

**Biodiversity Survey of Coal Creek Farm,
Cumberland County, Tennessee**



Image: Shortleaf pine savanna restoration area at Coal Creek Farm.

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Executive Summary

The Southeastern Grasslands Initiative (SGI) conducted a biodiversity survey and ecological assessment of the ca. 5,277-acre Coal Creek Farm between May 2018 and September 2022. This report summarizes findings based on 58 days total at the farm by staff from SGI and partners from the Mississippi Entomological Museum and the University of Tennessee at Chattanooga. It also includes additional biodiversity data collected and posted to iNaturalist by George Lindemann and farm staff. This report starts out by framing the major conservation issues facing the native grasslands of the Cumberland Plateau. Then, we present a general geographical and ecological overview of Coal Creek Farm. Next, we provide details on the methods and results of our study, describing the diversity of native plants, animals, and habitat types discovered. Afterward, we summarize the key ecological stresses facing Coal Creek and highlight considerations for future conservation and management efforts. Our work is supported with a rich assortment of photographs, tables, and maps, and includes links to our online [Coal Creek Farm Biodiversity Project](#) on iNaturalist, where there is much more to explore online.

Our inventory documented 22 habitats, including 9 types of forest and woodland (with one extinct/historic community), 2 types of glades, outcrops, and cliffs, 5 types of open grasslands, 4 types of wetlands, and 2 disturbed lands community types. Of these, 15 are considered to be natural or semi-natural plant communities.

In terms of species, we found 599 plant species, including 59 species of trees, 40 shrubs, 3 subshrubs, 13 woody vines, 348 forbs (herbs), 109 graminoids (grasses, sedges, rushes), and 27 ferns and fern allies. We found three plant species of conservation concern in Tennessee that are tracked by the Tennessee Natural Heritage Program. We also found numerous “storyteller species” in our work whose presence reveals a long history of open grassland and savanna habitat that was once maintained by fire and other natural disturbances. Our work also revealed the presence of 83 non-native species, 18 of which have strong to moderate invasive potential and should be further evaluated and prioritized for control. Additionally, 663 animal species across nine major classes were documented.

Our report brings focus to the key ecological stresses facing Coal Creek Farm and the greater region. These include loss of fire-maintained pine-oak savannas and woodlands and loss of native grasslands due to a variety of mechanisms, but especially the loss of a natural fire regime on the landscape. The impact that increasingly pervasive processes such as climate change, urban sprawl, land use change, and invasive species will have on Southeastern grasslands remains unclear. But, SGI is currently working with the U.S. Geological Survey to better understand these factors and their projected impacts for 50- and 100-years into the future.

Several natural communities, especially shortleaf pine-oak savannas and woodlands, are in need of restoration. In our summary of management recommendations, we introduce some of the key areas that would be high-priority candidates for future ecological restoration. These future restoration efforts will likely need to involve regular prescribed burning and various mechanisms to reduce invasive species.

This report is intended to address findings from our study, and to serve as a foundation for future restoration, management, and other conservation efforts at Coal Creek.

Background & History

Coal Creek Farm is owned and operated by Miami-based philanthropist George Lindemann, and includes 5,277 acres on the Cumberland Plateau in east-central Tennessee. It is a working cattle ranch with a focus on environmental preservation. In March 2017, Lindemann contacted the Southeastern Grasslands Institute (SGI) to assess his property for potential grassland restoration work. When SGI’s executive director Dwayne Estes and chief science advisor Reed Noss made an initial site visit, they noted numerous “storyteller species,” including big bluestem grass, shortleaf pine, and post oak. The presence of these plants suggests that Coal Creek Farm was once home to grasslands and savannas. These are open, sunny habitats with high biodiversity that were historically maintained by fire and other disturbance mechanisms, such as large grazing mammals (bison). Much of the Cumberland Plateau region was formerly dominated by these open habitats, but fire suppression, removal of large grazers, sprawling development, and urbanization have caused severe degradation of these landscapes. Sadly, most grasslands across the Southeastern United States have succumbed to these pressures, transitioning to scrubby woods and weedy agricultural fields. SGI works to restore degraded grasslands as well as locate and protect the pieces that remain. This report details an inventory of the dominant habitat types, plants, fungi, and animals at Coal Creek Farm in order to gain a better understanding of the biodiversity that remains and to guide future preservation and restoration efforts. This work was conducted over the course of five years (May 2018-September 2022), with contributions from numerous SGI staff, as well as partners from the Mississippi Entomological Museum and the University of Tennessee at Chattanooga.



(Image from coalcreek.com)

Methods

Plant Community Classification and Mapping

To map the Farm, a variety of resources were used including modern and recent historical aerial imagery (1992, 2007-08, 2010-11, 2015, 2017-19, and 2022), topographic maps, and LiDar imagery. Winter leaf-off images were used to help distinguish forest types (e.g., deciduous oak forest vs. evergreen coniferous pine forest). Lidar and topographic maps were used to help distinguish land types and to identify areas that were historically subjected to surface mining. The Farm was first separated into natural or semi-natural vegetation types (e.g., forests and woodlands, wetlands, natural grasslands, and glades, outcrops, and cliffs) and non-natural vegetation types (fields, developed areas, abandoned surface mines, small, isolated woodlots, and farm ponds). Next, we consulted the National Vegetation Classification (USNVC) and identified the vegetation alliances that most closely aligned with the natural and semi-natural vegetation types on the Farm. For non-natural vegetation types, we used general categories such as fields, ponds, developed areas, etc. All vegetation types were mapped using more than 300 polygons. Table 1 includes all of the vegetation types recognized, their general category (e.g., grasslands/wet meadow), equivalent NVC Alliance name, and the measured acreage of each polygon.

Plant and Insect Species Inventory

A systematic effort was made to document all vascular plant species that occur at Coal Creek. These data are summarized in Appendix F-H and include all native species and those non-native species which were naturalized (growing and reproducing in a wild state, without human tending). Planted/cultivated lawn or garden plants were not included in the inventory. Non-vascular plants such as bryophytes (mosses, liverworts, and hornworts) were not systematically inventoried, nor were fungi and lichens; nevertheless several observations of these groups were made. A list of non-vascular plants can be found in Appendix I, and fungi in Appendix J.

Staff from the Mississippi Entomological Museum (MEM) and Stelios Chatzimanolis from the University of Tennessee at Chattanooga documented the insects of Coal Creek using a variety of collecting and trapping techniques. In May 2019, MEM staff even conducted an extended, 5-day trip to Coal Creek Farm for their [annual William H. Cross Expedition](#). Additionally, Megan Hart of SGI and Quail Forever focused on documenting the birds of Coal Creek Farms through audio recordings. All data on insects, birds, and incidental observations of other animal groups are summarized in Appendix K.

A citizen-science biodiversity platform, www.iNaturalist.org, was used to track all species documented. The iNaturalist Mobile App was used to record observations via photographs, which were subsequently uploaded to a project created specifically for tracking the [biodiversity of Coal Creek Farm](#). All team members and staff of the Farm were encouraged to make observations for the iNaturalist project to help track species documented during the life of the project and beyond.

In addition to photographic documentation on iNaturalist, herbarium specimens were collected to document all plant species encountered in fertile and/or identifiable condition. These will be deposited at the herbarium of Austin Peay State University (APSC), the University of Tennessee at Chattanooga (UCHT), and/or other state and regional herbaria to serve as a permanent record. Insect specimens collected from Coal Creek are housed at the Mississippi Entomological Museum (MEM) and the Insect Collection at the University of Tennessee at Chattanooga (UTCI).

Dates of Field Visits

Numerous single and multi-day trips, comprising 58 days total, were made to the site by various staff from SGI, the Mississippi Entomological Museum, the University of Tennessee at Chattanooga, and others, from May 2018 to September 2022 to conduct field inventory for this assessment. Data gathered during these site visits provided the primary basis for this survey and assessment. Dates of these field trips were as follows:

2018

May 20	–	Dwayne Estes
June 8	–	Dwayne Estes, Alaina Krakowiak, Joey Shaw, John Shelton
June 29	–	Dwayne Estes, Alaina Krakowiak, Joey Shaw, John Shelton, Theo Witsell
July 17	–	Joey Shaw, John Shelton
July 24	–	Alaina Krakowiak, Joey Shaw, John Shelton
August 6	–	Brady Dunaway, Anna Estes, Dwayne Estes
August 7	–	Brady Dunaway, Dwayne Estes
August 8	–	Brady Dunaway
September 1	–	Dwayne Estes, Theo Witsell
September 2	–	Dwayne Estes
September 13	–	Brady Dunaway
September 14	–	Brady Dunaway
September 15	–	Brady Dunaway, Stelios Chatzimanolis, Alaina Krakowiak, Joey Shaw, John Shelton
September 28	–	Alaina Krakowiak, John Shelton
October 17	–	Alaina Krakowiak, John Shelton
October 24	–	Alaina Krakowiak, John Shelton
October 31	–	Alaina Krakowiak, John Shelton
November 14	–	Alaina Krakowiak, John Shelton

2019

April 21	–	Zach Irick
May 20	–	Richard Brown, Brady Dunaway, Jordan Gesell, JoVonn Hill, James Lewis, Joe MacGown, Terry Schiefer, Ryan Whitehouse
May 21	–	Richard Brown, Brady Dunaway, Jordan Gesell, JoVonn Hill, James Lewis, Joe MacGown, Terry Schiefer, Ryan Whitehouse
May 22	–	Richard Brown, Brady Dunaway, Jordan Gesell, JoVonn Hill, James Lewis, Joe MacGown, Terry Schiefer, Ryan Whitehouse
May 23	–	Richard Brown, Brady Dunaway, Jordan Gesell, JoVonn Hill, James Lewis, Joe MacGown, Terry Schiefer, Ryan Whitehouse
May 24	–	Richard Brown, Brady Dunaway, Jordan Gesell, JoVonn Hill, James Lewis, Joe MacGown, Terry Schiefer, Joey Shaw, Ryan Whitehouse
May 30	–	Joey Shaw
May 31	–	Ben Benton, Dwayne Estes, Joey Shaw, Theo Witsell

July 9 – Brady Dunaway
September 17 – Brady Dunaway

2020

May 31 – Megan Hart
June 7 – Megan Hart
June 10 – Megan Hart
June 11 – Megan Hart
June 13 – Megan Hart
June 29 – Megan Hart
July 1 – Megan Hart
July 27 – Megan Hart

2021

April 27 – Brady Dunaway
May 7 – Dwayne Estes, Jared Gorrell
May 8 – Jared Gorrell
May 13 – Brady Dunaway
May 18 – Jared Gorrell
June 27 – Jared Gorrell
June 28 – Jared Gorrell
June 30 – Brady Dunaway
July 6 – Brady Dunaway
September 10 – Jared Gorrell
September 11 – Jared Gorrell
September 26 – Brady Dunaway
October 4 – Brady Dunaway
October 5 – Brady Dunaway
October 8 – Dwayne Estes, Theo Witsell

2022

April 28 – Brady Dunaway
May 7 – Brady Dunaway
May 8 – Brady Dunaway
June 26 – Brady Dunaway
June 27 – Brady Dunaway
June 28 – Brady Dunaway
September 16 – Brady Dunaway



Figure 1. Photographs from collecting trips to Coal Creek Farm. A: Insects attracted to an illuminated sheet hung outside of the guest house. B: Alaina Krakowiak, John Shelton, and Theo Witsell riding in the UTV. C: Jordan Gesell sweeping for insects. D: Brady Dunaway looking for native bees and pollinators. E: Theo Witsell botanizing in an acidic seep. F: SGI staff exploring the property. G: Mississippi Entomological Museum staff looking for insects in a wet meadow.

Site Description

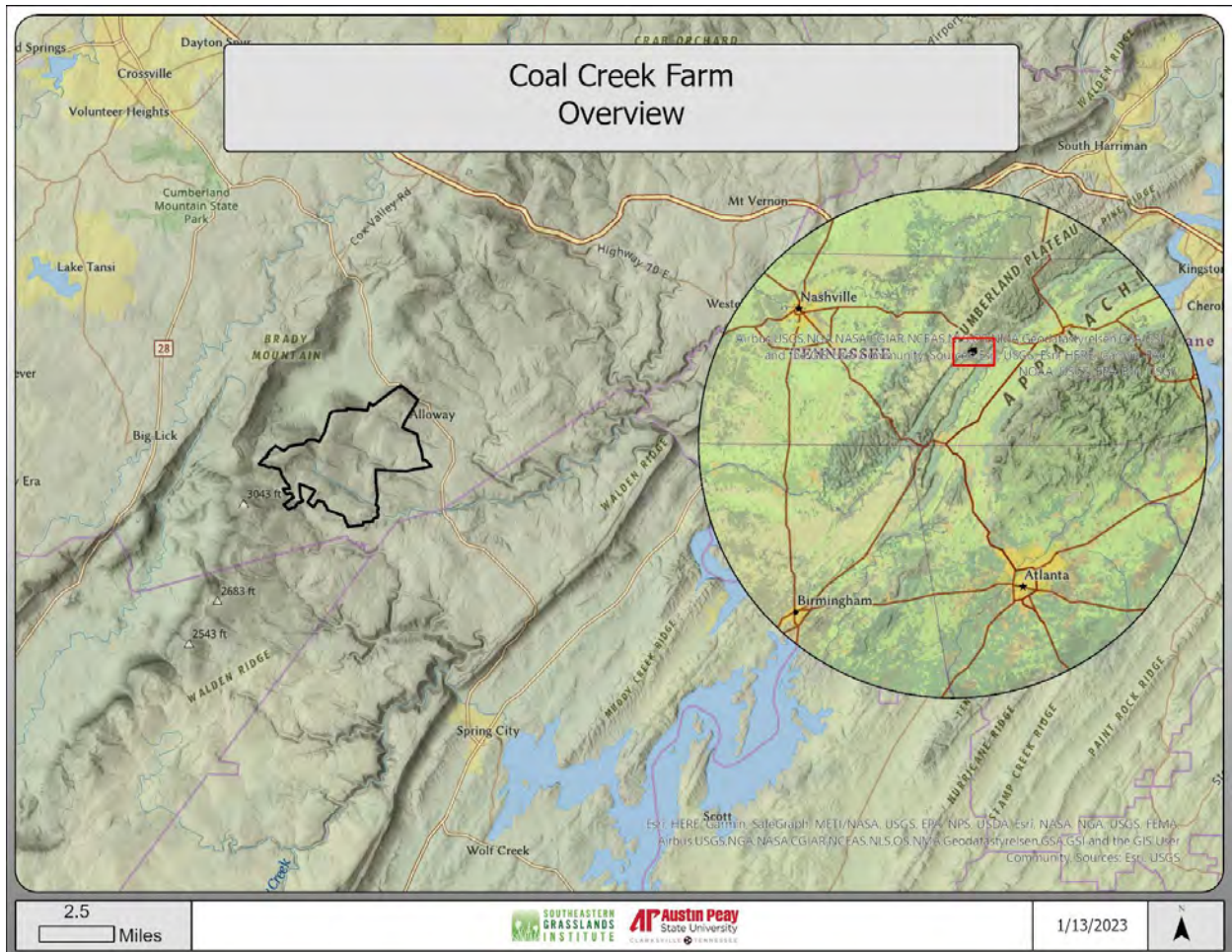


Figure 2. General location of Coal Creek Farm within the broader Southeastern region.

General Location, Topography, and Ecoregions

Coal Creek Farm contains 5,277 acres in Cumberland County, Tennessee, just west of the unincorporated community of Alloway, and approximately 10 mi southeast of the city of Crossville. It lies within the Cumberland Plateau (level III) ecoregion, northeast of the head of the Sequatchie Valley, at the boundary of the Cumberland Escarpment (level IV) and the Cumberland Plateau (level IV). The northwestern portion of the property, comprising the ridgeline and slopes of Brown and Bear Den Mountains, lies along the Escarpment, with the majority of the property on the Plateau. It is directly adjacent to Grassy Cove to the northwest, a National Natural Landmark which represents one of the best examples of karst development and underground drainage in the nation. The property is bounded to the northeast by State Route 68, with no other main roadways in the vicinity or running through it.

The northwestern edge of the property, which lies within the Cumberland Escarpment ecoregion, is characterized by the high elevation ridgelines and southeast-facing slopes of Brown Mountain (2,510 ft.) and Bear Den Mountain (2,930 ft.)—the two highest points on the property. The remainder (majority) of

the property is characterized by the lower elevation, undulating Plateau surface, and is bisected by multiple creek gorges.

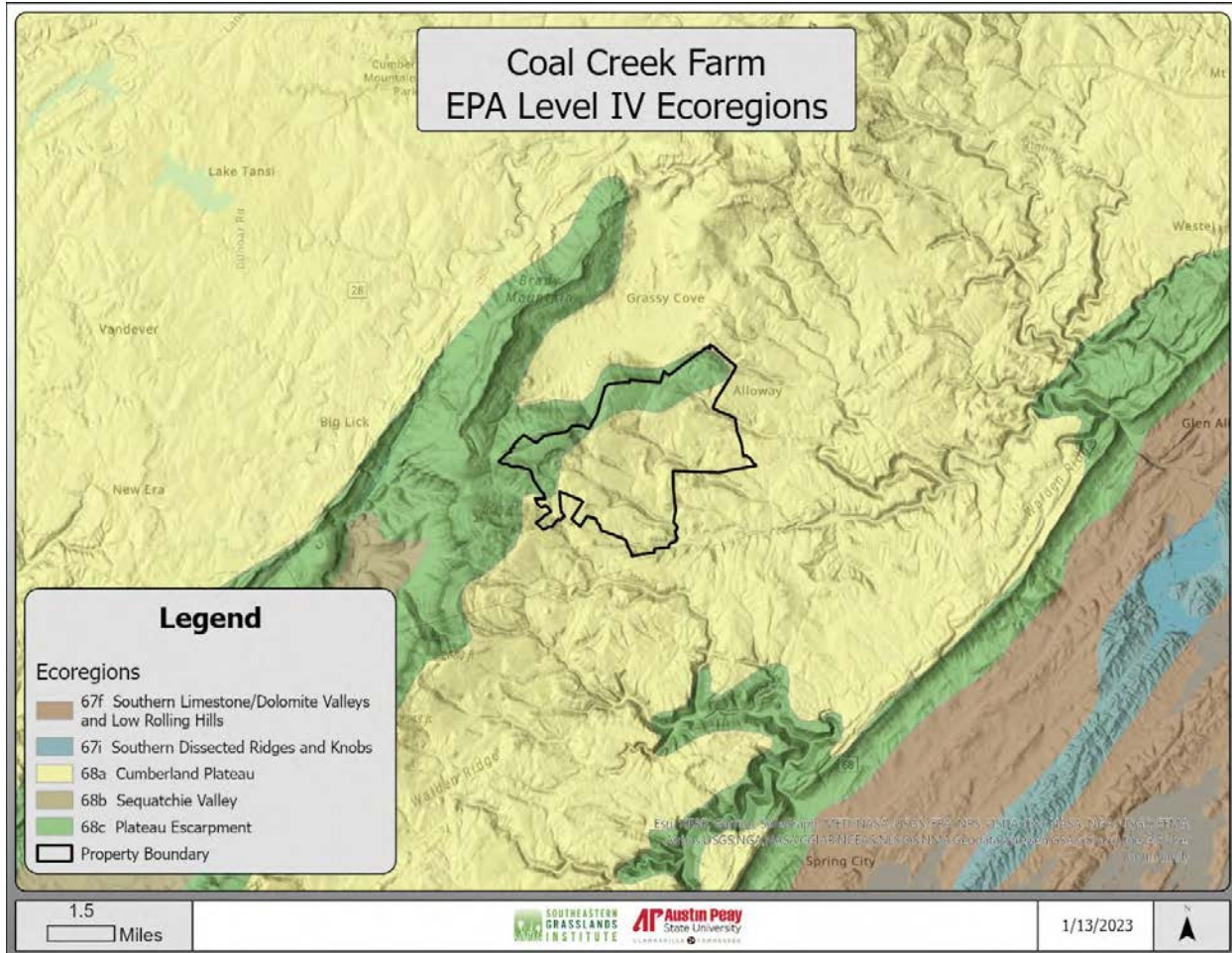


Figure 3. Map of Coal Creek Farm with EPA level IV ecoregions. The northwestern edge of the property occurs on the Plateau Escarpment, with the remainder of the property on the Cumberland Plateau.

Coal Creek Farm is approximately 77% forested, with the remaining 23% open. Nearly half of the acreage of Coal Creek Farm was clearcut in 2008 by the previous landowner, thus much of the wooded portion of the property comprises regenerating clearcuts. However, there are a number of areas on the property where stands of large, mature trees remain, often associated with steep and/or rocky sites. Additionally, the property also includes some areas of burned rangeland with features of shortleaf pine-post oak savanna where native grasses occur in a more open woodland setting. However, much of the open habitat at Coal Creek is improved pasture and hayfields. These open areas can be found throughout the property and are characterized by an abundance of non-native plant species that have either been intentionally planted for forage or escaped from cultivation and naturalized, as well as several native ruderal species (a plant that is an early colonizer of disturbed landscapes).

Geology

The Cumberland Plateau is defined by Pennsylvanian sandstones, which are often referred to as "caprock" because they lie atop more easily weathered Mississippian sedimentary rocks, providing a protective roof. Below the caprock lies horizontal layers of coal, shale, and limestone. Beginning about 285 million years ago, the entire area was slowly lifted over 2,000 feet above sea level during a mountain building event known as the Alleghanian orogeny, which happened as a result of Africa's collision with North America. Erosion immediately began to shape the landscape, resulting in the gently rolling topography dissected by deeply cut creeks that characterizes the Plateau today. Abrupt escarpments mark the edges of the Plateau.

The geology of Coal Creek Farm is composed of Mississippian and Pennsylvanian-aged sandstones and shales (Milici, 1965). From base to top, the primary geologic units are the Pennington Formation, Gizzard Group-Undifferentiated, Sewanee Conglomerate, Whitwell Shale, Newton Sandstone, Vandever Formation, and Rockcastle Conglomerate. These geologic units create mostly acidic soils, though the farm still hosts a variety of unique plant communities.

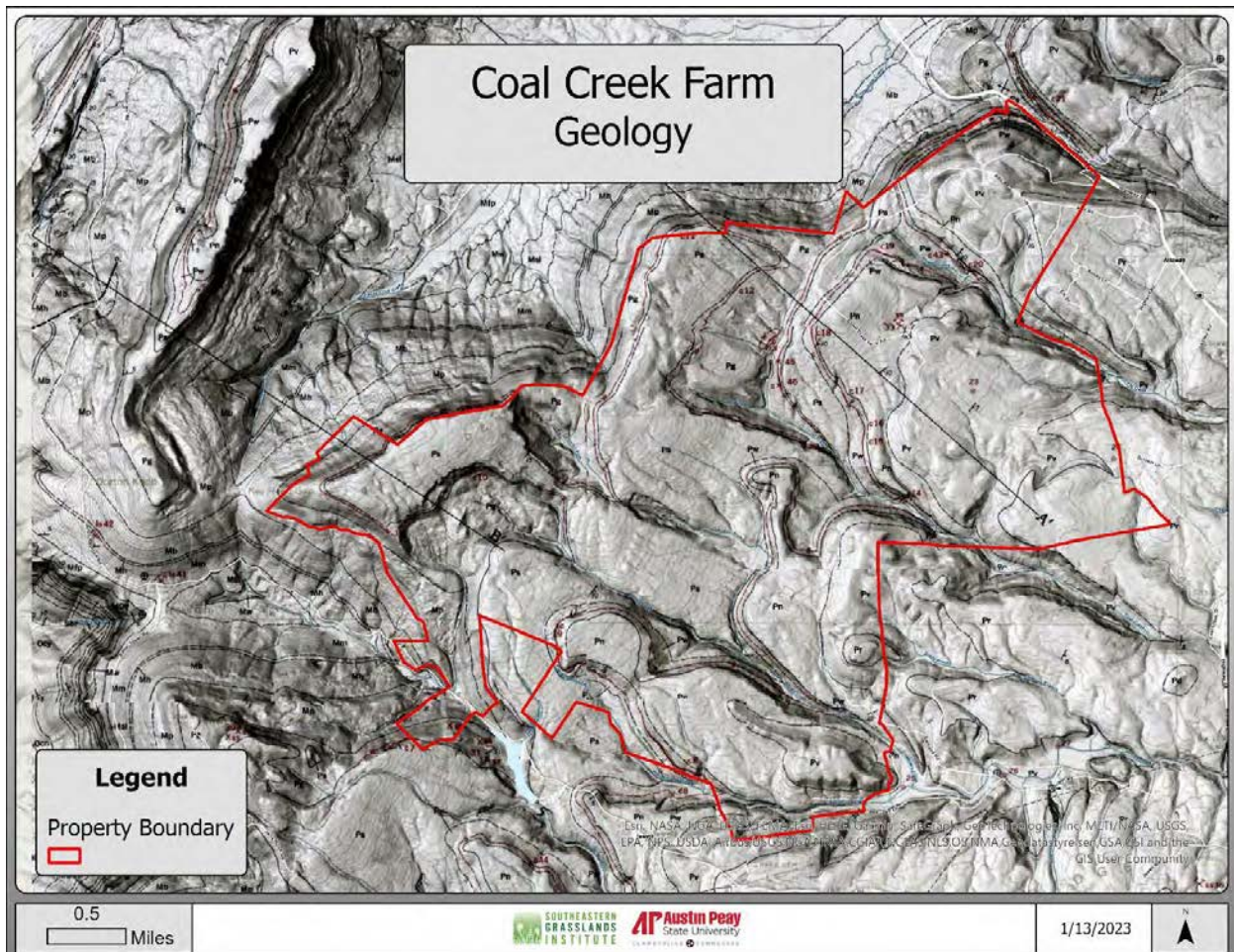


Figure 4. Map of the geological formations comprising Coal Creek Farm.

