

# Fern Valley Field Station Annual Report, 22-23

## The College of Wooster

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# LETTER FROM THE DIRECTOR

17 Aug. 2023

Hi all,

Welcome to the 23-24 academic year at the College of Wooster! For the first time since I was appointed director of the Fern Valley Field Station in 2010, we have an annual report! This report covers the previous academic year (22-23) and inside you will find some news, some information and some 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 the above), I hope you find something useful or interesting in the following pages. And just a reminder to feel free to contact me if you have any questions or concerns about Fern Valley matters.

Best wishes,



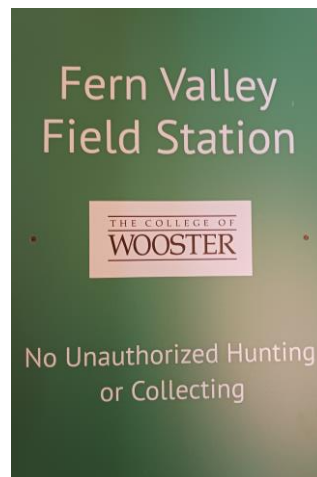
Rick Lehtinen

Biology Department



# FERN VALLEY NEWS

- Driveway improvements have been completed! In the winter of 2022-2023, a gas line that goes under the Fern Valley driveway needed to be repaired. Following those repairs, the gas company re-graded and re-surfaced the driveway at no cost to us. This has been a major improvement to Fern Valley access.
- Thanks to Beth and Jason Lingenfelter, a full property boundary survey of Fern Valley was completed in May 2023. Metal signs have been made that will soon be installed at key points to keep everyone aware of where our property begins and ends. This is also a major upgrade - thanks to the Biology Department for the funding!



- Earlier this summer, we 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.
- Two new reptiles were added to the Fern Valley species list in the last year. The first was an eastern milk snake (*Lampropeltis triangulum*) and the second was an eastern box turtle (*Terrapene carolina*, see below). Neither species had been found at Fern Valley previously!



Box turtle found at Fern Valley, June 16, 2022. Photo by Rick Lehtinen.

## RESEARCH SPOTLIGHT

In April 2020, with the help of two I.S. students (Caden Croft, '21 and Oria Daugherty, '21), I started planting seedling trees 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). The rest of Fern Valley is mature deciduous forest but this 8-acre meadow is a goldenrod field that used to be cattle pasture until approximately 2013. Of course, the meadow was forested before European settlement, and this project aims to re-forest it to create additional wildlife habitat and provide an opportunity for our students to study this ecological transition. And the carbon sequestration doesn't hurt either! To date, we have planted or protected over 200 young native trees in the meadow. Some of these are now tall enough to be peaking out of the tops of the tree tubes! The tree tubes are absolutely necessary to protect the young seedlings from hungry deer but eventually will be removed.



The old cattle pasture in May 2020. Photo by Rick Lehtinen.

# LISTS OF COW I.S. THESES CARRIED OUT AT FERN VALLEY

To date, 21 undergraduate theses from two different majors at the College of Wooster have been conducted in whole or in part at Fern Valley Field Station (see list below):

- Nat Seeley, Jr. (2023). Title: Invasive Autumn Olive's Impacts On Native Red Oak Tree Growth Rate And Germination.
- Sarah Longville (2022). Title: Interspecific Competition Between Eastern Redback And Northern Ravine Salamanders And Long-Term Effect Of Climate Change On Salamander Body Size.
- Caden Croft (2021). Title: How Do We Fight Climate Change? A Study on the Impact of Carbon Sequestration Using a Small-Scale Reforestation Technique.
- 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.
- Morgan Pedroso Curry (2021). The Mass Movements of Fern Valley.
- Sally Lorbach (2020). Title: Exploratory Analysis of Salamander Abundance and Body Condition in Early Successional, Mature, and Old Growth Forests.
- Austin Russell (2019). Title: A Comparison of Salamander Community Composition in Early Successional and Mature Forests.
- 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.
- Alexa Rojas (2018). Title: An Examination of Salamander Abundance and Behavior in Response to Invasive Plants.
- Haley Hartman (2018). Title: Investigating the Impact of Invasive Plant Species on Native Plethodontid Salamander Populations.
- James Austin (2018). Title: The Impact of Invasive Plant Competition, and Deer Grazing, on Native Plant Species in a Secondary-Growth Forest.
- Blake Marlowe (2017). Title: An Experimental Analysis of Invasive Plant Effects on Salamander Abundance.
- 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.
- Dabney Gottman (2015). Title: Effects on Beetle and Ant Populations at a Temperate Deciduous Forest and Agricultural Edge.
- Elizabeth Ross (2015). Title: Neophobic behavior but not aggression differs between urban and rural chickadee flocks (*Poecile atricapillus* and *Poecile carolinensis*).
- Jason Ziegler (2014). Title: Assessing the Effects of Forest Fragmentation on Moths Using Island Biogeography Theory and Tree Species Richness.
- 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.
- Hilary Edgington (2010) Title: Characterization of Hybridization in Two Species of Plethodontid Salamanders, with a Discussion of the Impact of Hybridization on Species Concepts.
- Emmy Cassagnol (2009) Title: DNA Sequence Variation Indicates Hybridization between *Plethodon electromorphus* and *Plethodon cinereus*.
- Kimberly Skully (2009). Title: Decomposition and Macroinvertebrate Colonization of Single and Mixed Species Leaf Litter in Two First-Order Temperate Streams.
- Justin Baker (2006) Title: Phylogeography of two closely related darter species, *Etheostoma nigrum* and *Etheostoma blennioides*, in Ohio.

# 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 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: Many thanks as always to generous spirit of David and Betty Wilkin. We also thank the Killbuck Watershed Land Trust, the Muskingum Watershed Conservancy District and Beth and Jason Lingenfelter, Jennifer Ison, Carlo Moreno, Greg Wiles, Shelley Judge, Kathryn Suggs, Kerrigan Horn and Nick Wiesenberg for contributions large and small!