatic invertebrates in the stream at Fern Valley. Photo by L. Sirot.

FERN VALLEY NEWS

- Approximately twenty metal signs have now been installed along our property boundaries to keep everyone aware of where the Fern Valley property begins and ends. This is a major safety upgrade - thanks to the Biology Department for financial support!



New boundary sign on the western edge of Fern Valley property. Photo by R. Lehtinen

- This fall, we once again hosted representatives from the Killbuck Watershed Land Trust (KWLT) at Fern Valley for their annual inspection of the property. KWLT holds the conservation easement on the property. This is a legal agreement that prevents any development of the property and ensures it will remain in its natural state in perpetuity.
- Dr. Carlo Moreno (Environmental Studies) and his students planted approximately 20 American Chestnut (*Castanea dentata*) seedlings in the south meadow near the cabin at Fern Valley this fall. Chestnuts were wiped out from eastern North America by an introduced fungus in the early 20th century. These seedlings have been bred for chestnut

blight resistance, and we hope that they do well! By the end of the fall, all seedlings were still alive and most were about knee high. Thanks Carlo!



American Chestnut seedling at Fern Valley (protected from browsing deer with a plastic tree tube). Photo by R. Lehtinen

- Every year, Fern Valley Field Station hosts numerous class visits. Class visits this year included Laura Sirot's "Natural History of the Invertebrates" course who explored the property with Jack Freda from the Midwest Biodiversity Institute.



Students from "Natural History of the Invertebrates" at Fern Valley. Photo by L. Sirot

- Saving the best news for last, we now have a Fern Valley Endowment! Thanks to the ongoing and wonderful generosity of David and Betty Wilkin, we will now have funds available to support maintenance and student and faculty research at Fern Valley. Previously, our annual budget was exactly zero! These new funds will allow us to undertake key management efforts to keep Fern Valley accessible and in good condition for many years to come. Thanks so much David and Betty!



Fall afternoon in the woods at Fern Valley, October 2024. Photo by R. Lehtinen.

RESEARCH SPOTLIGHT

Amid the pandemic in spring 2020, we started planting and protecting tree seedlings in the north meadow at Fern Valley. If you haven't ever been to the north side of the property, you can park along Township road 511 and enter this area via a footpath (there is a sign but no parking lot). This meadow is a goldenrod field that used to be cattle pasture. Just four years later, some of those trees are nearly ten feet tall and still growing fast (see images below). It is exciting and heart-warming to see the forest starting to return! We are always looking for help in this effort, contact me for volunteer opportunities or to schedule a class visit.



The old cattle pasture on the north side of Fern Valley in May 2020 (right) and May 2024 (left).

Photos by R. Lehtinen.

LIST OF COW I.S. THESES CARRIED OUT AT FERN VALLEY

To date, 22 Independent Study theses at the College of Wooster have been conducted in whole or in part at Fern Valley Field Station (see list below):