Soils

Twenty soil units are mapped on the property by the Natural Resources Conservation Service and are described in detail below. For locations of each soil type at Coal Creek Farm, refer to Figure 5.

Bethesda-Mine pits complex, 10 to 80 percent slopes (BM) – This soil type occurs on 0.5% of the property, consists of coal extraction mine spoil derived from interbedded sedimentary rock, and is well drained. Soil organic matter averages 0.1% at 0-152 cm, and pH is 4.6 (very strongly acid).

Ealy loam, occasionally flooded (EA) – This soil type occurs on 0.1% of the property, consists of loamy alluvium derived from sandstone, and is well drained. Soil organic matter averages 2% at 0-25 cm and 0.75% at 25-152 cm, and pH is 5 (very strongly acid).

Gilpin loam, 20 to 60% slopes (GpF) – This soil type occurs on 8.7% of the property, consists of loamy residuum weathered from interbedded sedimentary rock, and is well drained. Soil organic matter averages 1.5% at 0-3 cm, 0.75% at 3-13 cm, and 0.25% at 13-97 cm, and pH is 4.6 (very strongly acid).

Gilpin loam, 12 to 20% slopes (GpF) – This soil type occurs on 2.4% of the property, with the same properties as the unit above.

Gilpin loam, 5 to 12% slopes (GpF) – This soil type occurs on 2.1% of the property, with the same properties as the unit above.

Hayter loam, 10 to 20 percent slopes (HaD) – This soil type occurs on 0.1% of the property, consists of loamy colluvium derived from limestone, sandstone, and shale, and is well drained. Soil organic matter averages 2.5% at 0-18 cm and 0.25% at 18-152 cm, and pH ranges from 4.6 to 5.8 (very strongly acid to moderately acid).

Jefferson cobbly loam, 20 to 50 percent slopes, stony (JnF) – This soil type occurs on 26.1% of the property, consists of loamy colluvium derived from interbedded sedimentary rock, and is well drained. Soil organic matter averages 2.25% at 0-18 cm and 0.25% at 18-152 cm, and pH is 5 (very strongly acid).

Jefferson cobbly loam, 12 to 20 percent slopes, stony (JnD) – This soil type occurs on 1.4% of the property, with the same properties as the unit above.

Jefferson-Shelocta complex, 20 to 45 percent slopes (JsD) – This is a complex of two soil types and occurs on 0.9% of the property. Jefferson soil consists of loamy colluvium derived from interbedded sedimentary rock and is well drained. Soil organic matter averages 2.75% at 0-18 cm, 0.5% at 18-102 cm, 0.25% at 102-142 cm, and 0.1 at 142-152 cm, and pH is 5.3 (strongly acid). Shelocta soil consists of loamy colluvium derived from sandstone and shale over residuum weathered from shale and siltstone and is well drained. Soil organic material ranges from 2.75% at 0-8 cm, 0.5% at 8-28 cm, 0.25% at 28-102 cm, and 0.1% at 102-127 cm, and pH is 5.3 (strongly acid).

Jefferson-Shelocta complex, 10 to 20 percent slopes (JsD) – This is a complex of two soil types that occurs on 1.0% of the property, with the same properties as the unit above.

Jefferson-Varilla-Shelocta complex, 20 to 60 percent slopes, very stony (JvF) – This is a complex of three soil types and occurs on 2.5% of the property. Jefferson soil consists of loamy colluvium derived from

interbedded sedimentary rock and is well drained. Soil organic matter averages 2.75% at 0-18 cm, 0.5% at 18-102 cm, 0.25% at 102-142 cm, and 0.1 at 142-152 cm, and pH is 5.3 (strongly acid). Varilla soil consists of cobbly or stony colluvium derived from sandstone and is somewhat excessively drained. Soil organic material averages 2.5% at 0-3 cm, 1% at 3-18 cm, 0.5% at 18-112 cm, and 0.1% at 112-152 cm, and pH ranges from 4.6 to 5.1 (very strongly to strongly acid). Shelocta soil consists of loamy colluvium derived from sandstone and shale over residuum weathered from shale and siltstone and is well drained. Soil organic material ranges from 2.75% at 0-8 cm, 0.5% at 8-28 cm, 0.25% at 28-102 cm, and 0.1% at 102-127 cm, and pH is 5.3 (strongly acid).

Lily loam, 12 to 20% slopes (LID) – This soil type occurs on 22.2% of the property, consists of fine-loamy residuum weathered from sandstone, and is well drained. Soil organic matter averages 2.25% at 0-8 cm, 1.5% at 8-23 cm, and 0.25% at 23-76 cm, and pH ranges from 4.6-5 (very strongly acid).

Lily loam, 6 to 12% slopes (LIC) – This soil type occurs on 9.7% of the property, with the same properties as the unit above.

Lily loam, 2 to 6% slopes (LIC) – This soil type occurs on < 0.1% of the property, with the same properties as the first Lily loam unit listed.

Lonewood loam, 2 to 5 percent slopes (LwB) – This soil type occurs on < 0.1% of the property, consists of silty mantle over fine-loamy residuum weathered from interbedded sedimentary rock, and is well drained. Soil organic matter averages 1.5% at 0-23 cm and 0.25% at 23-178 cm, and pH is 5 (very strongly acid).

Ramsey loam, 12 to 20 percent slopes – This soil type occurs on 10.2% of the property, consists of loamy residuum weathered from sandstone, and is somewhat excessively drained. Soil organic matter averages 1.75% at 0-5 cm and 0.25% at 5-46 cm, and pH is 5 (very strongly acid).

Ramsey-Rock outcrop complex, 20 to 50 percent slopes (RrF) – This soil type occurs on 1.6% of the property, consists of loamy residuum weathered from sandstone, and is somewhat excessively drained. Soil organic matter averages 1.75% at 0-13 cm and 0.25% at 13-41 cm, and pH is 4.5 (very strongly acid).

Ramsey-Rock outcrop complex, 12 to 20 percent slopes (RrD) – This soil type occurs on 3.3% of the property, with the same properties as the unit above.

Ramsey-Rock outcrop complex, 5 to 12 percent slopes (RrC) – This soil type occurs on 4.1% of the property, consists of loamy residuum weathered from sandstone, and is somewhat excessively drained. Soil organic matter averages 1.75% at 0-5 cm and 0.25% at 5-46 cm, and pH is 5 (very strongly acid).

Varilla-Shelocta complex, 15 to 30 percent slopes, very rocky (VsE) – This is a complex of two soil types and occurs on 3.0% of the property. Varilla soil consists of cobbly or stony colluvium derived from sandstone and is somewhat excessively drained. Soil organic matter averages 2.0% at 0-18 cm and 0.25% at 18-152 cm, and pH ranges from 5.1 to 4.6 (strongly to very strongly acid). Shelocta soil consists of loamy colluvium derived from sandstone and shale and is well drained. Soil organic matter averages 2.25% at 0-8 cm and 0.25% at 8-127 cm, and pH is 5 (very strongly acid).

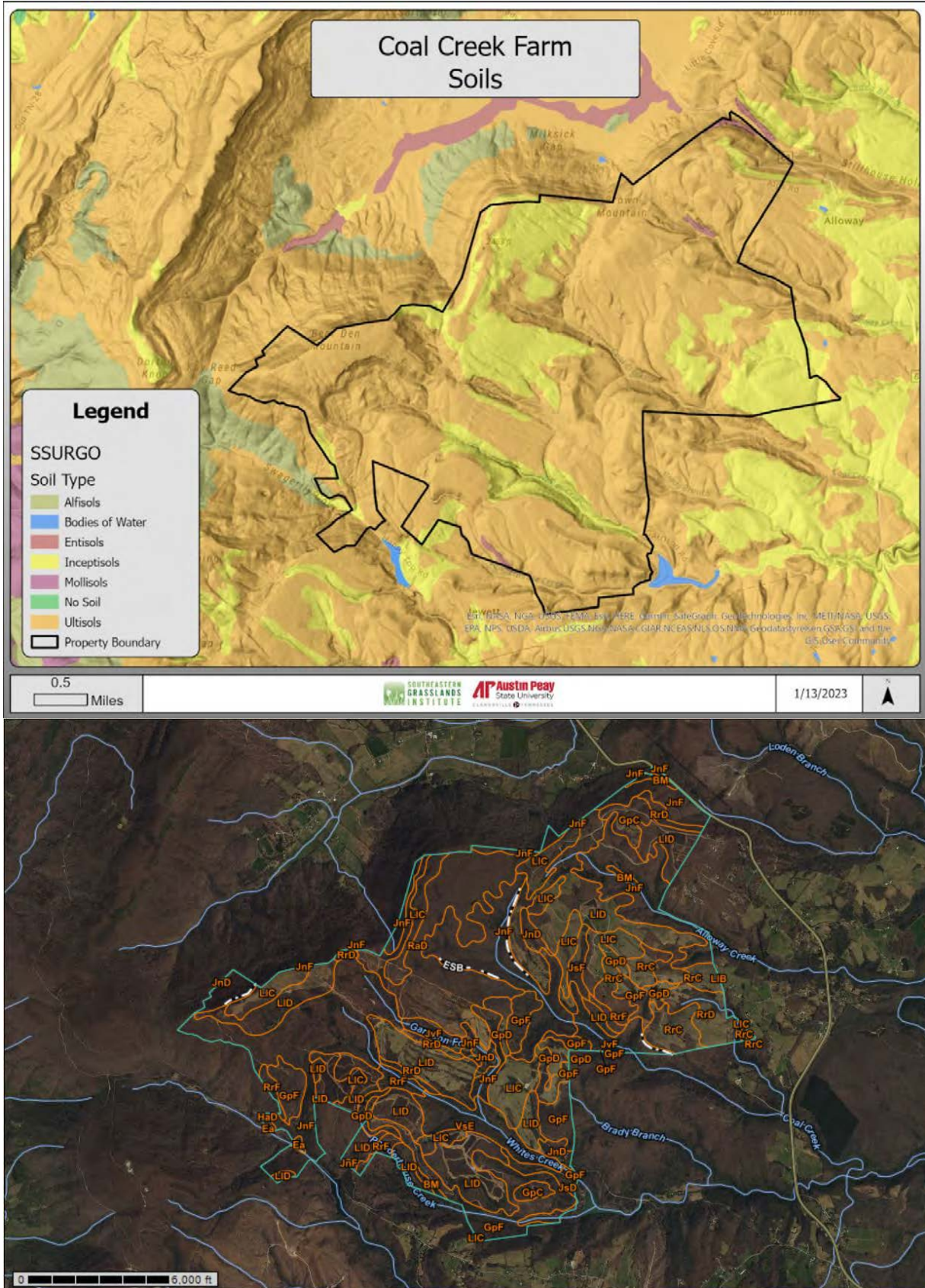


Figure 5. Maps of the soil types found at Coal Creek Farm.

Hydrology

Several creeks originate on the property. From north to south, these include Alloway Creek, Coal Creek, Garrison Fork, Whites Creek, and Powderhouse Creek. These watersheds drain Brown and Bear Den Mountains and run from northwest to southeast. Alloway Creek flows into Sandy Creek, which flows into Whites Creek. Coal Creek, Garrison Fork, and Powderhouse Creek also flow into Whites Creek, which eventually flows into Watts Bar Lake, a reservoir on the Tennessee River formed by the Watts Bar Dam. The Tennessee River flows into the Ohio River, which flows into the Mississippi River, which eventually flows into the Gulf of Mexico.

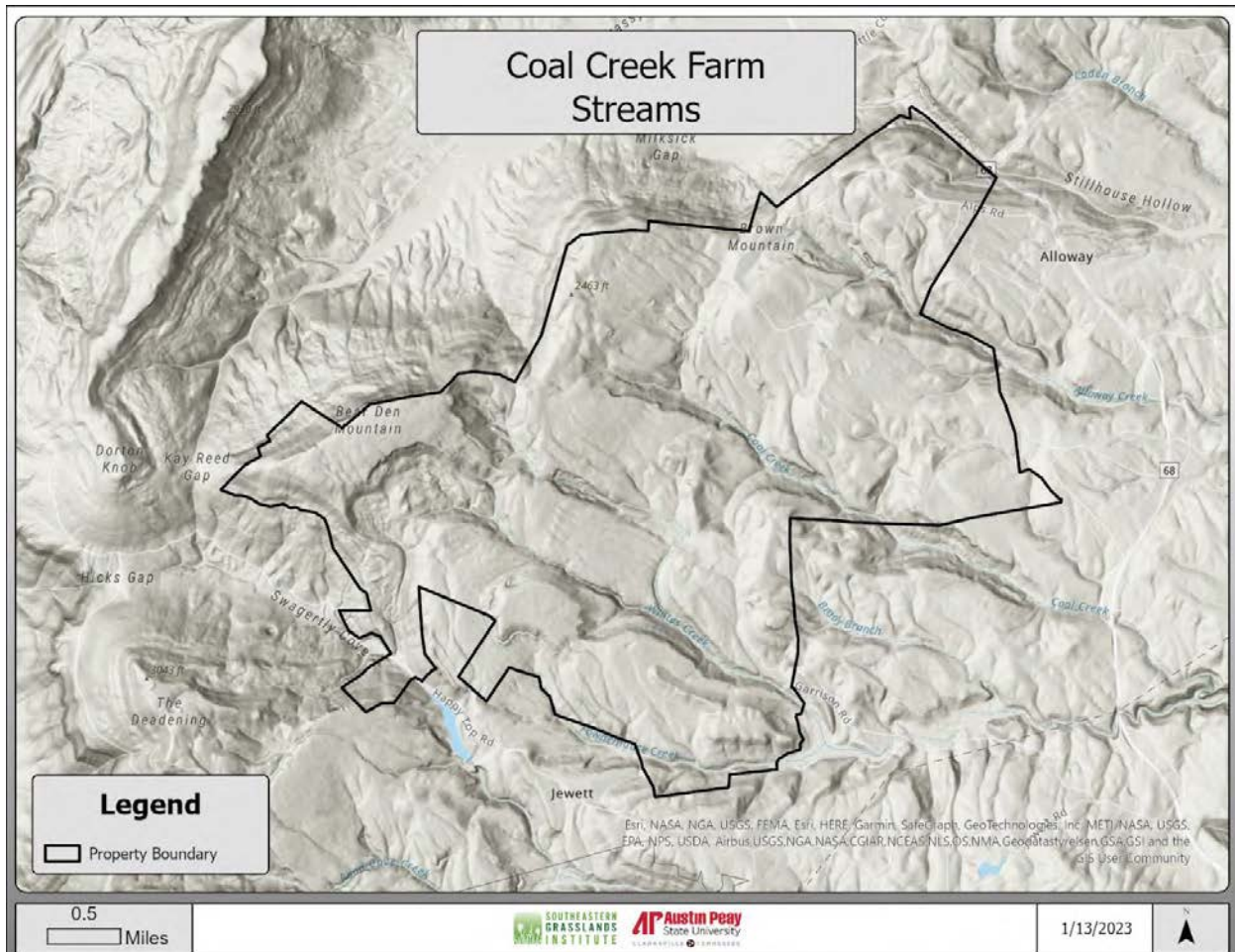


Figure 6. Map of Coal Creek Farm with major streams.

Regional Vegetation

Braun (1950) mapped this area as part of her mixed-mesophytic forest community, characterized by *Quercus alba* (white oak), *Liriodendron tulipifera* (tulip tree), and *Tsuga canadensis* (eastern hemlock). Hinkle (1989) described the Cumberland Plateau's Southern District as predominantly mixed oak communities occurring on gentle to moderate slopes, flatlands, and ridges.

Historical Vegetation

The vegetation of the Cumberland Plateau has changed dramatically since the onset of widespread logging and fire exclusion. Today the Plateau is forested across nearly its entire length, but multiple lines of evidence suggest that this was not always been the case. Pollen records from this region show that past plant communities were more heavily dominated by fire-adapted species. Even as recently as the 1780s, early explorers of the region described vast upland prairies supporting white-tailed deer, elk, and bison. The continued presence of shortleaf pine (*Pinus echinata*), one of the most fire-dependent conifers in the US, further demonstrates that this ecosystem is adapted to fire. A recent study of fire-scarred shortleaf pines revealed frequent (every 4.4-5.3 years), low-severity fires prior to European settlement (Figure 7). Since this time, shortleaf pine and shortleaf pine-oak forest types are estimated to have declined at least 90%, occurring on about 2.4 million hectares, with only about 35% of that occurring east of the Mississippi River. This has largely been driven by the loss of fire on the landscape.

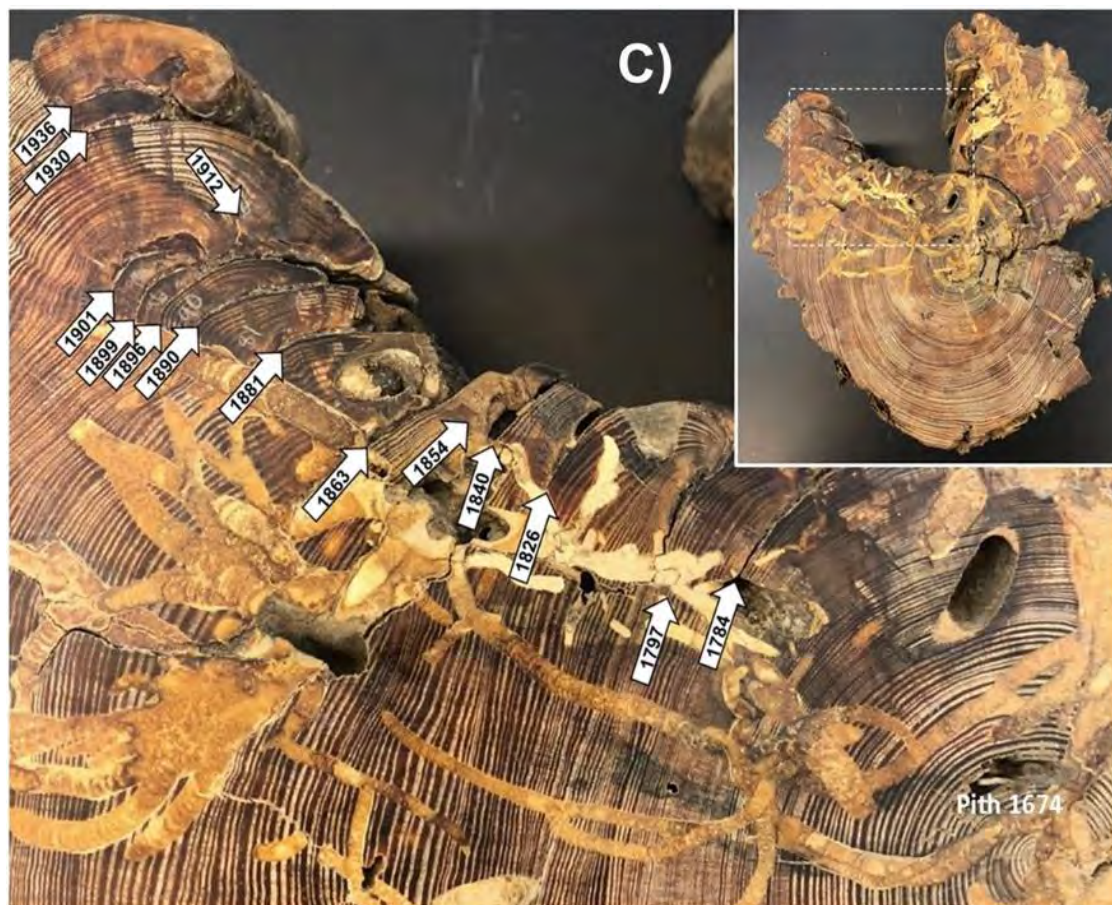


Figure 7. Shortleaf pine tree-rings and fire scars from the late 1600s to early 1900s on a fire-scarred stump of a large remnant shortleaf pine (*Pinus echinata*) tree found on the Cumberland Plateau. (Figure from Stambaugh 2020).

Natural Communities & Habitats

Coal Creek Farm is ecologically and biologically diverse, with elements of forest, glades, grasslands, and wetlands. It supports at least 22 different communities (Table 1): Historic American chestnut forest (extinct), ruderal thickets/woodland (Northeastern Ruderal Conifer - Hardwood Forest), mesic cove forest (Southern Hemlock - Tuliptree Forest and/or South-Central Appalachian Mixed Mesophytic Forest), shortleaf pine/Virginia pine-oak forest and woodland (Appalachian Shortleaf Pine - Oak Woodland), dry oak (pine) forest (Southern Appalachian Dry Oak - White Pine Forest), mesic regenerating clearcuts, dry regenerating clearcuts, sub-mesic oak (pine) forest (Southern Appalachian Dry-mesic Oak Forest), riparian thickets, sandstone glades & outcrops (Cumberland Sandstone Glade & Barrens), sandstone cliffs (Southern Appalachian Acidic Cliff & Talus), grazeways, old fields and disturbed ground (Eastern Ruderal Grassland), wooded pastures, burned rangeland and shortleaf pine savanna restoration area (Southeastern Patch Prairie Alliance and/or South-Central Dry Patch Prairie), pastures and hayfields (Northern & Central Ruderal Mesic Old-field Meadow), mine wetlands, seepage forest (Southern Appalachian-Piedmont Red Maple – Blackgum Seepage Forest), wet meadows (Appalachian-Northeast Wet Meadow), farm ponds, abandoned coal strip mines, and developed areas. Each of these is briefly described below in the section on natural communities and habitats, with photo collages in Appendix B. A map of all habitats is provided in Appendix A.

The most significant natural communities found at Coal Creek Farm are those with high potential for shortleaf pine-oak savanna restoration. This includes shortleaf pine/Virginia pine-oak forests & woodlands (4), dry oak-pine forest (5), dry-type regenerating clearcuts (7), and burned rangeland (15), where shortleaf pine savanna restoration work is already in progress. This open, sunny, extremely biodiverse habitat type used to be abundant on the Cumberland Plateau, but has declined by at least 90% since European settlement largely due to the loss of fire on the landscape. Other significant natural communities found at Coal Creek Farm include intact areas of mesic cove forest (3), sandstone glades & outcrops (10), and wetlands such as seepage forest (18) and wet meadows (19).

Native plant communities at Coal Creek Farm are generally in a moderately degraded condition, but many are highly restorable. Several areas support mature forests or woodlands with natural species composition, but the herbaceous understory layers (groundcover consisting of non-woody species such as grasses and forbs) are sparse and species-poor, a consequence of overgrazing and long-term suppression of natural fires. Prior to European settlement, natural fires maintained the health of most upland natural communities in the Cumberland Plateau region. We recommend reintroducing fire to Coal Creek Farm through prescribed burning to restore these communities to their historical state. Non-native, invasive species are also a threat to most natural communities at the Farm and will likely require a variety of management techniques to control.

