



*this activity will begin before the conference and then pull things together at the conference in an all-day session. Lunch on your own. **Maximum 12. Please contact Andrea Dalton ASAP if you are interested in the interpretive signage activity.***

## Friday Pre-Conference Morning Classes

- 8:30 am – noon **“Hop Skip and Jump Part I”** - Jackie Burns: Carpool from the lodge across route 32 and ride the Canaan Valley Resort State Park chair lift to the top of Cabin Mountain; enjoy the view, and explore the area. Ride the chair lift back down and hike on the Canaan Valley National Wildlife Refuge .5-mile Freeland Boardwalk. See our 3 conifer species, many wetland plants and a great variety of birds. Return to the park. *Bring a container for water, camera and binoculars. On your own for lunch. **Easy walking. Maximum class size 25.***
- 9:00 am to noon and/or 1 pm to 4 pm (or both) **Service Project – Invasives Removal** – Anne Wakeford Need volunteer hours? Canaan Valley State Park has asked us to remove as much Autumn Olive, Japanese Barberry and Japanese Honeysuckle as we can. We will use Weed Wrenches and shovels to remove the plants. This can be a half-day or full-day activity. *Bring gloves, sunscreen and a water container. **Moderately strenuous. Multiple locations, so short walks are possible. Lunch on your own. Maximum class size 10.***

*Lunch on your own*

## Friday Pre-Conference Afternoon Classes

- 1:00 pm to 4:00 pm **“Tour of Canaan Valley National Wildlife Refuge Visitors Center and Beall South Trail hike”** – Leader (TBD)  
The new Visitors Center (VC) and bookstore opened this April. After visiting the VC, we will take a 1.5-mile hike along the Beall South Trail loop which goes through grasslands and woodlands with a gradual slope down to the Blackwater River. This is a beautiful hike to see fall wildflowers and birds. **Easy to moderate hike. Some uneven footing and elevation change. Maximum class size 20.**
- 1:00 pm to 4:00 pm - **“Hop, Skip and Jump Part II”**- Jackie Burns (You can take Part one, Part two or both.) Carpool to the Canaan Valley National Wildlife Refuge’s new Visitor Center and then drive on to Blackwater Falls State Park and tour the Falls. There is an option for a ½ mile guided hike to the beautiful Lindy Point overlook and visit to Pendleton Point. Or go to downtown Davis and Thomas and explore their wonderful variety of Artist Galleries and shops. Return to the park on your own, so come back anytime you would like. **The walk down to Blackwater Falls mostly on a boardwalk includes 214 wooden stairs. Maximum class size 20.**
- 1:00 pm to 4:00 pm **Service Project – Invasives Removal – Anne Wakeford** (you can also do morning or afternoon sessions or both)  
See description under morning heading, 9:00 am. **Maximum class size 10.**

4:15 pm – 5:15 pm **“An Introduction to iNaturalist”** – Instructor To Be Announced

Always wanted to use iNaturalist but just never got ‘round to it’? Come to the class with your phone. Download the program and learn how to use it. iNaturalist is a citizen science project and online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe. iNaturalist may be accessed via its website or from its free mobile application. Many people enjoy learning and sharing through this program. You can begin adding to the app at the conference!

## Friday Evening – Conference Begins

*5:30 pm to 6:30 pm Dinner Buffet*

*Vegetarian and Gluten Free available. Cost included in registration fee.*

*6:45 pm Welcome*

Keynote

7:00 pm – 8:00 pm **“Growing Caterpillars: A Tale of Bird, Plants, & Conservation**

Jim McCormac

There are perhaps 2,600 species of moths and approximately 140 butterfly species in West Virginia. The conspicuous and often showy winged adults are the short-lived finale of a four-stage life cycle: egg, pupa, caterpillar, and adult. It’s caterpillars that make much of the natural world go around, and countless billions become food for other organisms. Without vegetation-eating caterpillars and the native plants that they require, most songbirds would go extinct, botanical diversity would plummet, and our forests would fall silent.

**It is often cool in Canaan Valley in the evenings. Please bring a jacket or coat. Evening classes open to all. Register at conference.** Outdoor evening classes may be Friday or Saturday depending on weather. You can register for these classes as you check in at the registration table.