- James Murphy (2025, in progress). Tentative title: A biodiversity survey of the millipedes of Fern Valley. (Biology)
- Nat Seeley, Jr. (2023). Title: Invasive Autumn Olive's Impacts On Native Red Oak Tree Growth Rate And Germination. (Biology)
- Sarah Longville (2022). Title: Interspecific Competition Between Eastern Redback And Northern Ravine Salamanders And Long-Term Effect Of Climate Change On Salamander Body Size. (Biology)
- Caden Croft (2021). Title: How Do We Fight Climate Change? A Study on the Impact of Carbon Sequestration Using a Small-Scale Reforestation Technique. (Biology)
- Oria Daugherty (2021). Title: If a Tree Falls in a Forest: The Impacts of Coarse Woody Debris on Biodiversity and Species Abundance in Areas of Ongoing Reforestation. (Biology)
- Morgan Pedroso Curry (2021). Title: The Mass Movements of Fern Valley. (Earth Science)
- Sally Lorbach (2020). Title: Exploratory Analysis of Salamander Abundance and Body Condition in Early Successional, Mature, and Old Growth Forests. (Biology)
- Austin Russell (2019). Title: A Comparison of Salamander Community Composition in Early Successional and Mature Forests. (Biology)
- Weston Gray (2019). Title: A Comprehensive Analysis of the Eastern Grey Squirrel (*Sciurus carolinensis*) Population in Ohio over Time with a Focus on the Melanistic Color Morph. (Biology)
- Alexa Rojas (2018). Title: An Examination of Salamander Abundance and Behavior in Response to Invasive Plants. (Biology)
- Haley Hartman (2018). Title: Investigating the Impact of Invasive Plant Species on Native Plethodontid Salamander Populations. (Biology)
- James Austin (2018). Title: The Impact of Invasive Plant Competition, and Deer Grazing, on Native Plant Species in a Secondary-Growth Forest. (Biology)
- Blake Marlowe (2017). Title: An Experimental Analysis of Invasive Plant Effects on Salamander Abundance. (Biology)
- Mallore Stack (2017). Title: Effects of the invasive plant species, *Rosa multiflora* and *Alliaria petiolata*, and deer browsing on native plant species in a Ohioan second growth forest. (Biology)
- Dabney Gottman (2015). Title: Effects on Beetle and Ant Populations at a Temperate Deciduous Forest and Agricultural Edge. (Biology)
- Elizabeth Ross (2015). Title: Neophobic behavior but not aggression differs between urban and rural chickadee flocks (*Poecile atricapillus* and *Poecile carolinensis*). (Biology)
- Jason Ziegler (2014). Title: Assessing the Effects of Forest Fragmentation on Moths Using Island Biogeography Theory and Tree Species Richness. (Biology)
- Philip Bauerle (2010). Title: The Effects of Competition on Radishes, *Raphanus sativus*, Grown at High and Low Densities as Well as Grown with a Different Cultivar Neighbor. (Biology)
- Hilary Edgington (2010) Title: Characterization of Hybridization in Two Species of Plethodontid Salamanders, with a Discussion of the Impact of Hybridization on Species Concepts. (Biology)
- Emmy Cassagnol (2009) Title: DNA Sequence Variation Indicates Hybridization between *Plethodon electromorphus* and *Plethodon cinereus*. (Biology)
- Kimberly Skully (2009). Title: Decomposition and Macroinvertebrate Colonization of Single and Mixed Species Leaf Litter in Two First-Order Temperate Streams. (Biology)
- Justin Baker (2006) Title: Phylogeography of two closely related darter species, *Etheostoma nigrum* and *Etheostoma blennioides*, in Ohio. (Biology)

PEER REVIEWED PUBLICATIONS FROM RESEARCH AT FERN VALLEY (* INDICATES COW UNDERGRADUATE CO-AUTHOR)

- Kuchta, S.R., M.M. Hantak, B.P. Waldron, C.D. Anthony, C.M. Hickerson, and R.M. Lehtinen. 2022. Hybridization between the woodland salamanders *Plethodon cinereus* and *P. electromorphus* is Not Widespread. *Ichthyology and Herpetology* 110: 430-438.
- Lehtinen, R.M., H. Hartman*, B. Marlowe* and A. Rojas*. 2022. Evidence for negative impacts on terrestrial salamanders following invasive plant removal. *Journal of Herpetology* 56: 92-98.
- Lehtinen, R.M., B.M. Carlson, A.R. Hamm*, A.G. Riley*, M.M. Mullen*, and W.J. Gray*. 2020. Dispatches from the neighborhood watch: Using citizen science and field survey data to document color morph frequency in space and time. *Ecology and Evolution*. DOI: 10.1002/ece3.6006
- Lehtinen, R.M., A.F. Steratore*, M.M. Eyre*, E.S. Cassagnol*, M.L. Stern* and H.K. Edgington*. 2016. Identification of widespread hybridization between two terrestrial salamanders using morphology, image analysis and molecular markers. *Copeia* 104:132-139.
- Goss, Charles W., P. Charles Goebel, S. Mažeika P. Sullivan. 2014. Shifts in attributes along agriculture-forest transitions of two streams in central Ohio, USA. *Agriculture, Ecosystems and Environment* 197: 106-117.

REMINDERS!

- New research projects at Fern Valley need to be approved before beginning work! This is just so we can make sure that new projects don't interfere with ongoing work. Please contact me to discuss projects you (or your students) are thinking about.
- Let me know when you are taking a class out to Fern Valley so we can track visitation numbers.
- While some years are worse than others, there are ticks out at Fern Valley during much of the year. And where there are ticks, there are often also tick-borne illnesses such as Lyme disease. To protect yourself and your students, dress appropriately, check yourself carefully afterwards and remove any ticks that you find as soon as possible!
- You can view the Fern Valley website here: <https://wooster.edu/area/biology/>

Acknowledgements and thanks

Many thanks as always to David and Betty Wilkin as well as to the Killbuck Watershed Land Trust, Beau Mastrine, Phil Olsen, Beth Lingenfelter, Jennifer Ison, Carlo Moreno, Greg Wiles, Laura Sirot, Nick Wiesenbergs and L. Campbell-Lehtinen for their help and support.