Note: Where acreage estimates are marked as “not available,” further mapping work will be needed to quantify these communities due to differences in classification.

Table 1. List of natural communities and habitats found at Coal Creek Farm, Cumberland County, Tennessee.

General Category	Ecological Community Type (per National Vegetation Community Alliance classification)	Estimated Area (acres)	Restoration Priority (Low, Medium, High)
Forest & Woodland			
Extinct-historic plant community	Historic American Chestnut Forest	n/a	low
Ruderal thicket/woodland	Northeastern Ruderal Conifer - Hardwood Forest	56.6 ac	low
Mesic cove forest	Southern Hemlock – Tulip tree Forest and/or South-Central Appalachian Mixed Mesophytic Forest	201.9 ac	low
Shortleaf pine/Virginia pine-oak forest & woodland	Appalachian Shortleaf Pine - Oak Woodland	505.1 ac	high
Dry oak (pine) forest	Southern Appalachian Dry Oak - White Pine Forest	935.8 ac	medium
Regenerating clearcuts (Mesic type)	not applicable	2094.0 ac	low
Regenerating clearcuts (Dry type)	not applicable	(above est. includes dry type)	high
Sub-mesic oak (pine) forest	Southern Appalachian Dry-mesic Oak Forest	363.8 ac	medium
Riparian thicket	not applicable	22.9 ac	low
Glades, Outcrops, & Cliffs			
Sandstone glade & outcrop	Cumberland Sandstone Glade & Barrens	3.3 ac	high
Sandstone cliff	Southern Appalachian Acidic Cliff & Talus	n/a	low
Grassland & Rangeland			
Grazeways	not applicable	n/a	medium
Old fields / disturbed ground	Eastern Ruderal Grassland	n/a	low
Wooded pasture	not applicable	24 ac	low
Burned rangeland & shortleaf pine savanna restoration area	Southeastern Patch Prairie Alliance and/or South-Central Dry Patch Prairie	159.8 ac	high
Pastures / hayfields	Northern & Central Ruderal Mesic Old-field Meadow	961.3 ac	low
Wetlands			
Mine wetland	not applicable	n/a	low
Seepage forest	Southern Appalachian-Piedmont Red Maple – Blackgum Seepage Forest	n/a	high
Wet meadows	Appalachian-Northeast Wet Meadow	4.8 ac	high
Farm ponds	not applicable	23.8 ac	low
Disturbed Lands			
Abandoned coal strip mines	not applicable	47 ac	low
Developed areas (lawns, barn lots, mowed areas)	not applicable	20.8 ac	low

Forests & Woodlands

1) Historic American Chestnut Forest (*Extinct-historic plant community*)

Mapped acres of this habitat: not applicable

Community description: This alliance is now extirpated but included sub-xeric forests dominated by mixtures of American chestnut (*Castanea dentata*), red oak (*Quercus rubra*) and chestnut oak (*Quercus montana*) formerly occurring in the Appalachian Mountains from southern New England and New York, the Cumberland Plateau, Knobs, and perhaps as far west as the Shawnee Hills of Kentucky. American chestnut was a major forest dominant in the eastern United States that has virtually been eliminated since 1900 by chestnut blight (*Cryphonectria parasitica*), introduced on Asiatic chestnut. Forests on xeric ridges and upper slopes had a closed shrub layer dominated by ericaceous shrubs with an open tree canopy of American chestnut and chestnut oak. More mesic forests in this alliance occurred on less-exposed slope positions and had canopies dominated by American chestnut and chestnut oak occurring with lesser amounts of red maple (*Acer rubrum*), black tupelo (*Nyssa sylvatica*), white oak (*Quercus alba*), red oak (*Quercus rubra*), black oak (*Quercus velutina*), and, within the range, tulip tree (*Liriodendron tulipifera*). Understories were generally open or dominated by heaths. Although replacement forests vary with geography, chestnut oak – scarlet oak Forest Alliance (A0248) and other forests dominated by red maple, chestnut oak, and red oak have been the major replacement types. There is some hope for the potential recovery of this community, or something resembling it, if a blight-resistant chestnut can be developed and introduced.

Species of concern: *Castanea dentata* has a global conservation rank of G3 and is considered S2S3 in Tennessee. It is also listed as a Special Concern species in Tennessee. See Appendix D for further information on the conservation ranking of this species and its occurrence at Coal Creek Farm.

Management recommendations: Management recommendations are essentially not applicable for this community as it is extirpated. However, organizations like the American Chestnut Foundation (TACF) are working towards creating disease resistant chestnuts for eventual reintroduction into Eastern forests. Cross-breeding with naturally blight-resistant Chinese chestnuts (*Castanea mollissima*) is being used to generate hybrid trees that are >95% American chestnut (*Castanea dentata*) genetically and nearly identical superficially, while maintaining the blight-resistance of Chinese chestnuts. If interested, Coal Creek Farm could offer areas of the property for reintroduction trials of hybrid trees, which could help the TACF achieve their research goals while also meeting conservation objectives at the Farm. See the Abandoned Coal Strip Mines section (21) under the Disturbed Lands section for more information.

2) Ruderal Thicket/Woodland (Northeastern Ruderal Conifer - Hardwood Forest)

Mapped acres of this habitat: 56.6 ac

Community description: This early-successional forest vegetation occurs on sites that are becoming reforested after having been cleared for agriculture or otherwise heavily modified in the past. Environmental setting varies, but generally sites are dry-mesic to mesic, with small seepage inclusions in some examples. Physiognomy of this vegetation is highly variable, ranging from closed forest to open woodland and scrub. The generalist set of native, non-planted species include a combination of tree

species, such as red maple (*Acer rubrum*), white ash (*Fraxinus americana*), tulip tree (*Liriodendron tulipifera*), eastern white pine (*Pinus strobus*) and black cherry (*Prunus serotina*). Other associates can include boxelder maple (*Acer negundo*), silver maple (*Acer saccharinum*), tree of heaven (*Ailanthus altissima*), serviceberry (*Amelanchier*) species, sweet birch (*Betula lenta*), black walnut (*Juglans nigra*), eastern red cedar (*Juniperus virginiana*), eastern white pine (*Pinus strobus*), oak (*Quercus*) species, black locust (*Robinia pseudoacacia*), sassafras (*Sassafras albidum*), and American elm (*Ulmus americana*). The low-shrub layer, if present, is usually characterized by the presence of blackberry (*Rubus*) species. This layer is often dominated by exotic species such as Japanese barberry (*Berberis thunbergia*), hawthorn (*Crataegus*) species, common buckthorn (*Rhamnus cathartica*), and multiflora rose (*Rosa multiflora*). The herbaceous layer is variable, often containing grasses and forbs of both native and exotic origin. The invasive species garlic mustard (*Alliaria petiolate*), Japanese stiltgrass (*Microstegium vimineum*), and tufted knotweed (*Polygonum cespitosum*) can be abundant in this disturbed forest type. These forests are often young and resulted from the colonization of old agricultural fields by woody species. Recent disturbance or abundant invasive species give these forest stands a weedy character. It is unlikely that these stands will succeed to a natural plant community dominated by native species.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Control invasive species. 2) Manage with periodic fire, grazing, and/or partial bushhogging.

3) Mesic Cove Forest (Southern Hemlock – Tulip tree Forest and/or South-Central Appalachian Mixed Mesophytic Forest)

Mapped acres of this habitat: 201.9 ac

Community description: Forests in the Southern Hemlock - Tuliptree Forest alliance are acidic cove forests dominated by eastern hemlock (*Tsuga canadensis*), occurring with various hardwood species of mesic forests, including sweet birch (*Betula lenta*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), mountain silverbell (*Halesia tetraptera*), tulip tree (*Liriodendron tulipifera*), cucumber magnolia (*Magnolia acuminata*), red oak (*Quercus rubra*), and American basswood (*Tilia americana* var. *heterophylla*), and others. Common shrubs are mountain laurel (*Kalmia latifolia*), mountain doghobble (*Leucothoe fontanesiana*), and rosebay rhododendron (*Rhododendron maximum*). Herbaceous cover is typically sparse and includes acid-loving species such as beetleweed (*Galax urceolata*), downy rattlesnake plantain (*Goodyera pubescens*), heartleaf (*Hexastylis*) species, Christmas fern (*Polystichum acrostichoides*), New York fern (*Thelypteris noveboracensis*), and heart-leaf foam flower (*Tiarella cordifolia*). They are found primarily in the Southern Blue Ridge, but also ranging into widely scattered areas of the Interior Low Plateau and Cumberlands, where stands containing eastern hemlock (*Tsuga canadensis*) may be notably disjunct from its main range in the north. These forests occur in deep coves, moist flats, and ravines but are occasionally found along larger stream bottoms, typically at elevations below 3500 feet. Forests in the South-Central Appalachian Mixed Mesophytic Forest are similar. This alliance represents mixed mesophytic forests of the Southern Blue Ridge, Appalachian Plateau, and adjacent ecoregions occurring primarily in broad coves and lower slopes, and locally referred to as "cove forests." They have highly variable and diverse canopies, often with no clear canopy dominant, including yellow buckeye (*Aesculus flava*), red maple (*Acer saccharum*), tulip tree (*Liriodendron tulipifera*), and American basswood (*Tilia americana* var. *heterophylla*). They have a more open or sparse shrub layer, with an exceptionally lush and diverse herbaceous understory.

Species of concern: *Panax quinquefolius* (American ginseng) occurs in this community at Coal Creek Farm. It has a global conservation rank of G3 and is considered S3 in Tennessee. It is also listed as a Special Concern species in Tennessee due to its commercial exploitation. See Appendix D for further information on the conservation ranking of this species and its occurrence at Coal Creek Farm.

Management recommendations: 1) Protect mesic cove forest on the farm from future timber harvest and allow it to grow undisturbed. 2) Control invasive species such as *Ailanthus altissima* (tree-of-heaven) and *Microstegium vimineum* (Japanese stilt grass) that are crowding out native species. 3) Consider [chemically treating *Tsuga canadensis* \(Eastern hemlock\) trees](#) to protect against die-off from woolly adelgids. The loss of this foundational tree species would result in cascading negative impacts to this entire ecosystem. 4) Continue working to protect and restore *Panax quinquefolius* (American ginseng) populations.

4) Shortleaf Pine/Virginia Pine-Oak Forest & Woodland (Appalachian Shortleaf Pine - Oak Woodland)

Mapped acres of this habitat: 505.1 ac

Community description: This Appalachian shortleaf pine - oak forest alliance is found in the Southern Blue Ridge and adjacent regions, including the Piedmont, Ridge and Valley, Central Appalachians and the Interior Low Plateau from Alabama and Georgia north and east to Kentucky, Virginia, the Carolinas, and possibly West Virginia. Stands of this alliance are typically dominated by shortleaf pine (*Pinus echinata*) with dry-site oaks and other hardwoods. The typical oaks include scarlet oak (*Quercus coccinea*), chestnut oak (*Quercus montana*), post oak (*Quercus stellata*), and/or black oak (*Quercus velutina*). Some stands may contain southern red oak (*Quercus falcata*). Other hardwoods may include red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), sand hickory (*Carya pallida*), dogwood (*Cornus florida*), American holly (*Ilex opaca* var. *opaca*), black tupelo *Nyssa sylvatica*, and/or sourwood (*Oxydendrum arboreum*). The shrub layer is typically dominated by hillside blueberry (*Vaccinium pallidum*). Other shrubs include dwarf chestnut (*Castanea pumila*), black huckleberry (*Gaylussacia baccata*), bear huckleberry (*Gaylussacia ursina*), mountain laurel (*Kalmia latifolia*), flame azalea (*Rhododendron calendulaceum*), Piedmont rhododendron (*Rhododendron minus*), farkleberry (*Vaccinium arboreum*), and deerberry (*Vaccinium stamineum*). The most frequent native grasses are poverty oat grass (*Danthonia spicata*), black oat grass (*Piptochaetium avenaceum*), and little bluestem (*Schizachyrium scoparium*). Typical forbs include plantain-leaved pussy toes (*Antennaria plantaginifolia*), greater tickseed (*Coreopsis major*), small woodland sunflower (*Helianthus microcephalus*), grass-leaved golden aster (*Pityopsis graminifolia* var. *latifolia*), eastern silvery aster (*Symphyotrichum concolor*), and purple aster (*Symphyotrichum patens*). These forests typically occur on exposed, rocky ridges and upper, convex slopes, as well as more protected sites. Species composition varies with bedrock geology, aspect, and degree of exposure.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: Shortleaf pines are one of the most fire-adapted tree species found on the Cumberland Plateau. Some of their adaptations to fire include the ability to rapidly sprout following burns, thick, platy bark that protects the inner bark (cambium) from damage, and the production of abundant seeds, which facilitates swift population recovery after fire. Shortleaf pine-Virginia pine-oak forests and woodlands are adapted to frequent fire intervals. In the absence of fire, Virginia pines and hardwood trees can outcompete shortleaf pines. Additionally, these forests can become overly dense and

lose their otherwise diverse herbaceous understory. Fire is the most powerful tool to restore these community types. Prescribed burns every 2-3 years would help restore shortleaf pine-Virginia pine-oak forests and woodlands at Coal Creek Farm. Cattle can also be used to keep the understory more open, but it is critical to use this restoration tool in moderation—if left unchecked, overuse by cattle can totally denude the understory and cause erosion.

5) Dry Oak (Pine) Forest (Southern Appalachian Dry Oak - White Pine Forest)

Mapped acres of this habitat: 935.8 ac

Community description: This alliance includes dry oak-pine forests dominated by scarlet oak (*Quercus coccinea*) and/or chestnut oak (*Quercus montana*) in drier associations, or with white oak (*Quercus alba*), red oak (*Quercus rubra*), and/or black oak (*Quercus velutina*) in dry-mesic to mesic ones. Eastern white pine (*Pinus strobus*) can be a strong codominant. Typical species in the subcanopy include red maple (*Acer rubrum* var. *rubrum*), dogwood (*Cornus florida*), black tupelo (*Nyssa sylvatica*), and sourwood (*Oxydendrum arboreum*). These forests often have dense ericaceous shrub strata with species such as huckleberry (*Gaylussacia* spp.), mountain laurel (*Kalmia latifolia*), rosebay rhododendron (*Rhododendron maximum*), and blueberry (*Vaccinium*) species. Herbaceous strata have low species richness and are composed of species typical of dry montane forests, such as devil's bit (*Chamaelirium luteum*), spotted pipsissewa (*Chimaphila maculata*), trailing arbutus (*Epigaea repens*), beetleweed (*Galax urceolata*), downy rattlesnake plantain (*Goodyera pubescens*), glaucous-leaved greenbrier (*Smilax glauca*), common greenbrier (*Smilax rotundifolia*), and halberd-leaved yellow violet (*Viola hastata*). These forests occur on dry to upper slopes and ridgetops, as well as dry-mesic to mesic midslopes at low elevations (below 915 m [3000 feet]) in the Blue Ridge escarpment region. In the Ridge and Valley of Virginia, these forests are known from north-facing slopes over shale substrates and on lower to middle-elevation knobs and side ridges.

Species of concern: A new-to-science species of *Eupatorium* was discovered in this community type at Coal Creek Farm. Because it is undescribed it does not yet have any conservation rankings, but since this is the only site where it is currently known from, it is quite rare. See the section below, “Newly Discovered Species from Coal Creek Farm” for more information and photos of this discovery.

Management recommendations: Dry soils and warm temperatures historically allowed occasional low-intensity fires to burn in oak – white pine forests. Without fire, these forests have transitioned to become denser and more dominated by trees that are not tolerant of fire (ie. more white pine, less oaks). This forest type supports the greatest biodiversity when it has a diverse mosaic of tree species, sizes, and age classes. This can be accomplished through 1) selective thinning and 2) prescribed burning. As mentioned above, a new-to-science species was discovered in the herbaceous understory of dry oak – white pine forests at Coal Creek Farm. Prescribed burning would also help maintain the open habitat needed for this rare, endemic species. While these forests are in the process of being restored, prescribed burns may be needed more often (every 2-3 years). Beyond this, burning would only be needed at longer intervals for maintenance (every 5-8 years).

6) Regenerating Clearcuts (Mesic type)

Mapped acres of this habitat: 2094.0 ac (This estimate includes both mesic and dry types. Further work will be needed to the exact acreage of these two types).

Community description: Prior to clearcutting, these areas were likely similar to mesic cove forest found elsewhere at Coal Creek Farm. Herbs typical of mesic cove forests such as *Hexastylis* (heartleaf), Trillium (wakerobin), and *Viola* (violet) species, can be seen regenerating. Mesic type regenerating clearcuts occur on the high elevation, steep, Southeast facing slopes of Bear Den Mountain.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: We recommend letting these area regenerate and naturally transition back to mesic forest.

7) Regenerating Clearcuts (Dry type)

Mapped acres of this habitat: 2094.0 ac (This estimate includes both mesic and dry types. Further work will be needed to the exact acreage of these two types).

Community description: These areas may have historically comprised a diverse mosaic of shortleaf pine-oak savannas and woodlands. Sun-loving forbs typical of grasslands and woodlands such as *Solidago* (goldenrod) and *Symphyotrichum* (American aster) species can be seen regenerating here, along with native grasses like *Andropogon gerardi* (big bluestem) and *Schizachyrium scoparium* (little bluestem). Dry type regenerating clearcuts at Coal Creek Farm occur at the bottom of slopes on level or gently rolling terrain. = grazing and burning, potentially restore to short leaf pine oak savanna and woodland.

Species of concern: A new-to-science species of *Eupatorium* was discovered in this community type at Coal Creek Farm. Because it is undescribed it does not yet have any conservation rankings, but since this is the only site where it is currently known from, it is quite rare. See the section below, “Newly Discovered Species from Coal Creek Farm” for more information and photos of this discovery. *Calamagrostis porteri* ssp. *porteri* can also be found in this community type. This grass species has a global conservation rank of G4 and is considered S1 in Tennessee. It is also listed as an Endangered species in Tennessee. See Appendix D for further information on the conservation ranking of this species and its occurrence at Coal Creek Farm.

Management recommendations: 1) Control non-native invasive species. 2) Use prescribed burns to clear out understory and promote growth of fire-adapted species like shortleaf pine. 3) Use periodic grazing to help clear understory. 4) Avoid overgrazing, as this can decimate plant populations and exacerbate erosion.

8) Sub-Mesic Oak (Pine) Forest (Southern Appalachian Dry-Mesic Oak Forest)

Mapped acres of this habitat: 363.8 ac

Community description: These dry-mesic oak forests are found throughout the Southern Appalachian region, including Cumberland Plateau, Ridge and Valley, and into the western Piedmont and Central Appalachians. Examples can be found on mid to upper slopes and elevated terraces where dry-mesic conditions persist and where soils are generally coarse-textured and more sandy and/or rocky. Stands are dominated by white oak (*Quercus alba*), chestnut oak (*Quercus montana*) and black oak (*Quercus velutina*) with various hickory (*Carya*) species and scarlet oak (*Quercus coccinea*). The subcanopy may

contain any of the canopy species, as well as red maple (*Acer rubrum* var. *rubrum*), sugar maple (*Acer saccharum*), sugar hackberry (*Celtis laevigata*), white ash (*Fraxinus americana*), tulip tree (*Liriodendron tulipifera*), black tupelo (*Nyssa sylvatica*), Eastern white pine (*Pinus strobus*), American hophornbeam (*Ostrya virginiana*), and sourwood (*Oxydendrum arboretum*). The open tall-shrub stratum may include dogwood (*Cornus florida*), American hazelnut (*Corylus americana*), American witch-hazel (*Hamamelis virginiana*), mountain laurel (*Kalmia latifolia*), American hophornbeam (*Ostrya virginiana*), sourwood (*Oxydendrum arboretum*), sassafras (*Sassafras albidum*), blueberry (*Vaccinium*) species, and (*Viburnum*) species. Some common herbs include woodland agrimony (*Agrimonia rostellata*), American hog-peanut (*Amphicarpaea bracteata*), plantain-leaved pussytoes (*Antennaria plantaginifolia*), rattlesnake fern (*Botrychium virginianum*), eastern woodland sedge (*Carex blanda*), richweed (*Collinsonia canadensis*), bear corn (*Conopchis americana*), greater tickseed (*Coreopsis major*), poverty oat grass (*Danthonia spicata*), naked flowered tick trefoil (*Desmodium nudiflorum*), wild yam (*Dioscorea villosa*), bedstraw (*Galium*) species, little brown jugs (*Hexastylis arifolia*), false Solomon's seal (*Maianthemum racemosum*), cucumber root (*Medeola virginiana*), mayapple (*Podophyllum peltatum*), smooth Solomon's seal (*Polygonatum biflorum*), Christmas fern (*Polystichum acrostichoides*), tall white lettuce (*Prenanthes altissima*), bracken fern (*Pteridium aquilinum* var. *pseudocaudatum*), little bluestem (*Schizachyrium scoparium*), goat's rue (*Tephrosia virginiana*), and New York fern (*Thelypteris noveboracensis*). Stands occur on upper slopes, draws and gorge slopes in the Cumberland Plateau, and from upper to middle, dry-mesic slopes in the Piedmont. Bedrock may be sandstone, siltstone, chert, or shale. Some stands apparently occur on mafic or circumneutral substrates. In the Southern Blue Ridge region, stands are only known from lower elevations (2500-3400 feet), on moderately sheltered low ridges and slopes, flats, and valleys.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: Management recommendations for this community are similar to those of dry oak-pine forests (5); the primary difference between these two communities is that sub-mesic oak-pine forests are slightly less dry, and did not historically experience fire as frequently as dry oak-pine forests. Still, without fire, these forests have transitioned to become denser and more dominated by trees that are not tolerant of fire (ie. more white pine, less oaks). Like all forests, this forest type supports the greatest biodiversity when it has a diverse mosaic of tree species, sizes, and age classes. This can be accomplished through 1) selective thinning and 2) prescribed burning. While these forests are in the process of being restored, prescribed burns may be needed more often (every 2-3 years). Beyond this, burning would only be needed at longer intervals for maintenance (8 years or more). An additional consideration in this forest type is, in wetter (more mesic) areas, especially around seeps and springs, fire is not needed and should be avoided.

9) Riparian Thickets

Mapped acres of this habitat: 22.9 ac

Community description: Riparian thickets are generally linear habitats that occur at the edges of waterways such as creeks and rivers. Riparian thickets can provide bank stabilization (plant roots help hold unstable bank soils in place, reducing erosion and keeping rivers free of excess sediment), improve water quality (pollutants that might otherwise flow directly into the river are slowed down and eventually broken down by soil microbes), and provide flood control. They also create critical habitat for terrestrial

wildlife and can increase aquatic biodiversity through a number of mechanisms, including shading the waterway (creates cooler temperatures for aquatic organisms) and contributing organic matter and woody debris to waterways (provides food sources and a variety of microhabitats). Additionally, banks reinforced by roots allow waterways to take a meandering course, creating pools where fish can spawn. Plant species found in riparian thickets include red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), American witch hazel (*Hamamelis virginiana*), tulip tree (*Liriodendron tulipifera*), rosebay rhododendron (*Rhododendron maximum*), black willow (*Salix nigra*), and mapleleaf viburnum (*Viburnum acerifolium*). Non-native species like Chinese privet (*Ligustrum sinense*), multiflora rose (*Rosa multiflora*), and various blackberries (*Rubus* spp.) can be highly invasive in these areas and greatly reduce habitat quality.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Allow riparian thickets to rebound and expand in areas that have been heavily trodden by cattle. 2) Remove and control noxious invasive species. 3) Reduce future trampling by cattle.

Glades, Outcrops, & Cliffs

10) Sandstone Glade & Outcrop (Cumberland Sandstone Glade & Barrens)

Mapped acres of this habitat: 3.3 ac

Community description: This vegetation, dominated by perennial grasslands, occurs in association with open woodlands of sandstone outcrops and surrounding thin soil areas. These stands are found on the Cumberland Plateau in Kentucky and Tennessee, as well as Lookout Mountain and Sand Mountain in Alabama and northeastern Georgia. The dominant herbaceous plants include Nuttall's rayless goldenrod (*Bigelovia nuttallii*), downy oatgrass (*Danthonia sericea*), Appalachian blazing star (*Liatris microcephala*), and little bluestem (*Schizachyrium scoparium*). Scattered trees include shortleaf pine (*Pinus echinate*), Virginia pine (*Pinus virginiana*), Southern red oak (*Quercus falcata*), blackjack oak (*Quercus marilandica*), and post oak (*Quercus stellata*). Shrubs may include white fringe tree (*Chionanthus virginicus*), mountain laurel (*Kalmia latifolia*), and farkleberry (*Vaccinium arboreum*).