- 8:15 pm – 9:15 pm **“Bats”** (PowerPoint presentation) – Dr. Jim Van Gundy  
Bats are one of the most misunderstood and yet one of the most important groups of mammals. With over 1,200 species, bats account for about 20% of all mammal species worldwide. The talk will cover the biology and importance of bats and examine the bat species of West Virginia in more detail.
- 8:15 pm – 9:15 pm **“Night Sounds”** – We will break up into several groups each with a leader to go outside to listen for bird, mammal, amphibian and insect sounds. We could hear Woodcock, Snipe, Thrushes, Owls, Frogs, Toads, Crickets, Katydid, Bats (with acoustic equipment) and who knows what else.
- 8:15 pm – 9:15 pm **“The Making of Dolly Sods”** (PowerPoint presentation) – Jan Runyan  
A little bit of Canada in the temperate mid-Atlantic region. The Dolly Sods area is a fascinating anomaly. If you know what to look for, you can see many hints about the frigid natural history of the region. You will learn how three physical processes have interacted to create this unique place and will learn to recognize some Dolly Sods plants and animals who usually frequent more northern climates.
- 8:15 pm – 9:15 pm **The Stewards of Shavers Fork** is a 50-minute documentary that explores the history and restoration of the iconic Shavers Fork in Pocahontas and Randolph Counties. Go back in time and learn about logging the ancient spruce forests of Cheat Mountain, life at the now ghost-town of Spruce from a former resident, and how those early activities impacted the river. The film then chronicles the efforts to bring the Shaver's Fork back to life after the devastating effects of timbering and acid rain and improve habitat and water quality for native brook trout. The West Virginia Division of Natural Resources spear-headed the restoration efforts with the support of Canaan Valley Institute and West Virginia University. The film also gives viewers a glimpse of the unique landscape of Cheat Mountain and the Shavers Fork watershed, which has captivated generations of nature-lovers and sportsmen. Alyssa Hanna

Friday Evening Classes

Early Morning

## Saturday Early Morning classes

- 6:30 am to 7:30 am **Bird Walk** – Dr. Herb Myers
- 6:30 am to 7:30 am **Yoga for Master Naturalists** -Sheri Kosh  
This gentle class is perfect for our weekend of sitting a lot and exploring. Tune into your body, as you stretch, strengthen and tone. The postures are presented in an easy to follow, accessible manner with plenty of time for modifications. Beginners are welcome, no yoga experience necessary. Please bring a mat or let Sheri know if you need one. There will be some mats available.

*7:30 am to 8:30 am Breakfast – on your own*

## Saturday All day Classes

Saturday All Day Classes

- **8:45 am to 4:15 pm “Natural Stream Stability and Function”** – Dr. Pam Edwards and Ed Watson  
Do you know what a healthy stream looks like?-During the morning classroom lecture we will describe the components that define a stable and functioning stream, how streams evolve stable and functioning conditions on their own, and how humans try to reproduce stability and function through restoration. During the afternoon we will carpool to several streams in the Canaan Valley, Thomas and Davis area to see examples of different types of streams and stream conditions, including ones that have had some type of restoration. At these sites we will undertake a more in-depth discussion of the concepts covered in the classroom to provide students with specific examples. *Bring a backpack for lunch, water container, camera and binoculars. Easy walking. Maximum class size 25.*
- 9:00 am to 4:00 pm **“A Walk Through Big Run Bog”** – Bill Beatty & Jan Runyan  
We will carpool to arguably the richest bog in West Virginia based on the flora and fauna it contains: thousands of pitcher plants and sundews, some of the rarest plants in the state and nesting birds (thrushes wrens and warblers) in the habitats surrounding the bog. We will walk through the bog to examine the plant diversity and will make a quick stop at Olson Fire Tower on the way back. **Moderately Difficult to Difficult Walk, High physical exertion required.** The area is fairly flat, but the terrain is difficult due to boggy conditions. *Wear sandals that strap securely or shoes that tie securely to feet; no loose boots. Bring a water container, backpack to carry lunch, a camera, binoculars and sunscreen. A tray of Subway meats, veggies, cookies with chips, apple and jugs of water to fill your container will be available for \$10. Maximum class size 20.*

