

# Botany 2018 Field Trip Descriptions

## Friday July 20<sup>th</sup> – Saturday July 21

### Ferns and Lycophytes of the Driftless Area Option 1

Friday 2:00 pm - Saturday 5:00 pm

#### Trip Sponsored by AFS.

The fern foray will take place immediately prior to the Botany 2018 conference. Participants of the foray have the option to either participate in the full overnight foray (Option 1) or to participate in the Saturday 1/2 day portion of the foray only (Option 2 – see Fern Foray trip on Saturday). The Driftless Area in southeastern Minnesota includes unglaciated regions of the state, which host an array of limestone endemics and encompass the northern-most extent of the range for many fern species.

Special highlights of this foray include visits to an above-ground sink hole (Mystery Cave State Park (Option 1)) and to cliff faces overlooking the mighty Mississippi River (Options 1 & 2).

Option 1 the *full overnight* fern foray. We will board the bus at the conference center on Friday, July 20th, 2018 at 2 PM. From there, we will journey southward toward Forestville and Mystery Caves State Park. This 1 hour drive will be punctuated with stops to see ferns at various locations along the way. Upon arriving at the park, we will embark upon a foray at the park and surrounding areas. The evening will conclude with dinner and a fire-side chat. The following morning, we will board the bus, departing Mystery Caves State Park at 10 AM. From there, we will travel to Frontenac State Park by way of Whitewater State Park and surrounding areas.

**Lodging:** Four camping cabins with bunkbeds and electricity have been reserved for the overnight. Each cabin sleeps 6 (one sleeps 5) and one is handicapped accessible. Cabins do not have bathroom facilities, but bathrooms and showers are located nearby. Additional options for tent camping are available, but equipment, supplies, and reservations must be organized in advance by contacting the field trip coordinator (Amanda Grusz, [algrusz@d.umn.edu](mailto:algrusz@d.umn.edu)).

**What to bring:** For the overnight foray, please be prepared with an overnight bag and anything that you may need overnight (clothes, bathroom essentials, etc.). We will organize food and bedding for participants in advance. Please also bring suitable attire and footwear for light hiking. Food will be provided for dinner (Fri), breakfast (Sat), and lunch (Sat).

Trip Leader: Amanda Grusz, American Fern Society



# Botany 2018 Field Trip Descriptions

## Saturday July 21

### **Big Woods and Cannon River Kayaking**

**8:00 am – 4:00pm**

In the morning, we will take a walk in the largest remnant of the Big Woods in Minnesota: maple-basswood forest with rich herbaceous understory. In the afternoon we will take a 2-2.5 hour kayak trip downstream through wild and scenic river gorge in SE Minnesota with 300 foot bluffs, fossilized limestone exposures, and birding option. This trip involves moderate physical activity. Wear lightweight shoes or sandals. Bring sunscreen, bug spray, rain gear if rain is in the forecast; binocular if you'd like to do some birding. Check out this video: <http://thegearresource.com/outfitters/kayaking/>. Box lunches and water will be provided.

Trip Leader: George Weiblen, university of Minnesota

### **Cedar Creek Ecosystem Science Reserve**

**8:00 am – 5:00pm**

The Cedar Creek Ecosystem Science Reserve is situated at the intersection of the three largest biomes in continental North America: prairie, deciduous forest, and boreal forest. We will visit an oak savanna with an ongoing 50+-year burn experiment; Cedar Bog Lake where Raymond Lindeman founded ecosystem ecology, Beckman Bog; a 25-year Prairie Biodiversity Experiment ("BigBio"); 20-year Biodiversity, CO<sub>2</sub> and Nitrogen (BioCON) experiment; the recently established Forest and Biodiversity (FAB) experiment; and the bison enclosure at the savanna. <https://vimeo.com/232084985>

Recommended: Hiking shoes or boots, long sleeves/long pants, hat and protection from bugs. Rain gear just in case. Expect moderate exertion with bogs and swamps, and sandy roads. Bring sunscreen, bug spray. The weather will likely be in low to mid 80s but can vary dramatically during the day - layers advised! Box lunches and water will be provided.