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Avoid cattle entering/trampling these areas—thin soil layers make glades especially susceptible to damage. 2) Control invasive species. Practice caution if mechanical removal is used, as soil layers are thin and easily disrupted, and would not rebound quickly if major damage is sustained.

11) Sandstone Cliff (Southern Appalachian Acidic Cliff & Talus)

Mapped acres of this habitat: not available

Community description: This alliance is made up of sparse, patchy vascular vegetation with variable nonvascular cover occurring on cliff faces of acidic rock types in the Southern Appalachian and Piedmont regions of the U.S., north to the Central Appalachians. Mosses and lichens are often abundant. Vascular

plants are generally confined to crevices, and cover is generally less than 10% over all but can be patchy and reach up to 25% cover in areas. Common ferns and forbs include mountain spleenwort (*Asplenium montanum*), flexuous hair grass (*Deschampsia flexuosa*), Appalachian rockcap fern (*Polypodium appalachianum*), and rock polypody (*Polypodium virginianum*), as well as scattered shrubs, such as wild hydrangea (*Hydrangea arborescens*), mountain laurel (*Kalmia latifolia*), and *Rhododendron* species.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Avoid cattle trampling in cliff-top areas, which have similar sensitivities to sandstone glades (thin soils that are susceptible to damage from heavy traffic). 2) Maintain forests adjacent to cliffs to preserve naturally cool and shady microhabitats where cliff-dwelling plants and animals thrive. 3) Avoid over-trampling at the bases of cliff line, as this can lead to soil erosion, exposure of tree roots, and eventual death of cliffside trees. 4) If any cliff-nesting birds, such as peregrine falcons, are detected, avoid visiting these areas during nesting season.

Grassland & Rangeland

12) Grazeways

Mapped acres of this habitat: not available

Species of concern: No species of conservation concern were found in this community.

Management recommendations: These areas are heavily utilized by cattle, and thus we do not recommend any particular restoration goals. However, over-mowing should be avoided. Paired with heavy cattle traffic and grazing, excessive mowing prevents any substantial plant growth, and can cause or exacerbate existing erosion. Erosion can have far-reaching effects, such as harming water quality in the local watershed.

13) Old Fields & Disturbed Ground (Eastern Ruderal Grassland)

Mapped acres of this habitat: not available

Community description: This alliance encompasses a variety of herbaceous vegetation that occurs in the eastern United States on sites that were cleared and the soils disturbed (e.g., old fields, abandoned quarries, old homesteads). Stands are composed of combinations of native and/or exotic species for which no natural analog exists. These species include annual ragweed (*Ambrosia artemisiifolia*), big bluestem (*Andropogon virginicus* var. *virginicus*), horseweed (*Conyza canadensis*), Bermuda grass (*Cynodon dactylon*), centipede grass (*Eremochloa ophiuroides*), boneset (*Eupatorium*) species, cogon grass (*Imperata cylindrica*), tall fescue (*Schedonorus arundinaceus*), meadow rye grass (*Schedonorus pratensis*), bahia grass (*Paspalum notatum*), pearl millet (*Pennisetum glaucum*), goldenrod (*Solidago*) species, Johnson grass (*Sorghum halepense*), St. Augustine grass (*Stenotaphrum secundatum*), and browntop millet (*Urochloa ramosa*). Scattered shrubs may be present, including winged sumac (*Rhus copallinum*).

Species of concern: No species of conservation concern were found in this community.

Management recommendations: Old fields at Coal Creek Farm would ideally be restored to native grasslands or open shrublands/woodlands. Actions to reach this goal include: 1) Use selective herbicide to kill non-native pasture grasses when they occur in monoculture stands. 2) Conduct prescribed burns. 3) Control woody encroachment through mechanical removal of non-native and/or invasive woody species. 4) Encourage growth of desirable native woody species present on-site (such as fencing to protect young plants from mowing and deer/cattle browse), or plant such species if they're not present. 5) Overseed with native grassland plant seeds sourced from genetically appropriate populations (from the Cumberland Plateau region). 6) Avoid overgrazing by cattle.

14) Wooded Pasture

Mapped acres of this habitat: 24 ac

Community description: This ruderal community type does not fit well with any National Vegetation Classification community types. In general, wooded pastures are floristically similar to Pastures & Hayfields (16) but include more of a woody overstory. While all types of pastures are critical to Coal Creek Farm's economy and productivity, at their best, they can also sustain native grassland and savanna species.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) See management recommendations section for Pastures & Hayfields (16) for recommendations regarding native grasses in pastures. 2) Avoid overgrazing, which leads to soil damage and eventual degradation of understory herbs. 3) Use grazing as a tool to keep areas open and free of impenetrable scrubby/woody growth.

15) Burned Rangeland & Shortleaf Pine Savanna Restoration Area (Southeastern Patch Prairie and/or South-Central Dry Patch Prairie Alliance)

Mapped acres of this habitat: 159.8 ac

Community description: The Southeastern Patch Prairie Alliance includes mesic and wet-mesic grasslands and patch prairies found primarily in the Interior Low Plateau, ranging into the Central Appalachians, Cumberlands/Southern Ridge and Valley, and peripherally in the adjacent Upper East Gulf Coastal Plain. Stands are typically dominated by a diverse mixture of native forbs, graminoids, and medium to tall warm-season grasses, particularly members of the Asteraceae, Fabaceae, and Poaceae. Woody species are absent to rare in well-managed examples but can be present in some examples. Some of the plants that may be found in or codominate stands of this alliance include big bluestem (*Andropogon gerardii*), bushy bluestem (*Andropogon glomeratus*), reedgrass (*Calamagrostis coarctata*), velvety panic grass (*Dichanthelium scoparium*), beaked panic grass (*Panicum anceps*), switchgrass (*Panicum virgatum*), Virginia mountain mint (*Pycnanthemum virginianum*), clustered beaksedge (*Rhynchospora glomerata*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), and rough dropseed (*Sporobolus clandestinus*). Stands of this alliance occur in swales or gentle slopes in gently rolling topography. Soil moisture and texture vary, but textures tend to be finer (clay loams or silty clays). Sites with heavier soils often have standing water present in the spring or after heavy rains. The South-Central Dry Patch Prairie Alliance has a very similar flora, but soil textures tend to be coarser and more well-

drained (loams or sands). These soils may be formed from a variety of materials, including eolian or alluvial sand, limestone, dolomite, sandstone, chert, loess, or shale.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: We recommend continuing the current restoration efforts aimed at restoring open savanna habitat in these areas. 1) Prescribed burning aimed at opening and maintaining a diverse, herbaceous understory. 2) Overseeding of native plant species sourced from genetically appropriate populations (seeds should be collected from populations in the same region). 3) Control invasive species and woody encroachment through mechanical removal and/or targeted herbicide spraying. 4) Encourage growth of desirable native woody species present on-site (such as fencing to protect young plants from mowing and deer/cattle browse) or plant such species if they're not present. 5) Avoid overgrazing by cattle.

16) Pastures & Hayfields (Northern & Central Ruderal Mesic Old-field Meadow)

Mapped acres of this habitat: 961.3 ac

Community description: This broadly defined type includes mesic abandoned pastures and agricultural fields and is largely composed of non-native cool-season grasses and herbs (generally of European origin) in the early stages of succession. The fields are typically mowed every one to five years. Physiognomically, these grasslands are generally composed of mid-height (0.5 to 1 m tall) grasses and forbs, with occasional scattered shrubs (<25%). Species composition varies from site to site, depending on land-use history and perhaps soil type, but in general this vegetation is quite wide-ranging in northeastern and midwestern states and at higher elevations (2000-4000 feet) in the southeastern states. Dominant grasses vary from site to site but generally include the exotic grasses creeping bentgrass (*Agrostis stolonifera*), winter bentgrass (*Agrostis hyemalis*), sweet vernal grass (*Anthoxanthum odoratum*), smooth brome (*Bromus inermis*), cheat grass (*Bromus tectorum*), orchard grass (*Dactylis glomerata*), tall fescue (*Schedonorus arundinaceus*), perennial ryegrass (*Lolium perenne*), timothy (*Phleum pratense*) as well as weedy natives such as quackgrass (*Elymus repens*), Kentucky bluegrass (*Poa pratensis*), and, less commonly, little bluestem (*Schizachyrium scoparium*). Forbs may be minor or dominant and include the exotic forbs yarrow (*Achillea millefolium*), field chickweed (*Cerastium arvense*) (and hybrids), Queen Anne's lace (*Daucus carota*), hawkweed (*Hieracium*) species, bird vetch (*Vicia cracca*), as well as weedy natives such as annual ragweed (*Ambrosia artemisiifolia*), common milkweed (*Asclepias syriaca*), grass-leaved goldenrod (*Euthamia graminifolia*), common evening primrose (*Oenothera biennis*), common cinquefoil (*Potentilla simplex*), tall goldenrod (*Solidago altissima*), Canada goldenrod (*Solidago canadensis*), early goldenrod (*Solidago juncea*), gray goldenrod (*Solidago nemoralis*), wrinkleleaf goldenrod (*Solidago rugosa*), clover (*Trifolium*) species, paniced aster (*Symphotrichum lanceolatum*), calico aster (*Symphotrichum lateriflorum*), New England aster (*Symphotrichum novae-angliae*), and many others. This vegetation is quite wide-ranging in northeastern and midwestern states and possibly occurs at higher elevations in the southeastern states and southern Canada.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: Existing hayfields and pastures are an integral part of Coal Creek Farm's economy and agricultural productivity and are essential to operations, thus our management recommendations for these habitats are based on this consideration. [The University of Tennessee's](#)

[Center for Native Grasslands Management](#) recommends producers maintain about 20 percent of their forage production in native, warm-season grasses such as little bluestem, big bluestem, or indian grass; three species that are already found on the Farm. Converting hayfields and pastures to meet this ratio often takes an investment on the front end, but economic studies have shown that profits can be earned from such practices beginning in the fourth year. Profits are derived from the fact that native grasses are drought tolerant and are able to remain green, healthy, and nutritious even during periods of drought. Thus, native grasses help producers to endure periods of drought by enabling them to avoid feeding livestock hay to get through the “summer slump.” Furthermore, native grasses do not require liming or fertilizer like non-native pastures. Research has shown that native grasses are better for both cattle and horse production than common non-native hay grasses such as orchard grass and tall fescue. Current research by Virginia Tech students is also investigating how to incorporate wildflowers in such forage production operations.

Wetlands

17) Mine wetland

Mapped acres of this habitat: not available

Community description: These are degraded wetland communities that occur on abandoned coal strip mine lands.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: While these communities are not natural and don't/should not necessarily be expected to maintain high quality wetland plant communities, wetlands of any kind still play an important role in the ecosystem. Wetlands are critical for wildlife, from insects to birds to mammals, and can also mitigate flooding, as they are able to absorb more water than other habitat types. Keeping this in mind, it is important to avoid excessive trampling by cattle, just as with other wetland community types at Coal Creek Farm. This process disrupts vulnerable wetland soils, and can eventually lead to them drying out.

18) Seepage Forest (Southern Appalachian-Piedmont Red Maple – Blackgum Seepage Forest)

Mapped acres of this habitat: not available

Community description: Vegetation of this alliance is found in forested acidic seeps and saturated swamp forests of the southern Piedmont and Appalachian regions of the southeastern United States. Forests in this alliance have variable canopy composition, but red maple (*Acer rubrum*) and black tupelo (*Nyssa sylvatica*) are common components. Canopy composition differs from the surrounding upland and varies with geography. Typical canopy species across the range of this alliance include red maple (*Acer rubrum* var. *trilobum*), black tupelo (*Nyssa sylvatica*), and tulip tree (*Liriodendron tulipifera*). One association contains Eastern white pine (*Pinus strobus*). Understory and shrub species include smooth alder (*Alnus serrulata*), American holly (*Ilex opaca* var. *opaca*), winterberry (*Ilex verticillata*), red chokeberry (*Aronia arbutifolia*), mountain Azalea (*Rhododendron canescens*), and possumhaw (*Viburnum nudum* var. *nudum*). Characteristic herbaceous species include sedges (*Carex* species), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and netted chainfern (*Woodwardia areolata*). In

addition, *Sphagnum* moss species are typical. These wetland forests generally occur where the soils are saturated to the surface for extended periods during the growing season, but where surface water is seldom present. These forested, primarily acidic seeps are found on hillsides, streamheads, floodplain edges, poorly drained depressions, and gentle slopes where saturated conditions influence the vegetation.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Do not allow cattle to trample these areas, as they have particularly soft and easily damaged organic soils. 2) Remove invasive trees and shrubs from around seeps/springs. This will restore light to the ground and increase water output, helping to keep soils saturated and healthy. 3) Remove invasive species.

19) Wet Meadow (Appalachian-Northeast Wet Meadow)

Mapped acres of this habitat: 4.8 ac

Community description: This alliance is known from the Central Appalachians-Northeast region and is characterized by wet or wet-mesic sites flooded for part of the growing season. The vegetation comprises sedge meadows, forb meadows, and shallow marshes. Typical dominants include sedges, such as tussock sedge (*Carex stricta*), blister sedge (*Carex vesicaria*), and lake sedge (*Carex lacustris*); and tall forbs, typically Joe-Pye weed (*Eutrochium fistulosum*), common boneset (*Eupatorium perfoliatum*), (*Impatiens capensis*), yellow jewelweed (*Impatiens pallida*), Canada goldenrod (*Solidago canadensis*), wrinkleleaf goldenrod (*Solidago rugosa*), and wingstem (*Verbesina alternifolia*). In wetter sites, rice cutgrass (*Leersia oryzoides*) is typically dominant with spotted touch-me-not (*Impatiens capensis*), reed canary grass (*Phalaris arundinacea*), broadleaf arrowhead (*Sagittaria latifolia*), and dark green bulrush (*Scirpus atrovirens*) as common associates or codominants. Stands have been found on alluvium or poorly drained basins. Further characterization of the diversity of Cyperaceae that can dominate individual stands is needed.

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Do not allow cattle to trample these areas, as they have particularly soft and easily damaged organic soils. 2) Remove invasive species.

20) Farm Ponds

Mapped acres of this habitat: 23.8 ac

Community description: Many ponds at Coal Creek Farm are regularly utilized by cows and thus many do not sustain aquatic vegetation. But, some larger examples or those that haven't seen heavy traffic host wetland flora, including floating aquatics like watershield (*Brasenia schreberi*) and diverse-leaved pondweed (*Potamogeton diversifolius*), various native graminoids such as blunt spikerush (*Eleocharis obtusa*), weak rush (*Juncus debilis*), soft rush (*Juncus effusus*), dark green bulrush (*Scirpus atrovirens*), American bulrush (*Sparganium americanum*), and broadleaf cattail (*Typha latifolia*), and forbs like Virginia hedge-hyssop (*Gratiola virginiana*) and sweet bugleweed (*Lycopus virginicus*). More disturbed examples host weedy forbs along the muddy margins, such as spotted lady's thumb (*Persicaria maculosa*).

Species of concern: No species of conservation concern were found in this community.

Management recommendations: 1) Do not allow cattle to overuse any pond in particular. 2) Allow heavily degraded ponds time to rebound and revegetate. 3) In ponds that no longer support any native vegetation, consider reseeding/replanting with appropriately sourced wetland species. 4) Consider setting aside a pond to be utilized by wildlife only.

Disturbed Lands

21) Abandoned Coal Strip Mines

Mapped acres of this habitat: 47 ac

Species of concern: No species of conservation concern were found in this community.

Management recommendations: These areas are highly degraded and could be candidates for experimental reintroduction trials of hybrid American chestnut trees. This could help the American Chestnut Foundation (TACF) achieve their research goals while also meeting conservation objectives at the Farm. From the American Chestnut Foundation's (TACF) website: "Mined land reforestation plantings represent another avenue to help TACF achieve its research and restoration goals. By working with the Appalachian Regional Reforestation Initiative (ARRI), Green Forests Work (GFW), and other partners, TACF has assisted in the planting of more than 1.8 million seedlings of various high-value hardwood species, including American chestnut, and the reforestation of nearly 3,000 acres on both publicly- and privately-owned mined lands in eight states since 2009. By restoring degraded lands to native forest types, mined land plantings meet multiple objectives. These plantings not only improve wildlife habitat and decrease forest fragmentation, but also result in improved air and water quality, increased carbon sequestration, invasive exotic species suppression, and have economic benefits."

22) Developed Areas (lawns, barn lots, mowed areas)

Mapped acres of this habitat: 20.8 ac

Management recommendations: These areas are actively used by farm staff and tenants, and thus we do not recommend any restoration actions. However, the planting of non-native ornamental species with invasive tendencies, such as Callery pear (*Pyrus calleryana*) should be avoided at all costs, as these species could easily spread to other areas of the farm and can also be sources of invasive pests. Further, existing stands of these species should be removed, and could be replaced with native species. There are numerous native species that are equally pleasing to the eye and even easier to care for, as they are adapted to the climate and region in which Coal Creek Farm occurs.

Results of Inventory

Plant Diversity

Coal Creek Farm is botanically diverse, with 599 vascular plant taxa (includes species, subspecies, varieties) documented during 58 days between May 2018 and September 2022. Detailed plant lists are provided in Appendices F-H. The species are grouped into 117 families and 337 genera. The flora includes 59 species of trees, 40 shrubs, 3 subshrubs, 13 woody vines, 348 forbs, 109 graminoids (grasses, sedges, rushes), and 27 ferns and fern allies. Non-vascular plants such as bryophytes (mosses, liverworts, and hornworts) were also documented, though not comprehensively; 19 non-vascular species were found, including 14 species of moss and 5 liverworts (Appendix I). Similarly, fungi, lichen, and slime molds were also documented when encountered; 110 such species were found (Appendix J).

Three plant species of state conservation concern occur on the Farm in a variety of habitats, with two also considered to be of global conservation concern (those with global, or G-ranks of G1-G3). No federally listed species (species listed as Threatened or Endangered under the U.S. Endangered Species Act) were found during the present study. See Appendix D for a complete list of plant species of conservation concern found in the study area.

A total of 83 vascular plant species (14.2% of the total) are considered not native to Tennessee. Of the non-native species present, at least 18 are invasive or have the potential to become invasive in natural communities on the property (not counting the pasture/field and disturbed areas). These species are included in Appendix E and should receive priority for control.

Animal Diversity

A total of 663 animal species across nine major classes were documented at Coal Creek Farm between May 2018 and September 2022. This includes 1 fish, 13 amphibians, 14 reptiles, 76 birds, 6 mammals, 3 snails and slugs, 5 centipedes and millipedes, 19 arachnids, and 526 insects. A detailed list of all animal species documented can be found in Appendix K.

No species of state conservation concern or federally listed animal species were found during the present study.

About Join 14

To document the biodiversity of the approximately 5,000-acre Coal Creek Farm, which occupies portions of Cumberland, Tennessee.

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[Project Journal](#)

Coal Creek Farm Biodiversity Project

Overview **3,094** OBSERVATIONS **1,079** SPECIES **592** IDENTIFIERS **15** OBSERVERS [Stats](#)

Stats

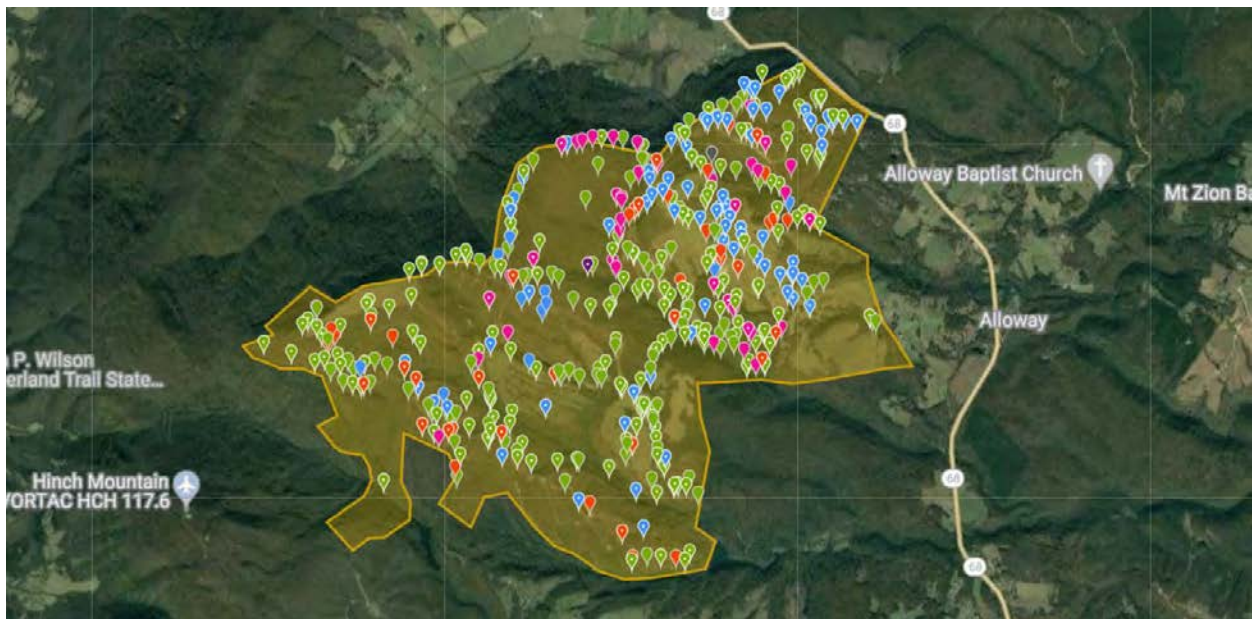
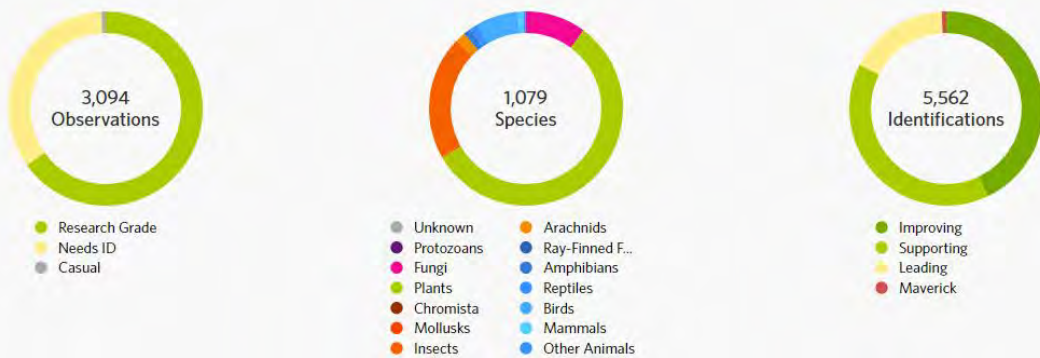


Figure 8. Coal Creek Farm Biodiversity Project on iNaturalist. Top: Results showing breakdown of biodiversity data for the Coal Creek Farm Biodiversity Project. Bottom: iNaturalist observations made at Coal Creek Farm from 2018-2022. A total of 3,094 observations have been made by 15 people, totaling 599 plants and 663 animals.

Newly Discovered Species from Coal Creek Farm

During the course of this survey, two new species to science were documented at Coal Creek Farm—an herbaceous plant in the genus *Eupatorium* and a grasshopper in the genus *Melanoplus*. Descriptions of both and photos of both species are provided here.

***Eupatorium* sp. nov.**

On 1 September 2018, during botanical inventory at Coal Creek Farm, Theo Witsell and Dwayne Estes collected several specimens of a boneset (*Eupatorium* sp.) from a roadside site in the southern portion of the property. When Witsell examined these specimens after pressing he noticed that while these plants were most similar to rough boneset (*Eupatorium pilosum*), they were not typical for that species. He then sent several leaf samples to Dr. Ed Schilling at the University of Tennessee Knoxville for genetic analysis. Dr. Schilling responded that DNA sequences extracted from the samples indicated that they were of hybrid origin, with white boneset (*Eupatorium album*) and rough boneset as the parent species.