## Saturday Morning Classes

- **8:45 am to 11:45 am “Plant Symbioses – an Introductory Overview”** -Dr. Zach Fowler  
This class will introduce plant symbiosis and give an overview of the different types of symbiotic relationships in which plants engage. We will discuss a range of external and internal symbiotic relationships on the spectrum from mutualism to parasitism as well as many interesting and important examples of plant symbiotic relationships. We will go for a short hike to find examples of these relationships. **Easy walking. Maximum class size 25.**
- **8:45 am to 11:45 am “Fun with Microscopes”** – Laura Miller, Sam Norris and Rose Sullivan  
Microscopes are one of the most important tools in the study of nature in general. Thanks to their invention, amateurs and scientists have been able to discover and understand better a myriad of things about nature otherwise hidden from us. This class will introduce students to the use of microscopes, both dissecting and compound, with lots of hands-on/lab practice to discover the excitement of observing living and non-living things under a microscope, and to learn about some of nature’s hidden worlds. Students will be allowed time to go outside and collect items they want to observe under the microscope. Naturalists who use microscopes regularly say that using the microscope will hook you – we will do our best to show you more cool things of nature and will share them using a microscope camera. Several people will be available to help you individually to become comfortable with the microscope. As we move toward more advanced classes, microscopes will be an essential tool. *Students are encouraged to bring things they are curious about observing and sharing under the microscope.* **Maximum class size 20.**
- **8:45 am to 11:45 am “Ruby-throated Hummingbirds: Pollinators Extraordinaire” class and wildlife walk** – Jim McCormac  
Hummingbirds are perhaps the most amazing flying machines on Planet Earth. There are about 340 species of Hummingbirds which-occur only in the Americas. The combination of incredible powers of flight, often outrageously showy plumage, and fantastic nectar-seeking habits make hummers true marvels of nature. This program will mostly focus on the only breeding hummingbird in eastern North America: the Ruby-throated Hummingbird. Feathered dynamos, ruby-throats are a joy to observe and live far more complex lives than most observers realize. Their life cycle involves tree bark, lichens, spiders, a myriad flowering plants and tropical winters in places very different than West Virginia. The classroom lecture will last about an hour and will be followed by a wildlife walk through the park looking for birds and other wildlife. **Easy walking. Maximum class size 25.**
- **8:45 am to 11:45 am “A Marvelous Bog”** – Alyssa Hanna  
Bogs are perhaps the most unique of wetlands. The plant composition, structure and biogeochemical ecology is fascinating. One keystone group of plants, sphagnum moss holds the cards to all. Join me as we explore a lovely bog on top of Canaan Mountain. The tranquility and stillness of this lovely elliptical bog surrounded by an emerging red spruce forest belies all the life within. We will travel around the edges and go across the bog to see the bog and a Pottsville rocks outcrop. *Bring your journal, your hand lens and favorite bog story. A pair of old tennis shoes will work fine, or low tread rubber boots. Bring extra water, sunscreen, bug spray and a small bag – cranberries should be ripe.* **Moderate walking; it is not easy to walk in a bog. Distance near 1.5 miles. Maximum class size 20.**

- **8:45 am to 11:45 am “Amphibian and Reptile Diseases at Vernal Pools”** – Kevin Oxenrider  
Amphibian and reptiles are declining globally, and a primary threat to both taxa is emerging diseases such as ranaviruses and chytrid fungi (Bd). Ranavirus and amphibian chytrid fungus (Bd) have both been detected in amphibian and reptile populations in WV, but population impacts are still unknown. During the classroom portion, participants will learn about diseases affecting amphibians and reptiles at vernal pools in WV. Specifically, participants will learn about the ecology of the diseases, their possible impacts on amphibians and reptiles, and survey/detection methods, as well as decontamination techniques. Participants will then carpool to a local vernal pool and collect-samples from a local wetland. *Participants should bring muck boots or waders that can be decontaminated using a bleach solution.* **Short fairly easy walks but some uneven footing. Maximum class size 25.**
- **8:45 – 11:45 “Basics of Mushroom Foraging and Identification”** - Max Dubansky  
The class will be held in the field followed by a table walk identifying/discussing mushrooms found during class.