Trip Leader: Jeannine Cavender-Bares



## Sedge and floristic field trip at Whitewater Wildlife Management Area

8:00 am – 5:00pm

The Whitewater Wildlife Management Area is a highly diverse ravine within the driftless region of Minnesota. It supports numerous high-quality communities: mesic and lowland hardwood forests, floodplains, wet meadows, and dry lime prairies. Hiking boots recommended; rubber boots not necessary, but participants should plan on getting their feet wet in some of the swampier areas and floodplain. Long pants are essential, as we will be in areas with nettles. We will also be on at least one dry lime goat/prairie, so participants should be prepared to climb on inclines. Mosquitoes and flies will probably be bad, so insect repellent is recommended. Participants should bring a hand lens. Participants are encouraged to obtain a copy of Welby Smith's *Sedges and Rushes of Minnesota* prior to the trip. Participants can however bring other books as they see fit (e.g., Voss and Reznicek's *Field Manual of Michigan Flora* or Hipp's *Field Guide to Wisconsin Sedges*, the latter of which overlaps particularly well with the flora of the area).



Photo by Jason Husveth

Participants can collect in the WMA without obtaining an additional permit. We may also visit an adjacent state park, where collecting will not be permitted. Box lunches and water will be provided.

Trip Leaders: Andrew Hipp and Jason Husveth

## Weaver Dunes sand prairie and Weaver Bottoms marshes canoe trip

8:00 am – 5:00 pm

The Weaver Dunes area offers a large sand/barrens prairie on an extensive dune field with nearby Mississippi River floodplain forest, alluvial marsh, and backwaters. We will hike parts of the extensive sand prairie and see a wide variety of plants and animals, including some that are uncommon elsewhere. We will also paddle the Weaver Bottoms marsh, which is full of emergent vegetation in mid-summer. The spectacular American Lotus should be in bloom. Both sites have examples of successful ecological restoration.



Photo by Steve D. Eggers

Walking the sand prairie of Weaver Dunes is easy, even though there are no trails, as long as participants are dressed appropriately. That time of year can be quite warm. Water, boots or solid hiking shoes, a hat, sunscreen, bug spray, and long pants are recommended. Bring rain gear if rain is in the forecast. We will go through areas of Poison Ivy. For the canoe trip, you may want to have water-resistant footwear for launch and landing. Box lunches and water will be provided.

Trip Leaders: Joel Dunnette and Ed Lagace

## Fire and Ice: Glacial Relicts to Fire-Dependent Plant Communities at Whitewater State Park and Great River Bluffs State Park

8:00 am – 5:00 pm

We will explore the rugged topography of Whitewater State Park. A diverse mix of plant communities are found within this 3200-acre state park including cold and wet north slopes, bottomland hardwood forests, groundwater seepage communities, mesic maple and basswood forests, dry oak forests, and dry cliffs. Along the way we will see historic CCC/WPA-era structures, coldwater streams, and scenic overlooks.



Great River Bluffs State Park is dominated by south and west facing bluffs with large bluff prairies and fire-dependent woodlands. The towering bluffs and cliffs offer scenic vistas of the Mississippi River. We will discuss some of the challenges of managing fire-dependent communities while balancing the protection of other rare species. We may visit disjunct populations of *Montia chamissoi* and *Thuja occidentalis* if time and energy allows.

Hiking conditions at both locations will be moderate to strenuous depending on the route. Some trails have stone or wooden steps and climb 250-300 feet of elevation. Plan to be on and off the trail on uneven terrain. Hiking boots, hat, and long pants are recommended. Insect spray, sunscreen, binoculars, and rain gear (depending on the forecast) are advised. Both parks are in high risk areas for deer ticks. Tick gaiters, light colored clothing, repellants, and/or tucking pants in socks are recommended. Box lunches and water will be provided.

Trip Leader Erika Rowe and Shawn Fritcher, Minnesota Department of Natural Resources

## Ferns and Lycophytes of the Driftless Area Option 2

10:00 am – 5:00 pm

The day will begin by visiting the areas surrounding Whitewater State Park, just east of Rochester. Here, we will meet up with the “overnighters” (Fern Foray Option 1). Together, we will travel to Frontenac State Park, there exploring ferns and lycophytes on the shores and flood plains of the Great Mississippi River.



# Botany 2018 Field Trip Descriptions

## Sunday, July 22

### Whitewater State Park - hiking through an excellent example of the unglaciated Driftless Area

8:00 am – 2:00 pm

Whitewater State Park is set in the heart of Minnesota's bluff country. The group will explore the rugged topography and natural features of this 3,200-acre park. Steep forested bluffs that rise 250-300 feet above the narrow valleys are covered by maple-basswood forest and oak forest. The steep slopes also support dolomite and sandstone cliffs, as well as examples of glob-



ally significant dry bedrock bluff prairie, Driftless Area white pine forest, and an algalic talus slope and northern hardwood-conifer forest complex. Cold water streams are flanked by alluvial terrace forest and small groundwater seepage meadows. Scenic vistas are worth the hike to bluff-top overlooks. Along the way we will see historic CCC/WPA-era structures. Time permitting, the tour may stop at the nearby Elba fire tower where wooden

stairs lead from the base of a 280-foot bluff to a 110-foot lookout tower <http://nhlr.org/lookouts/us/mn/elba-fire-tower/> where one can see for miles in all directions and get a great feel for the blufflands landscape.