While it is not uncommon in certain genera of plants (including *Eupatorium*) to find occasional hybrid individuals, these are usually locally rare, sterile, and are found in areas with large populations of both parent species. The population of the odd *Eupatorium* at Coal Creek farm, however, included numerous individuals, all displaying the same distinctive characteristics, and was without typical individuals of either parent species. This suggests that these are apomictic polyploid plants of hybrid origin but constitute a sexually reproducing nothospecies (a new species of hybrid origin). Such nothospecies are well documented to occur in *Eupatorium* but plants with this particular parentage were not previously known according to Dr. Schilling.

As part of further study Witsell and Estes returned to the population 8 October 2021 when they collected additional specimens, took detailed photographs, gathered data on the habitat, and collected seeds. These seeds were cold stratified, planted in the spring of 2022, and germinated, providing additional evidence that this is a new hybrid-derived species capable of reproducing sexually and in need of a formal description and a name. This work is currently underway by Witsell and Estes in collaboration with Dr. Schilling. Future steps include the examination of existing herbarium specimens to determine if other collections have been made, delineating the range of the species, and growing out seedlings from 2022 into mature plants to confirm that key characters persist across generations.

Habitat for this “new” species is along roadsides, logging trails, and in adjacent disturbed (cut-over) acidic woodlands with sandstone outcrops. More than 200 individuals were observed, and were most abundant in open areas on south- and west-facing exposures. Soils are mapped as Lily loam and Gilpin loam, derived from parent material of the Newton Sandstone and Vandever Formation. While neither parent species were found in the immediate vicinity, both occur in grasslands and open woodlands in the broader Cumberland Plateau Ecoregion.

Dominant trees at the site are chestnut oak (*Quercus montana*), sourwood (*Oxydendrum arboreum*), and scarlet oak (*Quercus coccinea*), with lesser amounts of white oak (*Quercus alba*), black tupelo (*Nyssa sylvatica*), Virginia pine (*Pinus virginiana*), and white pine (*Pinus strobus*). Dominant shrubs include mountain laurel (*Kalmia latifolia*) and sparkleberry (*Vaccinium arboreum*). Common herbaceous associates include common boneset (*Eupatorium perfoliatum*), roundleaf thoroughwort (*Eupatorium pubescens*), Torrey's Eupatorium (*Eupatorium torreyanum*), creeping aster (*Eurybia surculosa*), little bluestem (*Schizachyrium scoparium*), toothed white-topped aster (*Sericocarpus asteroides*), (*Solidago arguta caroliniana*), slender goldenrod (*Solidago erecta*), field goldenrod (*Solidago nemoralis*), sweet goldenrod (*Solidago odora*), bushy aster (*Symphotrichum dumosum*), and goat's rue (*Tephrosia virginiana*).



Figure 9. Photographs of the newly discovered *Eupatorium* species from Coal Creek Farm. A: *Eupatorium* species have oppositely arranged leaves, or two leaves per node. B: Successfully germinated seeds. C: A broader view of the inflorescence. D: Upper (adaxial) leaf surface. E: Lower (abaxial) leaf surface. F: Close-up of florets. G: Roots. H: Close-up of pubescence (hairs) on the lower leaf surface.

Melanoplus lindemanii

From Dr. JoVonn Hill:

During an initial survey of Coal Creek Farm in 2018, a grasshopper species belonging to the *Melanoplus mancus* species group was discovered in a patch of open woodland. Blatchley (1920) established the mancus group to include *Melanoplus mancus* Smith, *Melanoplus islandicus* Blatchley, *Melanoplus sylvestris* Morse, *Melanoplus celatus* Morse, and *Melanoplus divergens* Morse. Since then, *Melanoplus serrulatus* Hebard has been added (Hebard 1937). However, attempts to identify specimens from the farm as one of these species proved unsatisfactory. The specimens align closely with *M. celatus* but differ considerably in the shape the male genitalia. Specimens were compared to the other species of the mancus group in the collections of the Academy of Natural Sciences of Drexel University (Philadelphia) and the United States National Museum (USNM). Rather serendipitously, a specimen from Grassy Cove, TN collected in 1922 was found in the USNM and was labeled as “strongly atypical”, most likely by Ashely Gurney former Orthoptera Curator in the USNM. Grassy Cove is located less than 3km from my collection locality. After further study and subsequent collections, it was determined that differences between this species and others in the mancus group were significant enough to warrant a new species designation. In 2020, the species was described under the name *Melanoplus lindemanni* Hill in honor of George Lindemann Jr. for his conservation efforts on the Cumberland Plateau of Tennessee.

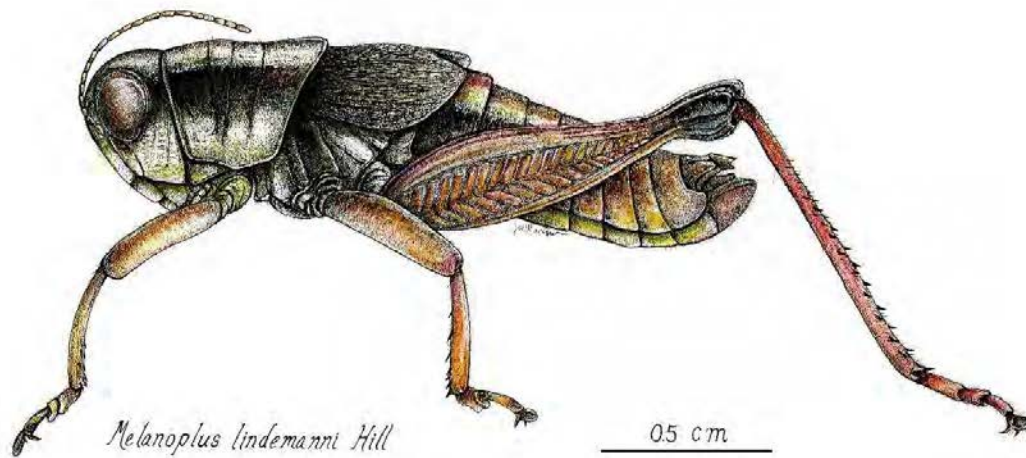


Figure 10. The newly discovered grasshopper from Coal Creek Farm, *Melanoplus lindemanni*, formally described and illustrated by by Dr. JoVonn Hill of the Mississippi Entomological Museum.



Figure 11. Habitat shot and photograph of *Melanoplus lindemanii*. A: The patch of open woodland habitat where *M. lindemanii* was discovered. B: Photograph of *M. lindemanii*.

Ecological Stresses

There are several key ecological stresses impacting the ecology and biodiversity at Coal Creek Farm and the Cumberland Plateau as a whole. These are provided in detail below.

Loss of Fire-Maintained Pine-Oak Savannas and Woodlands

Much of the Cumberland Plateau historically supported open shortleaf pine and Virginia pine-oak savannas and woodlands. Savannas and woodlands can be thought of as a type of wooded grassland. They had canopy gaps and an open midstory which allowed sunlight to reach the ground, which fostered a lush, diverse ground cover of herbaceous plants and low shrubs. Such plants are drought tolerant and thrive in high light levels, as opposed to herbaceous plants native to mesic (wet) forests, which are not drought tolerant and thrive in shade. Open savannas and woodlands were largely maintained by periodic fire, which served to remove dense blankets of accumulated leaf litter from the ground and promote the growth of fire-adapted trees, such as shortleaf pine (*Pinus echinata*). A healthy herbaceous woodland flora provides a rich and diverse nectar resource throughout the growing season, which supports a diverse insect fauna, which in turn serves as a food resource for a variety of wildlife including bats, small mammals, and insectivorous birds. These plants also produce the food resources of fruit and seeds for wildlife, forage for herbivores, and cover for a variety of species who call these habitats home. Due to the loss of periodic fire, it is estimated that at least 90% of shortleaf pine-oak savanna has been lost. The following factors have led to loss of pine-oak woodlands on the Cumberland Plateau:

- Suppression of lightning-set fires (accelerated by landscape fragmentation)
- Decline in the widespread use of fire as a landscape management tool
- Overgrazing of woodlands leading to steep declines in associated forbs and grasses
- Densification of tree canopy causing open woodlands to transition into closed-canopy forests, leading to a decline in light-loving forbs, grasses, and sedges
- Gradual mesophication (increased moisture) of forests, causing a lack of regeneration of oaks, hickories, and pines, with replacement by maples, tulip trees, beeches, and white pines.



Figure 12. Restored shortleaf pine-post oak-little bluestem savanna undergoing a prescribed burn, Bridgestone-Firestone Centennial Wilderness, White County, Tennessee.

Loss of Native Grasslands

The amount of native grassland acreage that has been lost in the Cumberland Plateau is not yet known, but it is estimated that they have declined by as much as 99%. In spite of the lack of solid numbers, the negative trends seen in the collapse of numerous organismal groups paints a clear picture that all is not well with the grassland-dependent portion of the Cumberland Plateau's biodiversity. There has been a dramatic decline in the abundance of key bird groups, especially those that need grassland, shrubland, and open woodland habitats. A 2019 article in the journal *Science* by Rosenberg et al. (2019) reports that there are about 3 billion fewer birds on the landscape than there were 50 years ago (in 1970), with the group in greatest decline being grassland birds. This includes species such as eastern meadowlark and northern bobwhite, which can both be found at Coal Creek Farm. Likewise, researchers have noted losses or declines of other animals needing open, natural habitats such as the rusty patch bumblebee and several native grassland rodents. Declines in grassland plants also record the loss of suitable open lands, with many of the species in eastern Tennessee that are tracked as endangered or threatened needing naturally open, high-quality native grasslands, woodlands, and savannas. The following factors have led to grassland loss on the Cumberland Plateau:

- Lack of fire on the landscape
- Loss of native grazers (e.g., bison), browsers (elk), and other ecosystem engineers (e.g., beaver)
- Overgrazing of native grasslands by livestock in the 1700s-1900s
- "Improvement" of pastures by converting diverse native grasslands to low-diversity pastures and hayfields dominated by non-native Eurasian-grasses
- Extreme manicuring of the landscape via excessive mowing
- Replacement of some grasslands by non-native invasive species
- Too frequent and/or ill-timed mowing of roadsides and careless application of herbicides



Figure 13. An eastern meadowlark (*Sturnella magna*) photographed at Coal Creek Farm.

Summary of Management Recommendations

Specific management recommendations for each community are provided in the Natural Communities & Habitats section, but a summary of our top five management recommendations for Coal Creek Farm is given here.

1) In areas with high potential for shortleaf pine-oak savanna restoration, focus on prescribed burning and treatment of aggressive woody plant species. These areas include shortleaf pine/Virginia pine-oak forests & woodlands (4), dry oak-pine forest (5), dry-type regenerating clearcuts (7), and burned rangeland (15), where shortleaf pine savanna restoration work is already in progress. Prescribed burning can be used to create and maintain an open and diverse herbaceous understory. This will also increase habitat for wildlife, such as Northern bobwhite. Additional management efforts will likely be needed to fully eradicate invasive species, such as through targeted herbicide spraying. Further, in areas of particularly dense, woody growth that prescribed fire alone will not suffice to clear, mechanical thinning may be needed to open up the understory.

2) Protect and conserve high quality forest that hasn't been recently clearcut. Over 2,000 acres of Coal Creek Farm were clearcut in 2008 prior to purchase by the current landowner, George Lindemann. While Team SGI emphasizes the importance of restoring open grassland and savanna areas, we also recognize the critical importance of forest conservation where appropriate. At Coal Creek Farm, areas of intact mesic cove forest (3) are of particular conservation importance. An excellent example of this work already being done at Coal Creek Farm is the restoration of endangered American ginseng (*Panax quinquefolius*) populations. While mesic cove forests at Coal Creek Farm do not require major restoration work, invasive species management is still needed in certain areas.

3) Be careful to avoid overgrazing in savanna areas. While grazing can be an important restoration tool, excessive grazing and cattle traffic can damage soils and decimate native plant populations, creating conditions where only invasive species can thrive. Grazing in savannas should be conducted in moderation and should be avoided in active restoration areas where populations of native plant species are still being established.

4) Open fields could be managed in a way that supports greater biodiversity. Coal Creek Farm has over 900 acres of old fields, pastures, and hayfields. While these areas don't necessarily need to be restored to high-quality grasslands, they could be doing more to achieve Coal Creek Farm's conservation goals. One simple change would be to avoid mowing these areas all year long, allowing them to revegetate over time. In active hayfields, we also recommend seeding with the goal of at least 20% of forage production consisting of native grasses (see Natural Communities & Habitats section 16 for more information).

5) Avoid excessive cattle traffic in wetlands. Wetland habitats at Coal Creek Farm include mine wetlands (17), seepage forest (18), wet meadows (19), and farm ponds (20). These areas support a unique suite of species that aren't found elsewhere on the Farm. Wetland soils are soft and saturated with water, making them susceptible to damage from cattle traffic. When soils are damaged, plant populations suffer. We recommend avoiding cattle traffic entirely in wet meadows and seepage forest and limiting their impact on farm ponds through frequent rotation.

6) Control invasive species in priority habitats. Invasive species pose a major threat to numerous habitats at Coal Creek Farm and will need to be controlled for restorations to be successful in the long-term.

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Acknowledgements

We acknowledge the support, encouragement, and patience of George Lindemann and the staff of Coal Creek Farm. Thank you for supporting the Southeastern Grasslands Institute.

APPENDIX A: Aerial Photos and Maps of Coal Creek Farm

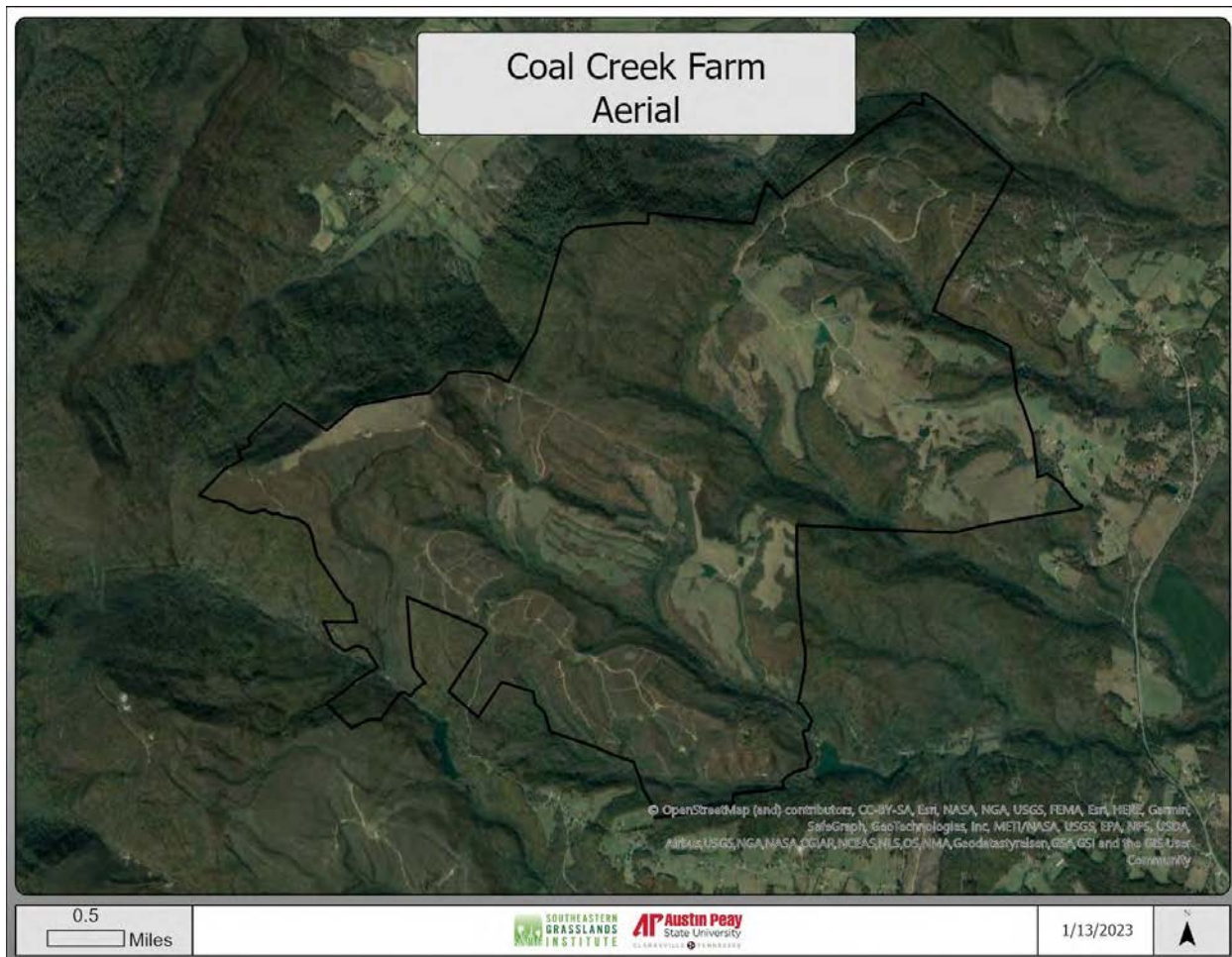


Figure 14. Map of Coal Creek Farm from aerial imagery.

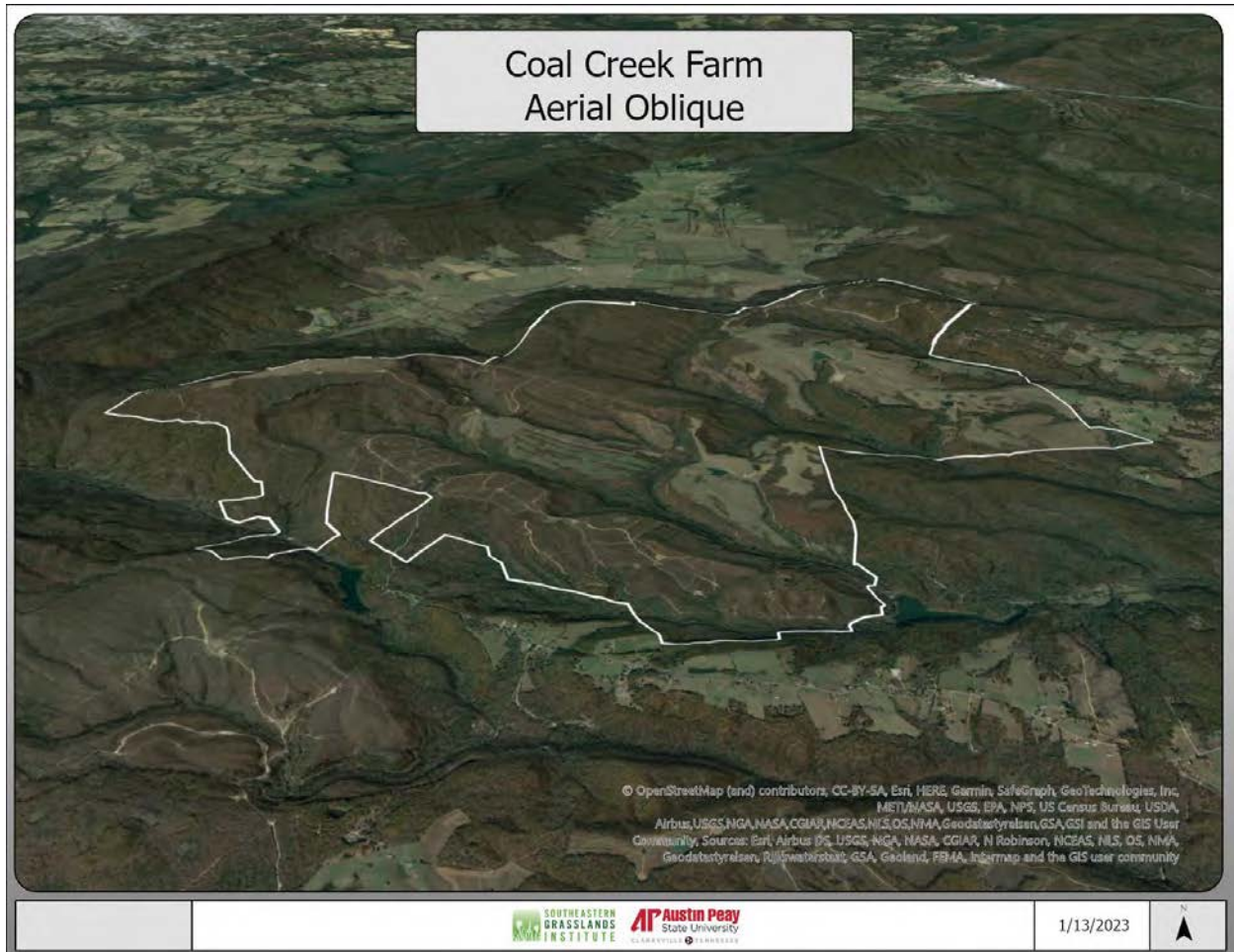


Figure 15. Map of Coal Creek Farm from oblique aerial imagery.

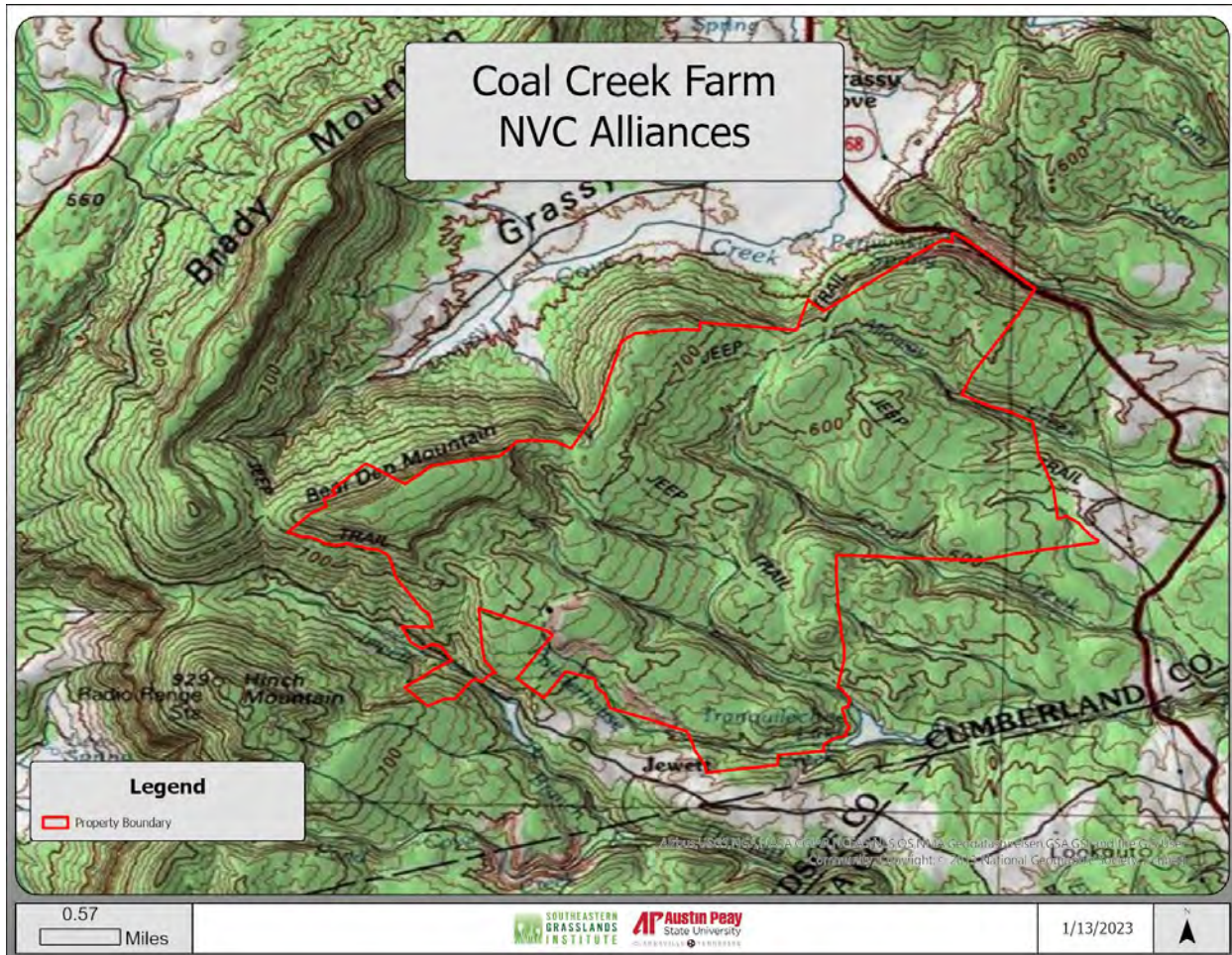


Figure 16. Topographic map of Coal Creek Farm.