*Bring a hand lens and a bottle to hold water and a bag or basket for mushrooms.* **Short fairly easy walks. Maximum class size 30.**

*12:00 to 1:00 pm Lunch – Box lunches included in registration fee*

## Saturday Afternoon Classes

- **1:00 to 4:15 “The Interconnected World of Orchids”** - Dr. Katharine Gregg  
West Virginia is home to over 40 species of orchids, all inextricably tied to other living organisms. Here in West Virginia, pollination ties orchids to flies, bees, moths, and butterflies. Orchid seeds cannot germinate without a fungal partner, and some non-green species require fungi for nutrition throughout their entire lives. Some green species continue to “employ” fungi even while they photosynthesize. Amazingly, through their mycorrhizal fungi, orchids can connect to and share resources with other plant species, even forest trees! Class demos will illustrate orchid pollination, tiny orchid seeds, and orchid roots harboring their fungi. **Maximum class size 20.**
- **1:00 to 4:15 “Native Vines are Climbing Everywhere” and Botanical walk** – Jim McCormac  
Over 60 species of native vines occur in West Virginia. While that’s only a small fraction of the 1,700+ species of indigenous plants in the state, the vines stand out. Many species have stunning flowers, and are – or could be – used ornamentally. A great many native insects, including showy butterflies and moths, are dependent upon vines. This talk will be a pictorial ramble through the world of West Virginia’s vines, with an emphasis on how they interact with animals. Maybe you’ll be inspired to start a vinery! The class will be about an hour long and will be followed by a nature walk to view plants and animals. **Easy walking. Maximum class size 25.**
- **1:00 to 4:15 “Caves and Cave Exploration in WV”** - Doug McCarty  
This is a **classroom** overview of the caves of West Virginia, focusing on some of the more significant or interesting caves in the state in terms of size, biological features, and geology. We will also discuss the exploration of those caves from both a historical and current perspective. **Maximum class size 40.**

- **1:00 to 4:15 “The Natural History of Salamanders”** – Dr. Zac Loughman  
The class will cover the life and salamanders and their importance to the environment. We will carpool a short distance to salamander habitat and do a lab activity with the salamanders we find. *Wear pants and shoes that can get muddy and wet.* **Fairly easy, short walk. Maximum class size 25.**
- **1:00 to 4:15 “Monarch Butterflies: Conservation and Updates”** - Susan Olcott  
The monarch butterfly, West Virginia’s state butterfly, is being considered for listing under the federal Endangered Species Act. What are the threats and challenges this species faces, what is being done in West Virginia and other states to improve its outlook? We’ll take a dive into monarch natural history and conservation to bring you up to date. Then, weather permitting, we’ll take a walk outside to find some butterflies, and possibly monarchs at all stages of development. **Easy walk. Maximum class size 25.**

4:45 pm to 5:30 pm *Business Meeting*

5:45 pm to 6:45 pm *Dinner*

Keynote

7:00 pm – 8:00 pm **“Our Mountain Peatlands, Why I Think They are Cool & You Should, Too”**  
Kevin Dodge  
An introduction to the high elevation peatlands of the Central Appalachians. The formation and ecology of these wetlands will be discussed, as will some of the unique plants and animals that occupy them.

Evening

**Saturday Evening classes**

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- 8:15 pm to 9:15 **“Salamander and/or Crayfish Walk”** – Dr. Zac Loughman  
(Only Saturday evening) Evening is prime time to find salamanders and crayfish. We will carpool a short distance to hunt for both species. *Bring a headlamp and wear pants and shoes that can get muddy and wet. Bring knee pads, if you have them.* We might get lucky and find an incredible neon blue crayfish. **Easy to moderate walk.**
- 8:15 – 9:15 **“Night Sounds”** (same as Friday evening)
- 8:15 – 9:15 **“The Stewards of Shavers Fork”** (same as Friday evening)

*Sunday, Sunday, Sunday*

**Sunday Early Morning Classes**

Early Morning

- 6:30 am to 7:30 am **Bird Walk** – Dr. Herb Myers
- 6:30 am to 7:30 am **Yoga for Master Naturalists** – Sheri Kosh  
This gentle class is perfect for our weekend of sitting a lot and exploring. Tune into your body, as you stretch, strengthen and tone. The postures are presented in an easy to follow, accessible manner with plenty of time for modifications. Beginners are welcome, no yoga experience necessary. Please bring a mat or let Sheri know if you need one. There will be some mats available.