Hiking in Whitewater State Park is mostly along hiking trails- hiking varies from easy on the valley bottoms to moderate or rather strenuous on steep bluff slopes (depending on the route). July in southeastern Minnesota can be warm (typical daytime highs in the 80's). Hiking boots or solid hiking shoes, a hat, and long pants are recommended. Participants should bring a quart of water, more if it is hot. Rain gear would be advised if rain is in the forecast. Binoculars would be useful for looking at plants on inaccessible cliff ledges or on the opposite side of a stream that may be deeper than one wants to wade through (this site is also a good birding spot). Box lunches and water will be provided.

Trip Leader: Michael Lee, Minnesota Biological Survey

### Microhabitat Extremes at Forestville/Mystery Cave State Park

8:00 am – 2:00 pm

Forestville/Mystery Cave State Park is a biodiverse blufflands/driftless destination with a wide array of attractions and natural resource features. One can visit a historic townsite, hike or horseback ride on miles of trails, fish in several coldwater streams, tour Mystery Cave, and explore unique geology and



plant communities. Our 4-hour hike will follow Canfield Creek to a complex of springs, which provide most of the baseline flow for the coldwater system. Along the way, we will visit numerous aspect-driven plant communities. Terrace forests cover much of the valley floor. Seepage communities occur along slopes where layers of shale force groundwater to the surface. Algific habitats and boreal remnants persist on north-facing slopes and cliffs. Mesic oak forests give way to dry oak woodlands on south and west slopes. Small prairie openings persist on the driest southwest aspects. Springs, sinkholes, caves, and other karst features are abundant, along with other geologic features such as rock slumps. Fossils are common in the exposed Ordovician bedrock. Bring binoculars for a chance to see Louisiana waterthrush along the streambanks. The trip will culminate on a dramatic ridgeline where mere feet separate dry bluff prairie from a north-facing algific talus slope with disjunct populations of balsam fir, Canada yew, and black currant.

Hiking will vary from easy to moderate along much of Canfield Creek. The hike will also include a couple moderately strenuous climbs up the bluff (200 feet of elevation). Be prepared to be on and off the trail on uneven ground. Hiking boots, long pants, and hats are recommended. Insect spray, sunscreen, binoculars, water bottle and rain gear (weather dependent) are advised.

Box lunches and water will be provided.

Trip Leader: Welby Smith, Minnesota Department of Natural Resources

## **Minnesota Landscape Arboretum & Paisley Park**

**8:00 – 5:00 pm**

The Minnesota Landscape Arboretum features 1,137 acres of natural areas, specialty gardens, demonstration areas, and more than 5,000 plant species and varieties. The Arboretum is one of the premier horticultural field laboratories and public display areas in the country. In 2012, the Arboretum was granted full status into the Center for Plant Conservation as a public or private garden representing the Upper Midwest. The Natural habitats and native plants abound at the Minnesota Landscape Arboretum. Discover the bog at Green Heron Pond, an "off the beaten track" nature experience featuring a half-mile trail and boardwalk. Stand in the Prairie and hear the sounds of swishing grass and birdsong. Visit Spring Peeper Meadow, a wetland restoration project that is now home to almost two dozen species of sedge, grass and wildflowers. Find native plants of the deciduous woodlands in the Wildflower Garden. We will have lunch at the garden cafeteria.

After lunch we will head four miles east to the Paisley Park. The Park is Prince's extraordinary private estate and production complex. You will have the unprecedented opportunity to experience first-hand what it was like for Prince to create, produce and perform inside this private sanctuary and remarkable production complex. The tour is around 70 minutes and we will head back to Rochester and arrive back at the conference center around 5 pm.

Minnesota Landscape Arboretum <http://www.arboretum.umn.edu/>

Paisley Park <https://officialpaisleypark.com/>



Minnesota Landscape  
**ARBORETUM**

Water will be provided. Entry and tour for both the Arboretum and the Paisley Park included. Lunch at the Arboretum not included.