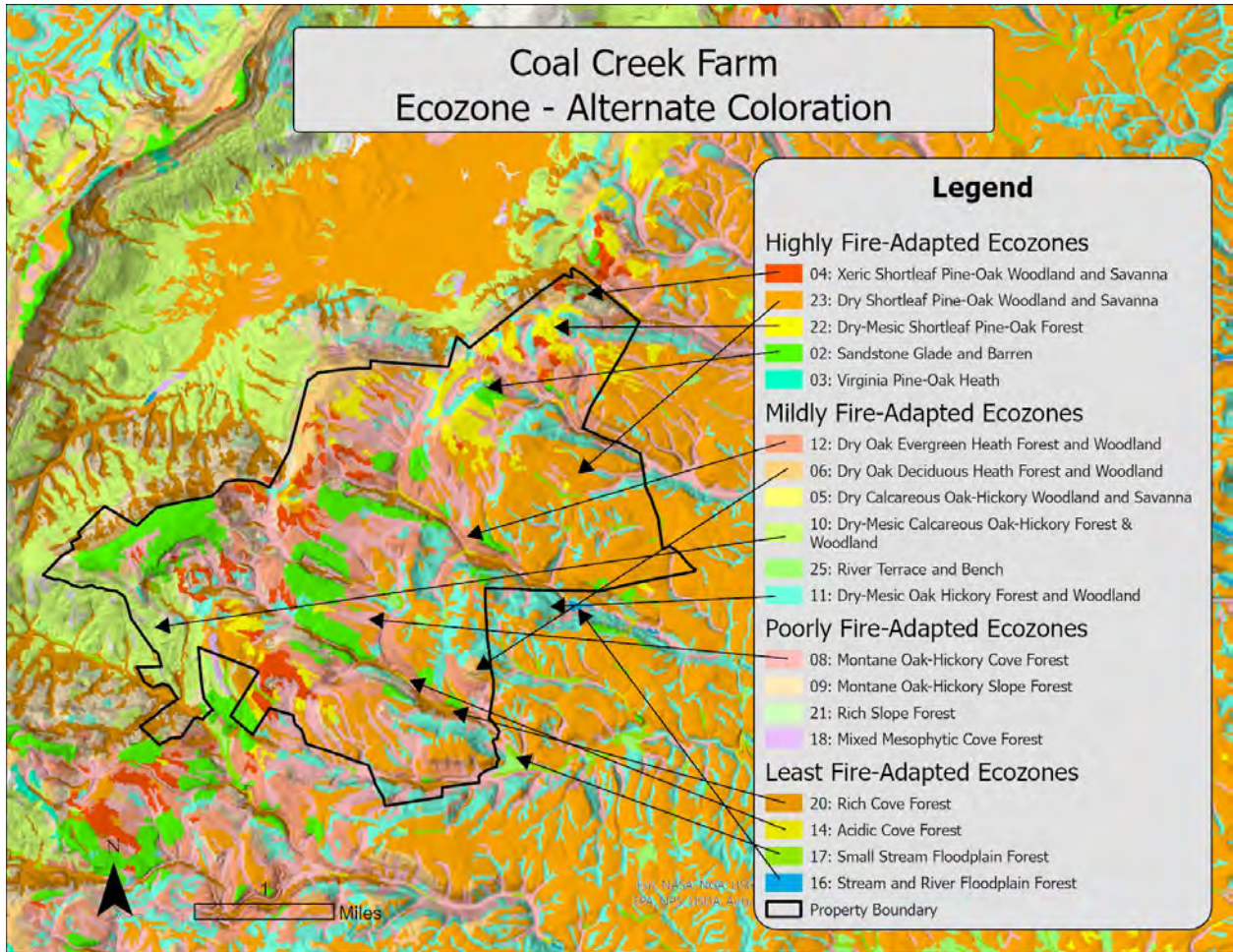


Figure 17. Ecozone map of Coal Creek Farm.

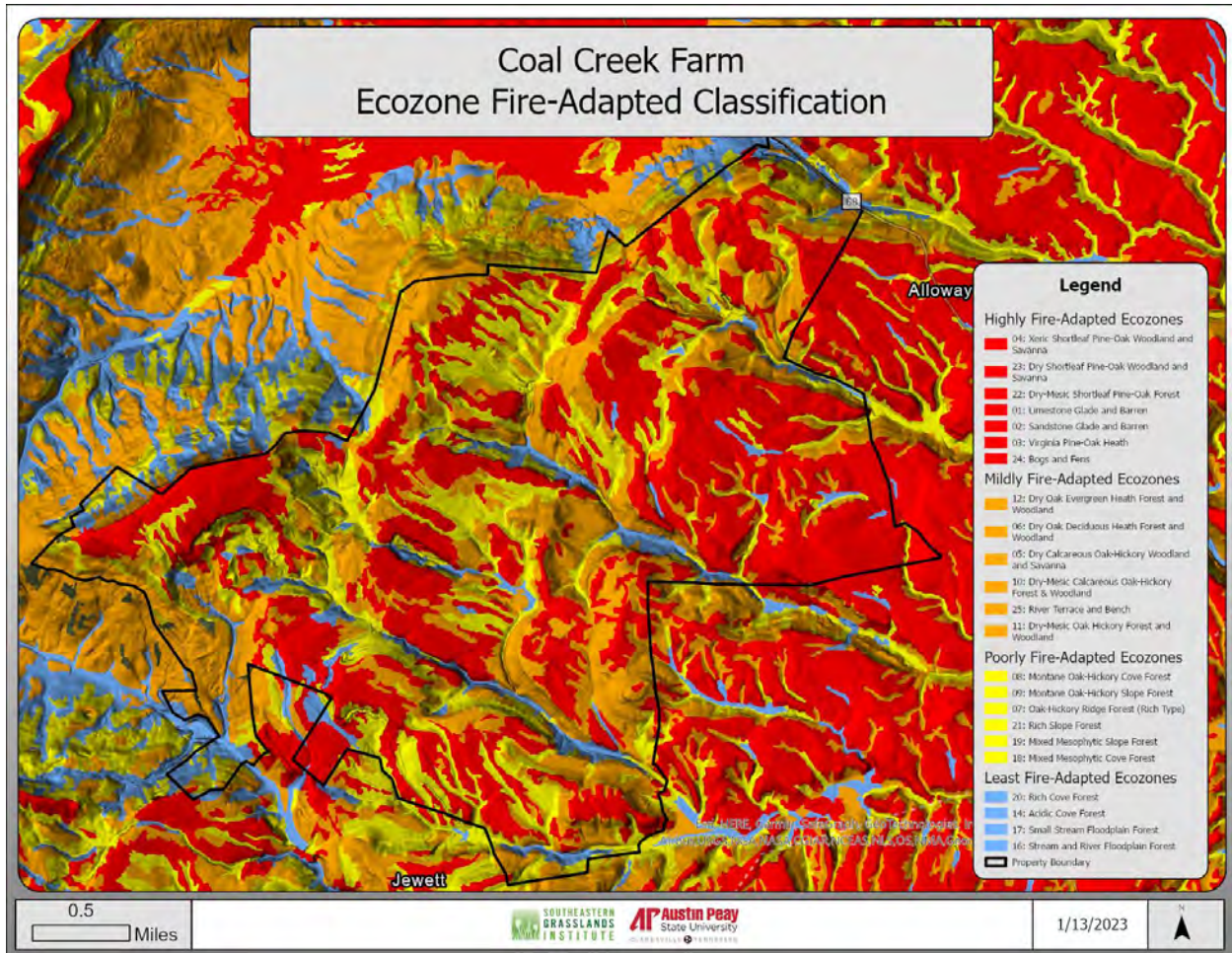


Figure 18. Ecozone map of Coal Creek Farm with grouped categories.

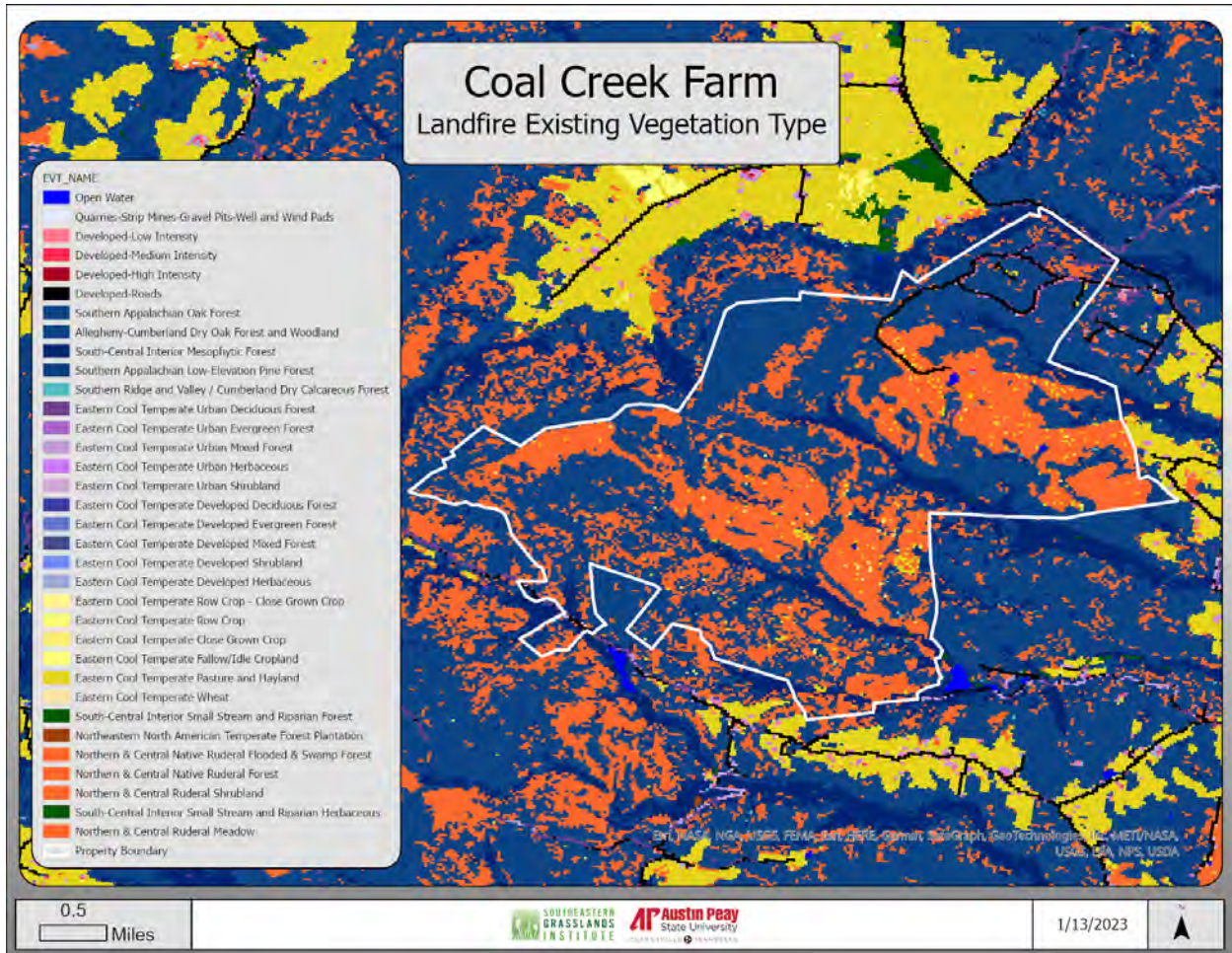


Figure 19. Landfire existing vegetation map of Coal Creek Farm.

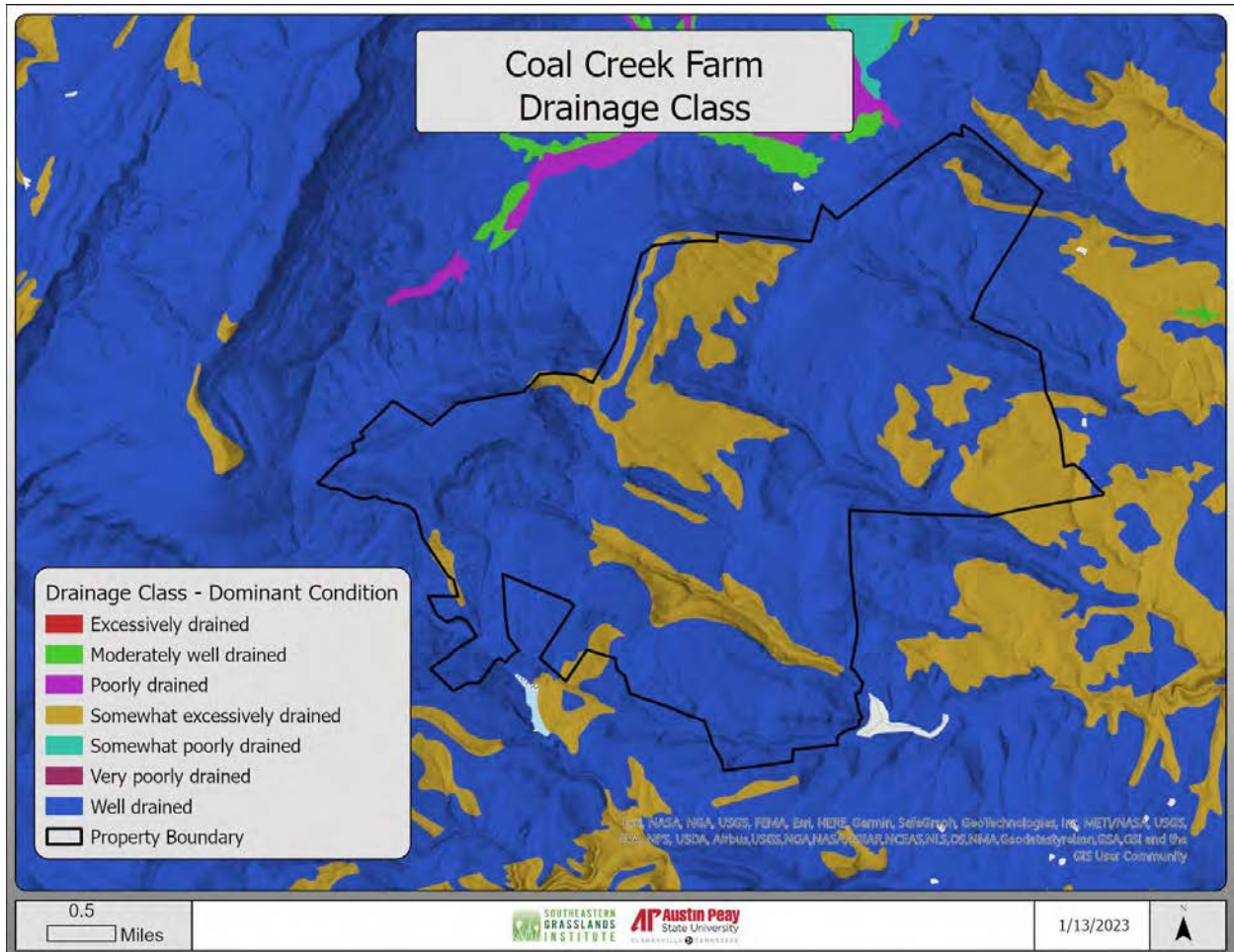


Figure 20. Map of soil drainage classes at Coal Creek Farm.

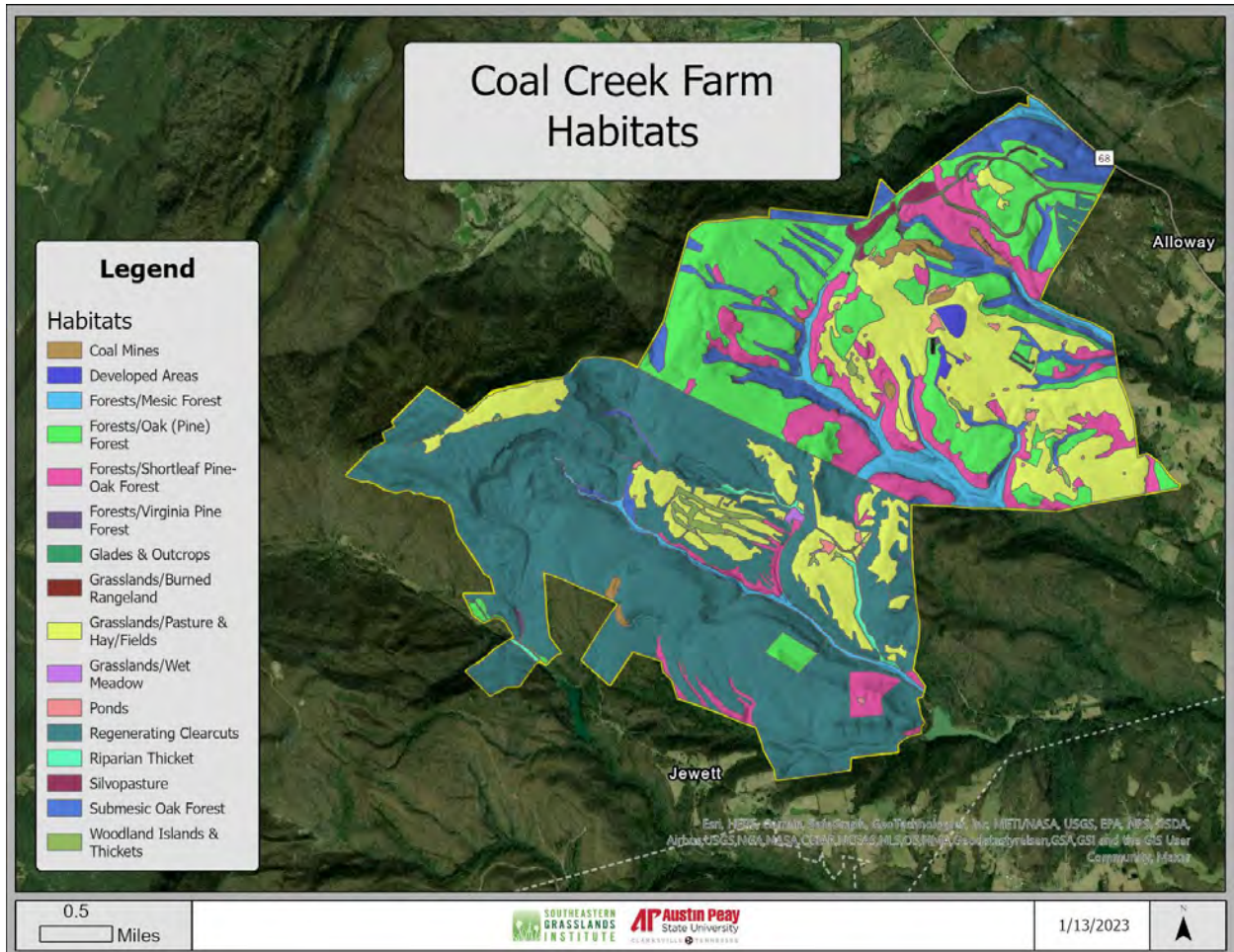


Figure 21. Habitats at Coal Creek Farm.

APPENDIX B: Photographs of Plant Communities and Select Species at Coal Creek Farm



Figure 22. Mesic Cove Forest at Coal Creek Farm. A: *Tsuga canadensis* (eastern hemlock). B: *Rhododendron periclymenoides* (pinxter azalea). C, D: *Goodyera pubescens* (downy rattlesnake plantain). E: *Kalmia latifolia* (mountain laurel). F: *Hexastylis arifolia* var. *ruthii* (little brown jugs). G: *Trillium luteum* (yellow wakerobin). H: *Fagus grandifolia* (American beech).

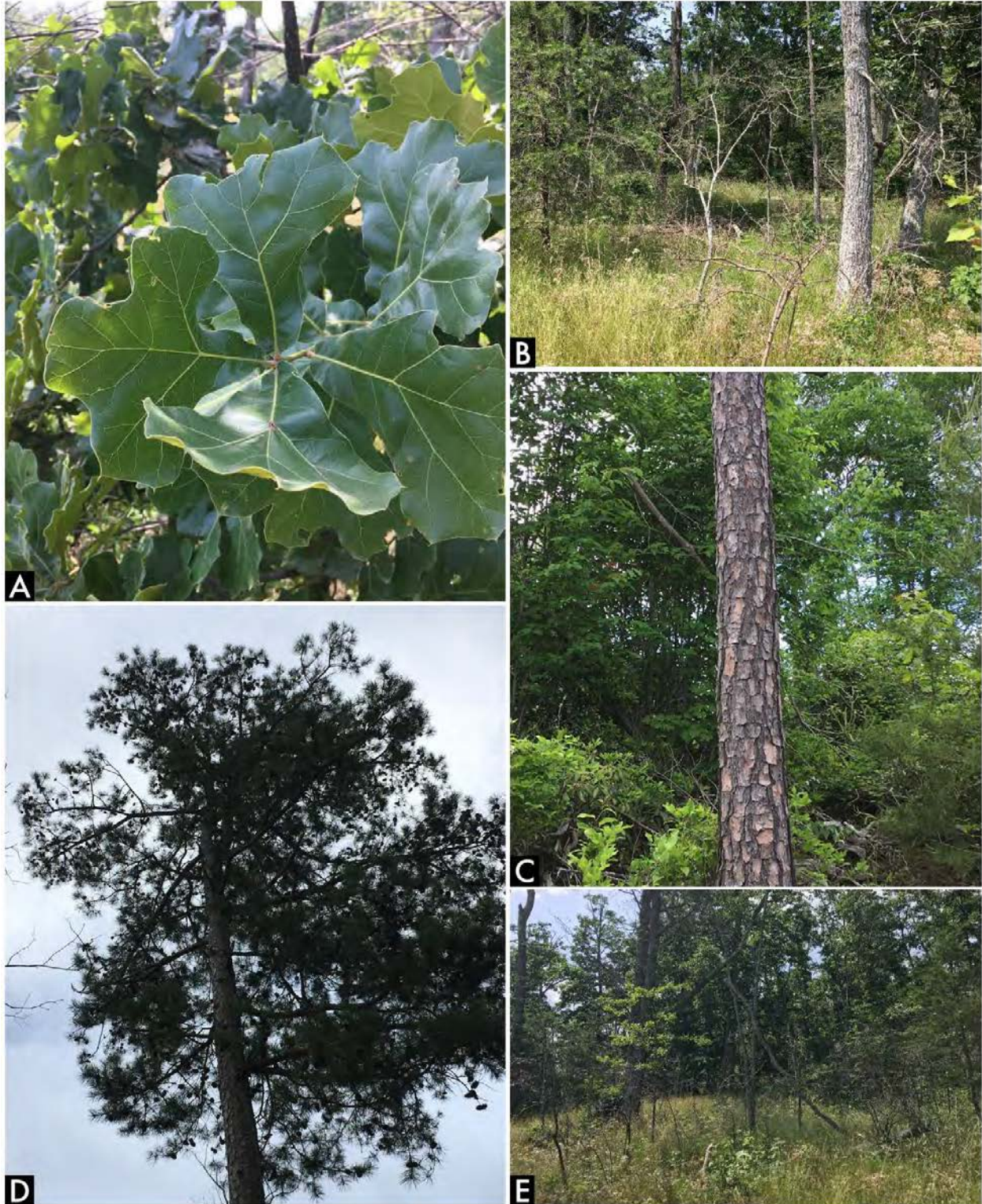


Figure 23. Shortleaf Pine/Virginia Pine-Oak Forest & Woodland at Coal Creek Farm. A: *Quercus marilandica* (blackjack oak). B: These woodlands are open and sunny, maintaining a diverse herbaceous understory. C, D: *Pinus echinata* (shortleaf pine). E: Another example of open woodland with a dense,, herbaceous understory.