7:30 am to 8:30 am Breakfast on your own

## Sunday Classes

### Sunday Morning Classes

- **8:00 am to noon “Legacy of Coal”** – Alyssa Hanna  
This class will explore the history of coal in and around Thomas, WV, examine some of the remnants from the coal heyday that are still present, and look at some of the environmental impacts of coal mining in this area. We will see buildings and company houses that are over 100 years old and former coke ovens. We will also see former strip mines and a source of acid mine drainage from one of the many underground mines. We will sample benthic macroinvertebrates and water chemistry along the North Fork of the Blackwater River above and below this Acid Mine Drainage site to see how it impacts the river and nearby wetlands. The trip will end with a visit to Douglas Falls, a 35-foot waterfall near Douglas, WV on the North Fork of the Blackwater River. While all walking for this trip will be pretty easy and on mostly level ground, you will want to *bring appropriate shoes/boots if you want to help sample macroinvertebrates in the river. We will be car-pooling on this trip, and lower clearance cars are not recommended as the road to the coke ovens and Douglas Falls is gravel and often has large potholes.* **Short distance, fairly easy walking. Maximum class size 25.**
- **8:30 am to noon “Cooperation and Competition in Our Woodlands”** – Jackie Burns  
There is much in writing and in film about competition in nature. We have all heard “survival of the fittest.” But what role does cooperation play in nature? Do we underestimate its importance? Rather than teaching new concepts, this class seeks to connect concepts with which you are already familiar, for a more complete understanding of the ecosystem. **Easy walk**, the walk is not long in distance or terrain but will last the full length of class. **Maximum class size 25.**
- **8:30 am to noon “Nature Printing”** – Sam Norris and Rose Sullivan  
Medieval herbalists, Japanese fishermen, Da Vinci, Ben Franklin, and Martha Stewart all used nature printing for their own purposes, and it’s still a good way to create beautifully detailed images of leaves, flowers, seashells, fish, etc. We will demonstrate techniques for printing plants on paper and fabric, and tricks for printing from three dimensional objects such as seashells. Everyone will have the opportunity to try these methods and learn enough to continue practicing and experimenting at home.  
*If it’s nice out we could work outdoors. We will provide everything that’s needed for the class, but if participants want to try printing something wearable (e.g., a T-shirt) or something like a dishcloth, etc., they can bring such with them. Cotton or other natural fiber is best. If you want to protect your clothing, consider bringing an apron.* **Maximum class size 12.**
- **8:30 am to noon “Biology of Freshwater Crayfish”** – Dr. Zac Loughman  
In the classroom we will discuss the life history of our burrowing and stream dwelling crayfish. We will carpool to a site to do a hands-on field study of the crayfish we catch. *Wear boots that can get wet.* **Easy to moderate walking. Maximum class size 25.**
- **8:30 am to noon “West Virginia’s Pollinators: An Introduction to Them and Their Conservation”** - Susan Olcott  
As naturalists, we often perceive bees and other pollinators as background noise, and often don’t take the time to look at or study them. Although overlooked, they are one of the foundations of a healthy ecosystem. This class will give you an introduction to West Virginia’s pollinators, including the difference between bees and wasps, how to encourage pollinators on your land, and some of the challenges facing pollinators today. Then, weather permitting, we’ll go outside to find and identify these fascinating creatures going about their business. **Easy walk. Maximum class size 25.**

- 8:30 am to noon **“Fungi and Farming”** – Max Dubansky  
This class will discuss unconventional uses for fungi in farming, forestry and remediation followed by a field walk to see fungi in action. **Short, easy walks lasting most of the class period. Maximum class size 30.**
- 9:00 am to noon **“Cave Exploration in WV- Exploring Harr Cave #2”** – Instructor to be announced  
We will carpool to a private cave in Tucker County. Please be sure you are physically fit and not claustrophobic and have the physical ability to do this class before you sign up. Entrance way involves climbing through a small passage and down a ladder which will require some dexterity. *While the cave consists primarily of a walking passage, at the bottom of the entrance shaft, people will get mud on their clothes - mostly on their rear-ends. They will also get mud on their shoes, so they need to bring extra clothing and a clean pair of shoes to change into. Clean shoes and clean clothes are usually carried in a garbage bag. Shoes should be sturdy. Personally, I and most cavers these days wear rubber boots (such as Wellingtons). It will be in the 50's in the cave, so wear long sleeve shirt and pants. While this isn't a difficult cave, people should be at least somewhat physically fit, and obviously not claustrophobic. Helmets and helmet lights will be provided. Maximum class size 12. Moderate to difficult.*

### **Sunday Lunch (not included in conference fees)**

The park is letting any of us who want to stay and eat lunch together after the conference to use their private dining room. We would order from menu (you pay for your lunch).