Trip Leader: Peter Moe, Director, University of Minnesota Landscape Arboretum

## **New Bell Museum, MIN herbarium, and Surly Brewing Company** **1:00 pm – 7:00 pm**

Trip sponsored by ASPT



We will start from the Mayo Civic Center and head north towards the St. Paul campus of University of Minnesota. Upon arrival on the St. Paul campus we will visit the Bell Museum and the University of Minnesota Herbarium. The trip will stop by the Surly Brewery, a popular gathering spot near campus on the way back.

Moving to its new building summer 2018, the Bell Museum features a digital planetarium, high-tech exhibits, dioramas, outdoor learning experiences, and sustainable building design including a green roof and photovoltaic glass railings. Highlights in the main exhibits include world renowned wildlife dioramas by Walter Breckenridge, Francis Lee Jaques, and John Jarosz. The state-of-the-art planetarium features a dome constructed using the latest "seamless" technology, making it the first of its kind in the world. In our unique Touch & See Lab, visitors get hands-on access to natural history specimens—from 10,000 year-old fossils and living plants and animals to our honey bee hives. In addition, the new museum building has outdoor learning features including pollinator gardens, native wildflowers, grasses, shrubs and trees, a pond filled by rainwater collected from the museum's roof, and large boulders representing Minnesota's major rocks types (basalt, limestone, sandstone)



encourage visitors to climb and observe. In addition to touring the building trip leader will discuss public programing and outreach activities at the Bell. Participants will also have the opportunity to sample ice cream made from the campus dairy farm, including a custom flavor inspired by Bell Museum to celebrate grand opening of the new museum building.

The University of Minnesota Herbarium (MIN) is located in the Biological Sciences Center 0.9 miles from the museum and houses close to a million specimens. The record of historic flora of the Upper Midwest (including the Dakotas, Wisconsin, and southwestern Ontario) is among the best in the United States. Other significant historical collections include circumbo-real and arctic flora, historic Pacific Island flora, early Amazonian flora, and early California plants. Our herbarium collections continue to expand with new specimens, particularly from the Minnesota Biological Survey (Minnesota Department of Natural Resources) and a tropical rain forest research program in Papua New Guinea from curator George Weiblen. Website <https://www.bellmuseum.umn.edu/new-building>

Ice cream and brewery purchases not included. The trip will finish at the Surly Brewery just off the campus.

Trip Leaders: Daniel Stanton and Holy Menninger

# Botany 2018 Field Trip Descriptions

## Thursday July, 26

### **North Fork Whitewater River - rare cold Karst bedrock and rugged Driftless Area topography hike, and scenic tour of the Whitewater valley.**

**8:00 am – 5:00 pm**

North Fork Whitewater River in the Whitewater Wildlife Management Area is set in the heart of Minnesota's bluff country. This trip offers a hike into a narrow valley lined with steep 250-foot bluffs. A highlight of the trip is a large moderate (cold air) dolomite cliff with a population of the globally rare *Rhodiola integrifolia* (this population is one of only seven in the world of this glacial relict species). Additional habitats that we may encounter along the way include a variety of dolomite cliffs, globally rare Driftless Area white pine forest, rich maple-basswood forest, alluvial terrace forest, oak woodland, and groundwater seeps. Scenic vistas and a cold water stream are part of this hike as well.



The group will finish the day (time permitting) with a driving tour through additional portions of the Whitewater Valley to see more of the diversity of Minnesota's blufflands including examples globally significant Driftless Area dry bluff bedrock prairie and barrens savanna. Time permitting, the tour may stop at the nearby Elba fire tower where wooden stairs lead from the base of a 280-foot bluff to a 110-foot lookout tower <http://nhlr.org/lookouts/us/mn/elba-fire-tower/> where one can see for miles in all directions and get a great feel for the blufflands landscape.

About 2-2.5 miles of mostly off-trail hiking which is moderate to strenuous. July can be warm (highs in the mid 80's is average). Hiking boots or solid hiking shoes, a hat, and long pants are recommended. The hike may include, especially for adventurous folks who want to get up close and personal with the *Rhodiola*, a fording of the stream (hopefully in a spot that is knee deep or less). Participants should bring a quart of water, more if it is hot. Rain gear would be advised if rain is in the forecast. Binoculars would be useful for looking at plants on inaccessible cliff ledges (this site is also a good birding spot). Box lunches and water will be provided.

Trip Leaders: Michael Lee and Welby Smith, Minnesota Biological Survey  
Christine Johnson, Whitewater Wildlife Management Area

### **Big Woods and Cannon River Kayaking**

**8:00 am – 4:00pm**

This trip is repeat of the Saturday Big Woods and Cannon River Kayaking trip. See the Saturday trip information for details.