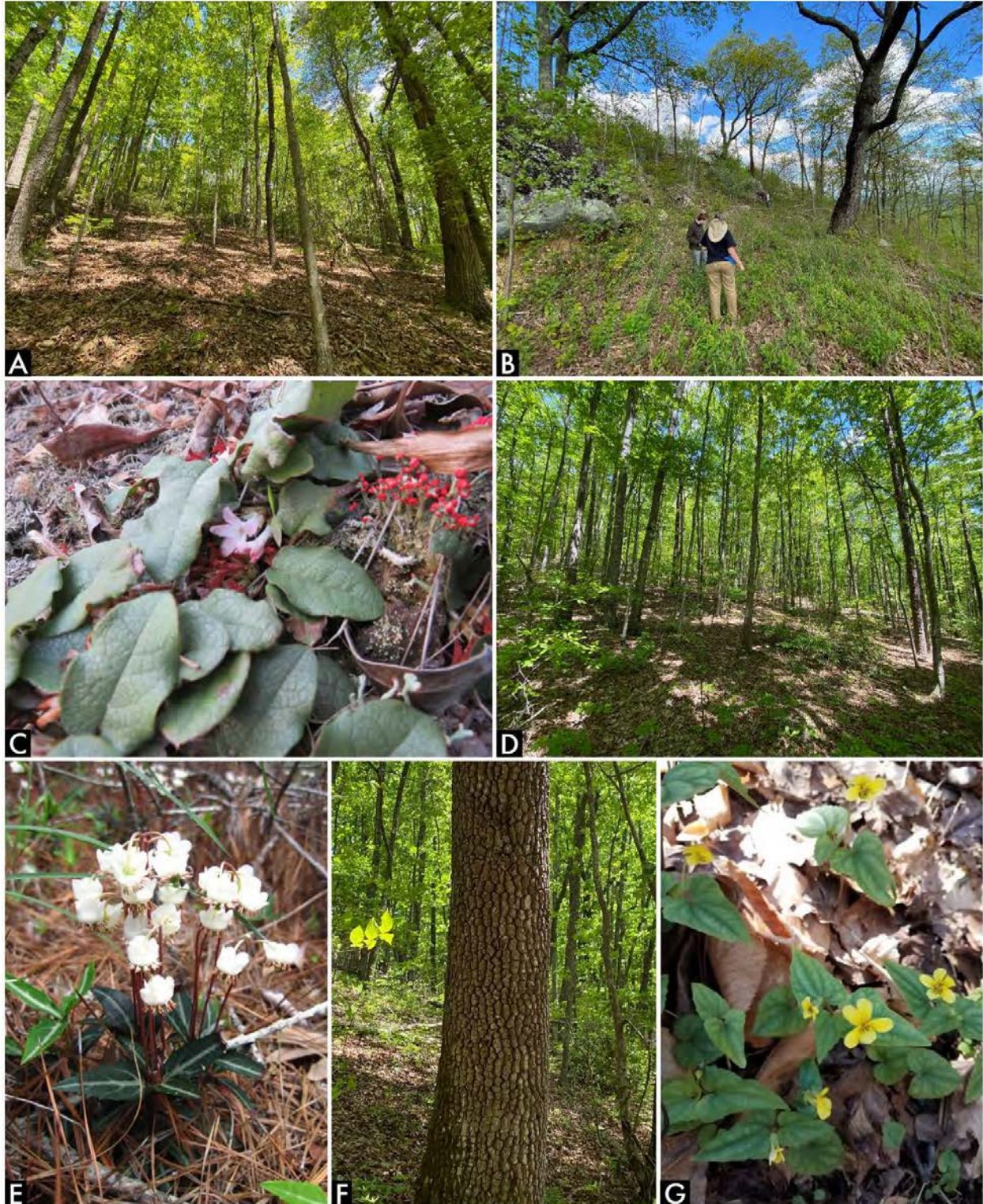


Figure 24. Dry Oak (Pine) Forest at Coal Creek Farm. A: Habitat overview. B: Sloping hillside with a large chestnut oak (*Quercus montana*). C: *Epigaea repens* (trailing arbutus) and *Cladonia* lichen. D: Habitat overview. E: *Chimaphila maculata* (spotted pipsissewa). F: *Diospyros virginiana* (American persimmon). G: *Viola hastata* (Halberd-leaved violet).



Figure 25. Mesic regenerating clearcuts at Coal Creek Farm. A: Habitat overview. B: Michelle McInnis with *Trillium luteum* (yellow wakerobin).



Figure 26. Dry regenerating clearcuts at Coal Creek Farm. A: Laura Hunt and SGI staff. B: Theo Witsell observing dense, regenerating growth. C: Theo Witsell, Alaina Krakowiak, and Crisler Torrence making iNaturalist observations. D: A diverse array of forbs and grasses rebounding in former clearcut.

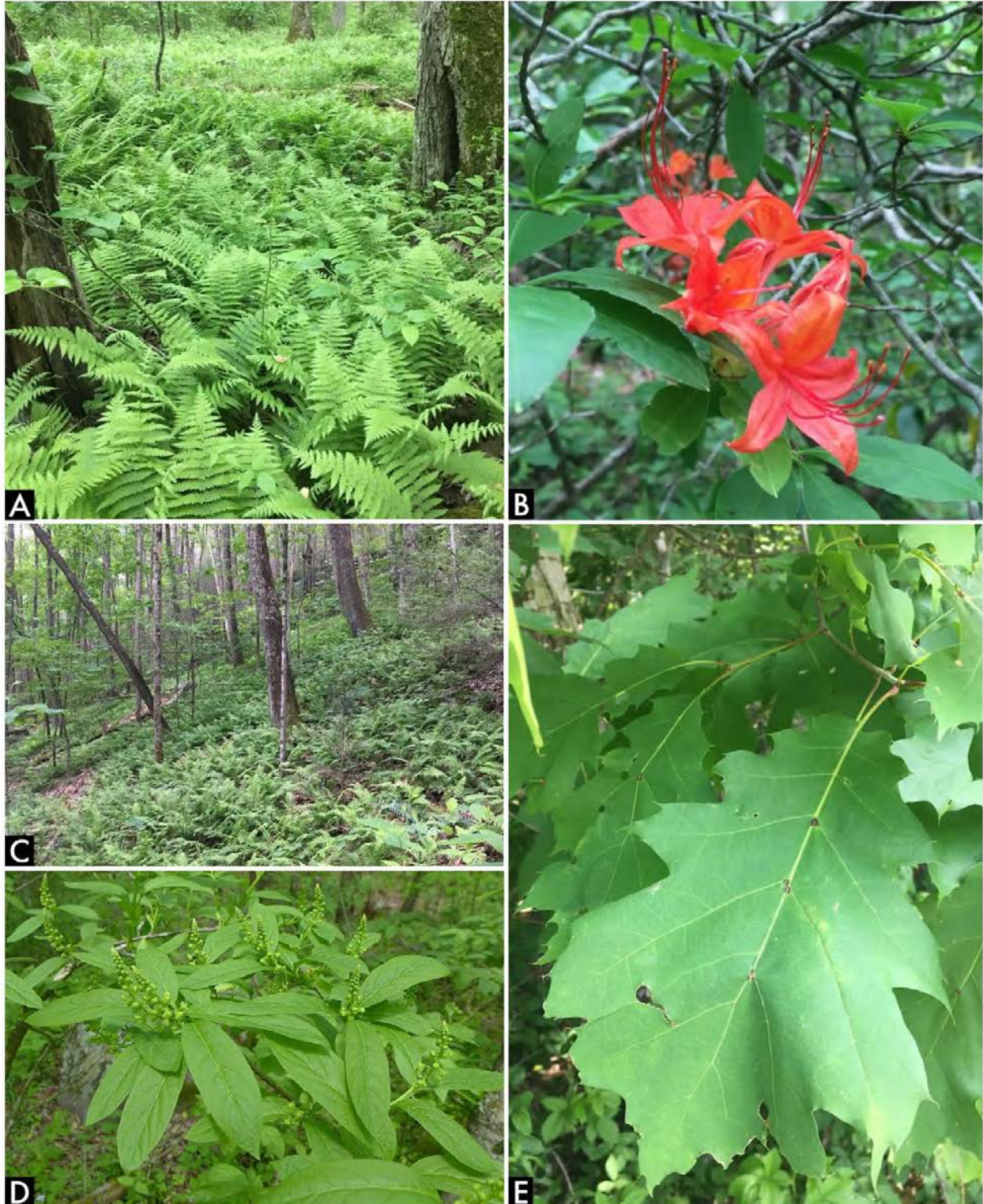


Figure 27. Sub-Mesic Oak (Pine) Forest at Coal Creek Farm. A: *Amauropelta novaboracensis* (New York Fern). B: *Rhododendron calendulaceum* (flame azalea). C: Habitat overview. D: *Pyrularia pubera* (buffalnut). E: *Quercus velutina* (black oak).



Figure 28. Riparian Thickets at Coal Creek Farm. A: *Viburnum acerifolium* (mapleleaf viburnum). B: *Sassafras albidum* (sassafras). C-D: yellow birch *Betula alleghaniensis*. E: *Liriodendron tulipifera* (tulip tree). F: *Salix nigra* (black willow). G: *Hamamelis virginiana* (American witch-hazel).



Figure 29. Sandstone Glades & Outcrops at Coal Creek Farm. A: Sandstone bedrock with small areas of shallow soil accumulation. B: *Aletris farinosa* (white-tubed colicroot). C: *Hypericum gentianoides* (pineweed). D: Habitat overview. E: *Sabatia angularis* (rosepink). F: *Croton wildenowii* (glade rushfoil).



Figure 30. Sandstone Cliffs at Coal Creek Farm. A, B: Sandstone cliff faces. C, D: *Polypodium virginianum* (rock polypody). E, F: Bluff tops. G: *Asplenium montanum* (mountain spleenwort) and lichens.



Figure 31. Grazeways at Coal Creek Farm.



Figure 32. Old Fields & Disturbed Ground at Coal Creek Farm.

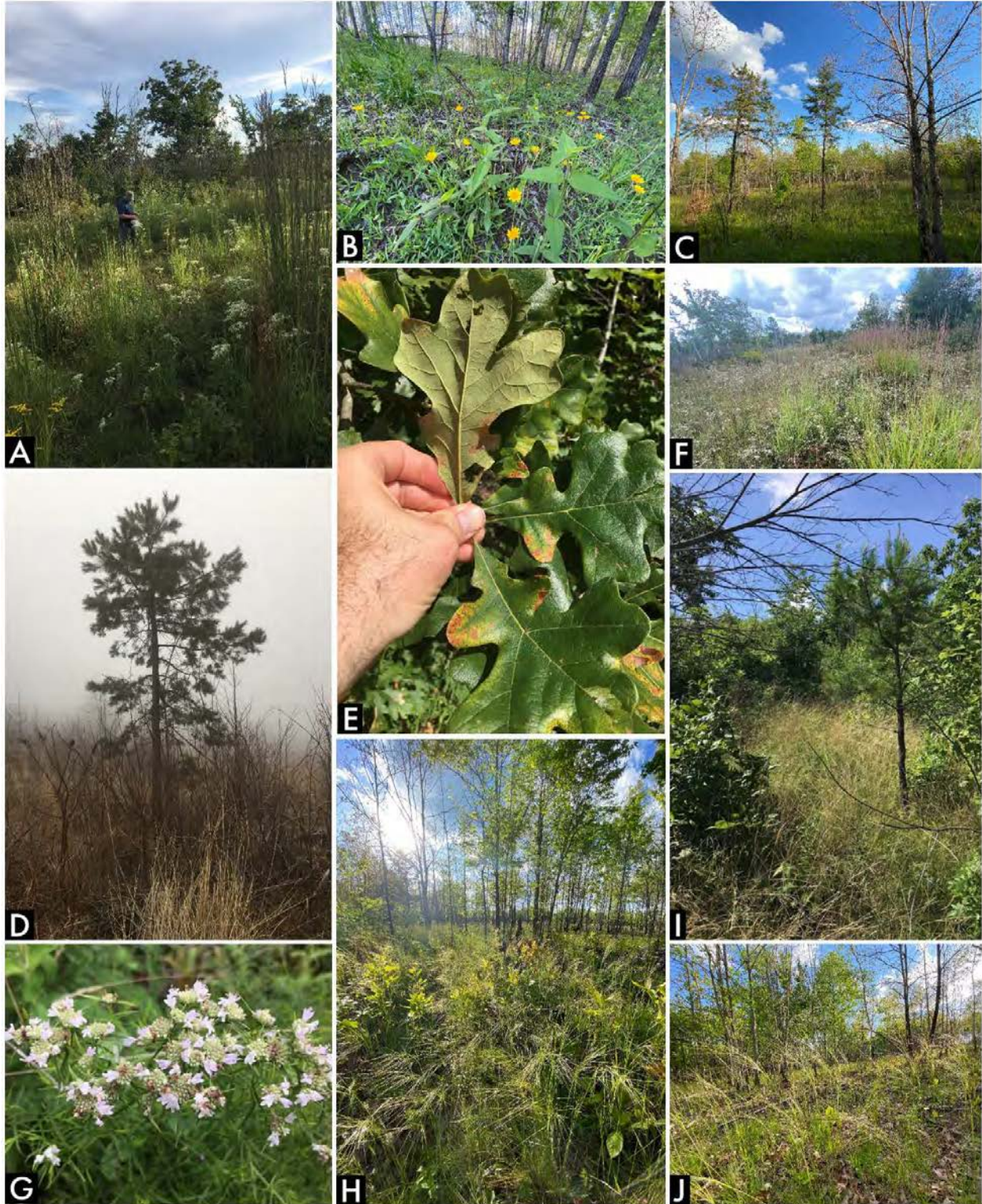


Figure 33. Burned Rangeland & Shortleaf Pine Savanna Restoration Area at Coal Creek Farm. A: Theo Witsell botanizing amidst towering big bluestem grass and lush forbs. B: *Krigia dandelion* (potato dandelion) flourishing in lush edge of burned rangeland area. C, D: *Pinus echinata* (shortleaf pine). E: *Quercus stellata* (post oak). F: *Andropogon gerardi* (big bluestem) regeneration. G: *Pycnanthemum tenuifolium* (narrowleaf mountain mint). H: *Piptochaetium avenaceum* (blackseed needle grass). I: Shortleaf pine with various graminoids in understory. J: *Piptochaetium avenaceum*.

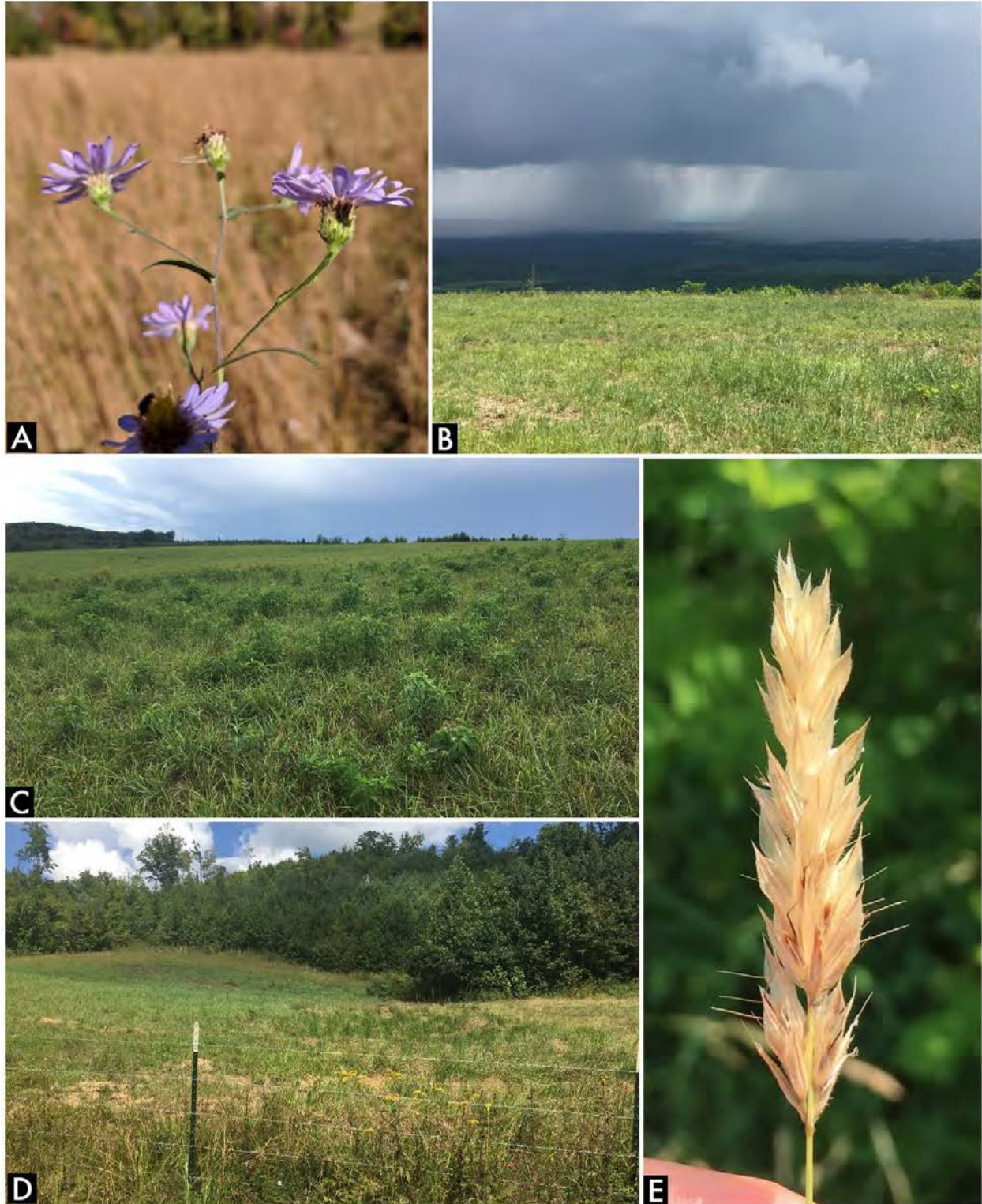


Figure 34. Pastures & Hayfields at Coal Creek Farm. A: *Symphyotrichum oblongifolium* (aromatic aster). B: A summer storm rolling in. C: Habitat overview. D: Fenced off pasture. E: *Anthoxanthum odoratum* (sweet vernal grass).



Figure 35. Seepage Forest at Coal Creek Farm. A: Overview. B: *Osmunda spectabilis* (American royal fern). C: *Stenanthium gramineum* (featherbells). D: *Ligusticum canadense* (American loveage). E: *Osmundastrum cinnamomeum* (cinnamon fern). F: *Athyrium filix-femina* (lady fern). G: Theo Witsell in seepage forest. H: *Amauropelta novaboracensis* (New York Fern).



Figure 36. Wet Meadow at Coal Creek Farm. A: *Penstemon brevisepalus* (short-sepaled beardtongue). B: *Eutrochium fistulosum* (hollow Joe-Pye weed). C: *Spiraea tomentosa* (steeplesh). D: Mississippi Entomological Museum staff in wet meadow. E: *Solidago gigantea* (giant goldenrod). F: *Amsonia tabernaemontana* (eastern bluestar).

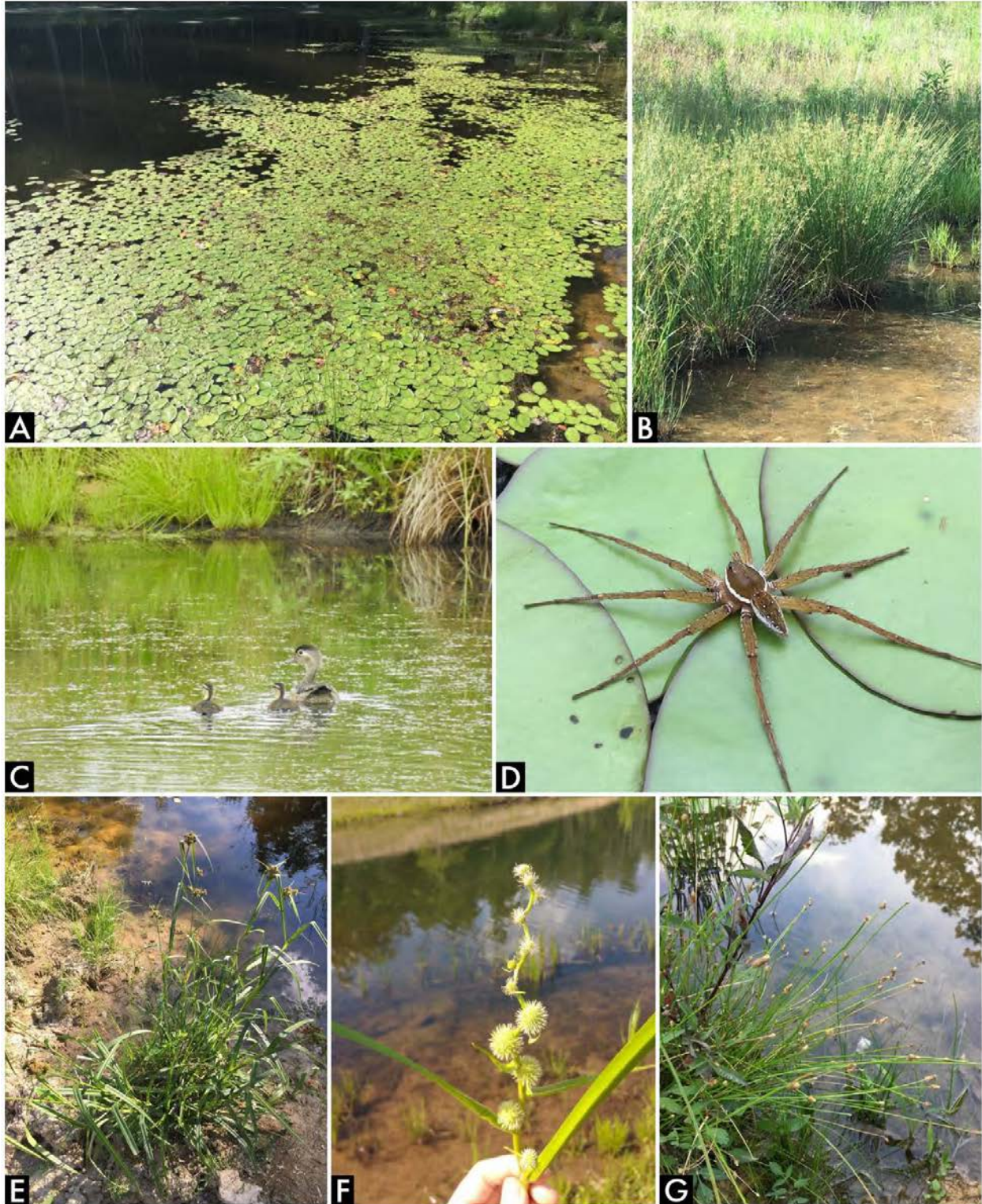


Figure 37. Farm Ponds at Coal Creek Farm. A: *Brasenia schreberi* (watershield). B: *Juncus effusus* (soft rush). C: *Aix sponsa* (wood ducks). D: *Dolomedes triton* (six-spotted fishing spider) on floating watershield leaves. E: *Scirpus atrovirens* (dark green bulrush). F: *Sparganium americanum* (American bur reed). G: *Eleocharis obtusa* (blunt spikerush).

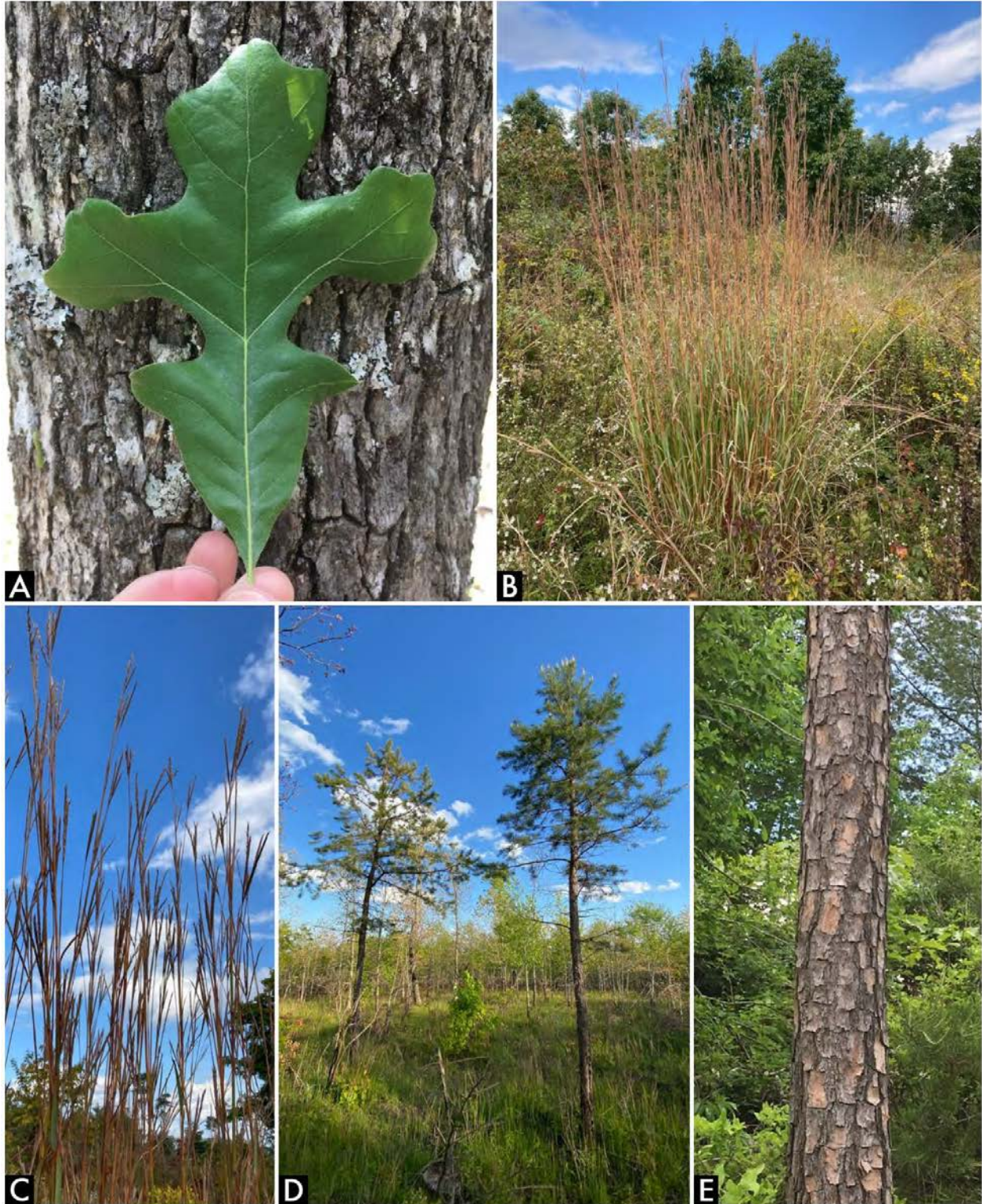


Figure 38. “Storyteller species” found at Coal Creek Farm—plant species whose presence reveals a long history of fire-adapted grasslands and savannas on the landscape (part 1). A: *Quercus stellata* (post oak). B, C: *Andropogon gerardi* (big bluestem). D, E: *Pinus echinata* (shortleaf pine).



Figure 39. “Storyteller species” found at Coal Creek Farm—plant species whose presence reveals a long history of fire-adapted grasslands and savannas on the landscape (part 2). A, B: *Quercus marilandica* (blackjack oak). C, D: *Schizachyrium scoparium* (little bluestem).



Figure 40. All of the orchid species documented at Coal Creek Farm. A: *Cypripedium acaule* (pink lady's slipper) growing amidst *Juncus* (rushes). B: *Spiranthes vernalis* (spring ladies' tresses). C: *Goodyera pubescens* (downy rattlesnake plantain). D: *Platanthera clavellata* (small green wood orchid). E: Bicolored leaves of *Tipularia discolor* (crane-fly orchid). F: *Corallorhiza odontorhiza* (cleistogamous autumn coralroot).



Figure 41. Ferns documented at Coal Creek Farm. A: *Lygodium palmatum* (Hartford fern). B: *Deparia acrostichoides* (silvery glade fern). C: *Amauropelta novaboracensis* (New York fern). D: *Onoclea sensibilis* (sensitive fern). E: *Polypodium virginianum* (rock polypody). F: *Woodwardia areolata* (netted chain fern). G: *Osmundastrum cinnamomeum* (cinnamon fern). H: *Athyrium asplenoides* (southern lady fern). I: *Osmunda spectabilis* (American royal fern). J: *Asplenium montanum* (mountain spleenwort).

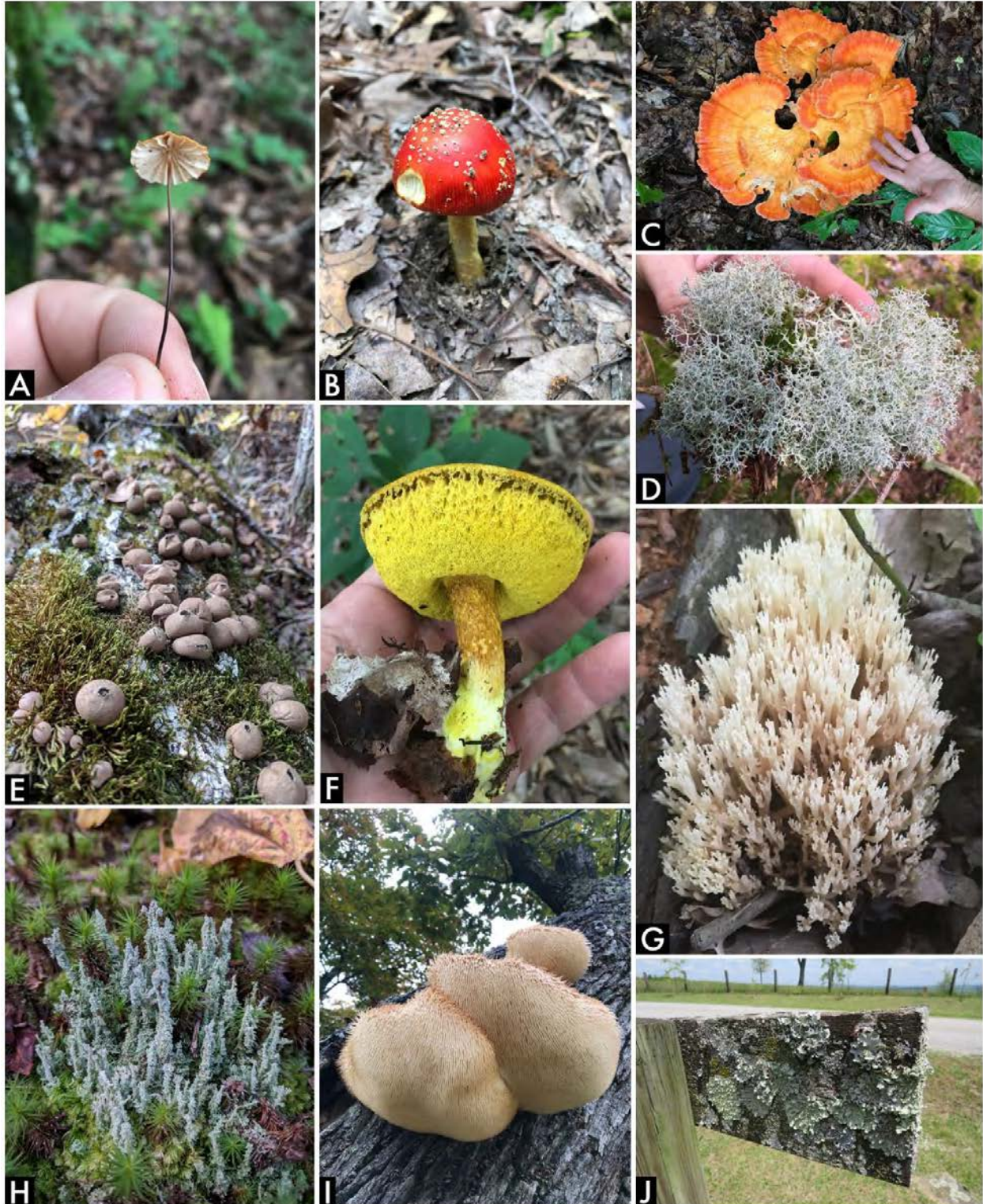


Figure 42. Fungi documented at Coal Creek Farm. A: *Marasmius* sp. (pinwheel mushroom). B: *Amanita parcivolvata* (false Caesar's mushroom). C: *Laetiporus sulphureus* (chicken of the woods). D: *Cladonia rangiferina* (gray reindeer lichen). E: *Apioperdon pyriforme* (pear-shaped puffball). F: *Retiboletus ornatipes* (ornate-stalked bolete). G: *Artomyces pyxidatus* (crown-tipped coral fungus). H: *Cladonia squamosa* (dragon horn). I: *Hericium erinaceus* (lion's mane mushroom). J: Parmeliaceae sp. (shield lichen).



Figure 43. Amphibians documented at Coal Creek Farm. A: Spring salamander. B: Tadpoles. C: Dusky salamander. D: Green frog. E: Northern cricket frog. F: American toad. G: American bullfrog. H: Eastern newt. I: Pickerel frog.



Figure 44. Reptiles documented at Coal Creek Farm. A: Eastern fence lizard. B: Common five-lined skink. C: Common snapping turtle. D: Corn snake. E: Pond slider. F: Eastern worm snake. G: North American racer. H: Eastern hognose snake. I: Timber rattlesnake.

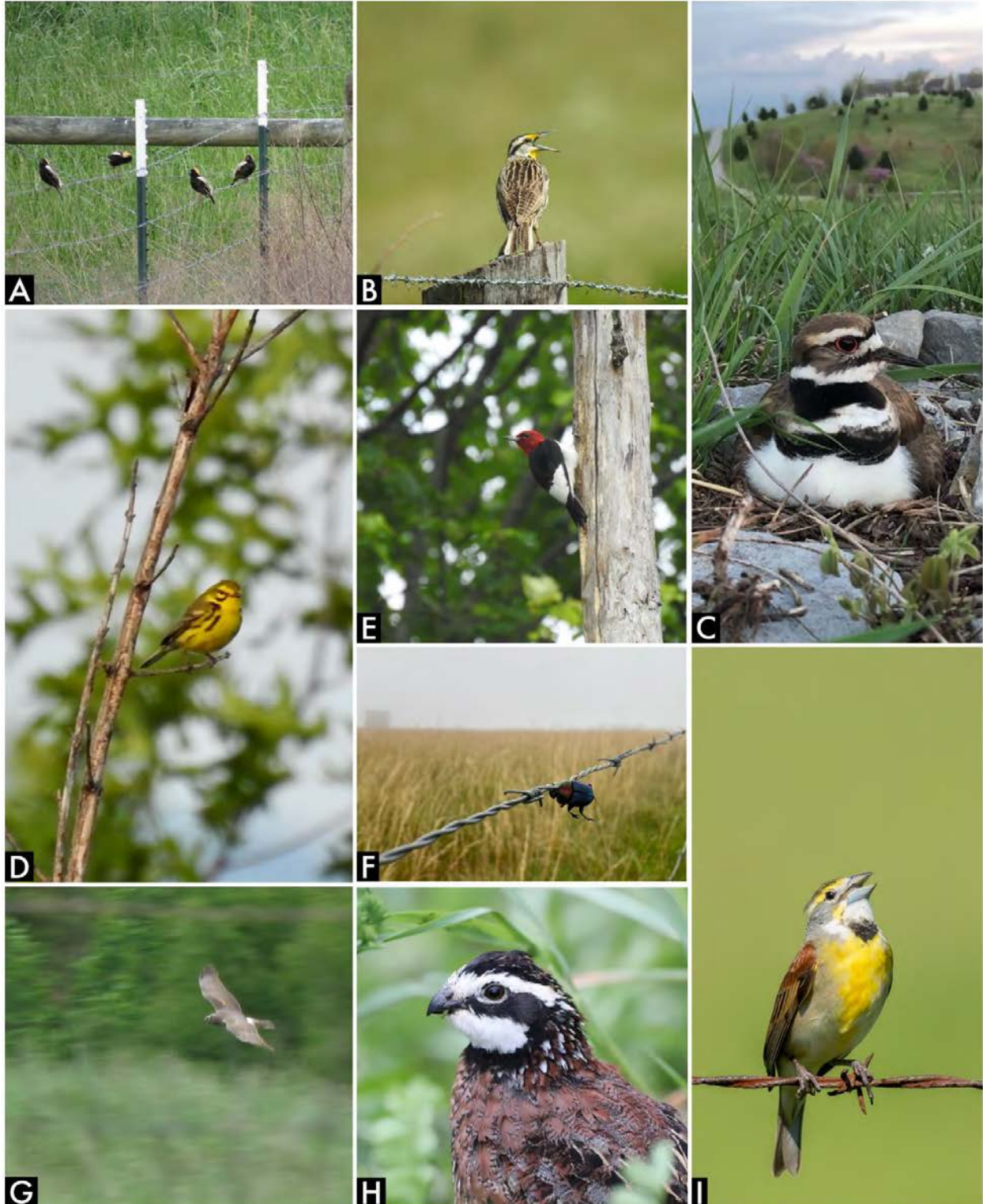


Figure 45. Bird species documented at Coal Creek Farm that prefer open grassland and/or savanna habitat for breeding, nesting, hunting, and/or foraging. Many of these species are experiencing global declines due to fragmentation and destruction of these habitat types. A: Bobolink. B: Eastern meadowlark. C: Killdeer. D: Prairie warbler. E: Red-headed woodpecker. F: Rainbow scarab beetle impaled on barbed wire by a Loggerhead shrike. G: Northern harrier. H: Northern bobwhite. I: Dickcissel.



Figure 46. Lepidopterans (butterflies and moths) documented at Coal Creek Farm. A: Rosy maple moth. B: Great spangled fritillary. C: Tulip tree silk moth. D: Saddleback caterpillar moth. E: Spiny oakworm moth. F: Mournful Thyris moth. G: Polyphemus moth.

APPENDIX C: Conservation Status Code/Rank Legend

(From the [Tennessee Natural Heritage Program Rare Plant List 2021](#))

Global Rank

Global ranks are determined by the scientific staff of NatureServe, the non-governmental organization of national, state and provincial heritage programs. Global ranks provide the best available and objective assessment of a rare plant's rarity and the level of threat to its existence. The total number of individuals, the number of populations, and the threats to the populations are considered throughout the plant's range.

- G1**– Extremely rare and critically imperiled, generally with five or fewer occurrences in the world, or very few remaining individuals, or because of some special condition the species is particularly vulnerable to extinction.
- G2**– Very rare and imperiled, generally with six to twenty occurrences and less than 3,000 individuals, or because of some factor(s), vulnerable to extinction.
- G3**– Very rare and local throughout its range or found locally in a restricted range, or, because of other factors, vulnerable to extinction throughout its range. Generally between 21 and 100 occurrences and fewer than 10,000 individuals.
- G4**– Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery. Thus, the plant is of long-term concern.
- G5**– Demonstrably secure globally, though it might be quite rare in parts of its range, especially at the periphery.
- GH**– Of historical occurrence throughout its range, i.e., formally part of the established biota, with the expectation that it may be rediscovered.
- GNR**– No assigned rank yet due to recent taxonomic issues.
- GU**– Possibly in peril range-wide but status uncertain, need more information.
- GX**– Believed to be extinct throughout its former range, with virtually no likelihood that it will be rediscovered.
- G#Q**– Taxonomic status is questionable, numeric rank may change with taxonomy.
- G#?**– Inexact numeric rank.

State Rank

The state rank is a numeric rating (S1 through S5) of relative rarity based primarily on the number of occurrences of the plant in the state. The state and global ranks are non-legal ranks and only indicate the rarity of a species. Other factors in addition to the number of occurrences are considered when assigning rank, so the number of occurrences suggested for each numeric rank below is not a hard and fast rule.

- S1**– Extremely rare and critically imperiled in the state with five or fewer occurrences, or very few remaining individuals, or because of some special condition where the species is particularly vulnerable to extirpation from Tennessee.
- S2**– Very rare and imperiled within the state, six to twenty occurrences and less than 3,000 individuals, or few remaining individuals, or because of some factor(s) making it vulnerable to extirpation from Tennessee.
- S3**– Rare and uncommon in the state, from 21 to 100 occurrences.

- S4**– Widespread, abundant, and apparently secure within the state, though it may be quite rare in parts of its range, especially at the periphery, and is of long-term concern.
- SH**– Of historical occurrence in Tennessee, i.e., known to occur in Tennessee in the past, with the expectation that it may be rediscovered.
- SU**– Possibly in peril in Tennessee but status uncertain, need more information.
- SX**– Believed to be extirpated from Tennessee, with virtually no likelihood that it will be rediscovered.
- S#S#**– Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2)
- S?**– Unranked within the state.

State Status

State Status indicates which plants are formally listed as state endangered, threatened, or special concern under the authority of the Tennessee Department of Environment and Conservation. The state status is determined by the Tennessee Rare Plant Scientific Advisory Committee using the criteria listed previously. Changes to the endangered list must be effected through a rulemaking procedure. Status changes which the committee has proposed are indicated with a P preceding the status code. These will be included in the next update of the official rule.

- E– Endangered species** means any species or subspecies of plant whose continued existence as a viable component of the state’s flora is determined by the commissioner [of the Department of Environment and Conservation or his/her authorized representatives] to be in jeopardy, including but not limited to all species of plants determined to be “endangered species” pursuant to the Endangered Species Act.
- T– Threatened species** means any species or subspecies of plant which appears likely, within the foreseeable future, to become endangered throughout all or a significant portion of its range in Tennessee, including but not limited to all species of plants determined to be a “threatened species” pursuant to the Endangered Species Act.
- S– Special concern species** means any species or subspecies of plant that is uncommon in Tennessee, or has unique or highly specific habitat requirements or scientific value and therefore requires careful monitoring of its status.

State status modifiers follow state status abbreviations.

- P– Possibly extirpated** is applied to a species or subspecies that has not been seen in Tennessee for the past 20 years. It is possible that it may no longer occur in Tennessee.
- CE– Commercially exploited** is applied to plants that are being taken from the wild in large numbers and propagation or cultivation is insufficient to meet market demand. These plants are of long-term conservation concern but the division does not recommend they be included in the normal environmental review process.

APPENDIX D: Species of Conservation Concern at Coal Creek Farm

The following species occurring in the study area have been identified by the Tennessee Natural Heritage Program as being of conservation concern in Tennessee (Crabtree, 2021). The table below gives global (G) and state (S) conservation ranks, as well as state status in Tennessee. A legend explaining these rank codes is provided in Appendix C. Each species in the table below is presented with general information on its range and habitat followed by specific information on populations found at Coal Creek Farm.

Table 2. Species of conservation concern in Tennessee found at Coal Creek Farm.			
Scientific Name	Common Name	Global Ranking State Ranking,	State Status
Trees			
<i>Castanea dentata</i>	American chestnut	G3, S2S3	S
Forbs			
<i>Panax quinquefolius</i>	American ginseng	G3, S3	S-CE
Graminoids			
<i>Calamagrostis porteri</i> ssp. <i>porteri</i>	Porter's reedgrass	G4, S1	E

***Castanea dentata* (American chestnut) – G3, S2S3, special concern**

Castanea dentata occurs throughout eastern North America in Canada and the United States from Maine, Ontario, and British Columbia, south to Georgia, Alabama, and Mississippi. It was once a dominant component of eastern woodlands but Chestnut Blight, caused by an exotic fungus (*Cryphonectria parasitica*), has diminished a once grand tree to shrubby stump sprouts. It persists, widespread and sometimes abundant as young shoots, but seldom reaches reproductive maturity before dying back from the blight. The species very rarely reproduces sexually or spreads in any meaningful way asexually. While the species persists, the central role it played as a food source and important resource for humans is no longer. There are efforts underway to breed and genetically modify the species for blight resistance but continued research on this front is needed. Threats to the species include the continuous presence of the blight, aging and attrition of the root crowns, land clearing in some remaining sites, and hybridization with other species. *Castanea dentata* sprouts commonly occur in mesic to dry forests throughout Coal Creek Farm.



Figure 47. *Castanea dentata* at Coal Creek Farm. A: Close-up of leaves. B: Vegetative sprouts.

iNaturalist observations of *Castanea dentata* at Coal Creek Farm:

- <https://www.inaturalist.org/observations/25953755>
- <https://www.inaturalist.org/observations/25953692>
- <https://www.inaturalist.org/observations/25953556>
- <https://www.inaturalist.org/observations/16584328>
- <https://www.inaturalist.org/observations/14743812>

***Panax quinquefolius* (American ginseng) – G3, S3, special concern (commercially exploited)**

Panax quinquefolius is widely distributed in eastern North America, primarily in the Appalachians and Ozarks, but typically has very few plants per occurrence. Population sizes of this plant have decreased considerably since European settlement, primarily because of extensive digging of its roots for commercial sale. Some populations may be additionally stressed by deer browse. As for most forest understory plants, ginseng has declined due to substantial cutting and clearing of its original forest habitats and continues to be threatened to some extent by inappropriate forest management. Although various regulations are in effect to protect *P. quinquefolius* (including CITES listing), populations continue to decline because of noncompliance with these regulations and insufficient enforcement. In 2006, the USFWS determined that certified wild ginseng must be 5 years of age or older for export. *Panax quinquefolius* can be found in rich woods at Coal Creek Farm. Due to its sensitive nature, this species was not documented on iNaturalist.



Figure 48. *Panax quinquefolius* (photo not taken at Coal Creek Farm).

***Calamagrostis porteri* ssp. *porteri* (Porter’s reedgrass) – G4, S1, endangered**

Calamagrostis porteri ssp. *porteri* occurs throughout the Midwest and eastern United States but is considered rare and endangered in much of its range. It is a perennial grass that forms loose clumps. Lack of disturbance and succession are low-level threats to this species, which is possibly impacted by fire suppression. Weakley (2020) notes this species to typically be sterile (unable to sexually reproduce) unless disturbed by fire or mechanically. At Coal Creek Farm, *C. porteri* occurs in high elevation woodlands on the upper slopes of Bear Den Mountain in Lily Loam soils overlying Sewanee Conglomerate. This species is known from very few locations in Tennessee, so the discovery of *C. porteri* at Coal Creek Farm is significant.



Figure 49. *Calamagrostis porteri* ssp. *porteri* at Coal Creek Farm. A: Close-up of inflorescence. B: Habitat type where *C. porteri* occurs at Coal Creek Farm—high-elevation woodlands on Bear Den Mountain.

iNaturalist observations of *Calamagrostis porteri* ssp. *porteri* at Coal Creek Farm:

- <https://www.inaturalist.org/observations/15932816>
- <https://www.inaturalist.org/observations/14061373>
- <https://www.inaturalist.org/observations/13935998>

APPENDIX E: Non-native Invasive Plant Species at Coal Creek Farm

Table 3. Key non-native and invasive plant species at Coal Creek Farm that are in need of control and/or eradication.		
Scientific Name	Common Name	Control Priority (Low, Medium, High)
Trees		
<i>Ailanthus altissima</i>	tree-of-heaven	high
<i>Albizia julibrissin</i>	Persian silk tree	high
<i>Pyrus calleryana</i>	callery pear	high
Shrubs		
<i>Berberis thunbergii</i>	Japanese barberry	high
<i>Elaeagnus umbellata</i>	autumn olive	high
<i>Ligustrum sinense</i>	Chinese privet	high
<i>Rosa multiflora</i>	multiflora rose	high
Woody Vines		
<i>Celastrus orbiculatus</i>	Oriental bittersweet	high
<i>Lonicera japonica</i>	Japanese honeysuckle	high
Forbs		
<i>Clematis terniflora</i>	autumn clematis	medium
<i>Lespedeza bicolor</i>	shrub lespedeza	high
<i>Lespedeza cuneata</i>	Chinese bush clover	high
<i>Perilla frutescens</i>	beefsteak plant	low
<i>Securigera varia</i>	purple crownvetch	low
Graminoids		
<i>Arthraxon hispidus</i>	hairy joint grass	high
<i>Bromus inermis</i>	smooth brome	low
<i>Lolium arundinaceum</i>	tall fescue	low
<i>Microstegium vimineum</i>	Japanese stiltgrass	low



Figure 50. Non-native invasive plant species documented at Coal Creek. These species are noted by the Tennessee Invasive Plant Council to invade intact native plant communities, posing threats to their integrity and ecological function. A: *Bromus inermis* (smooth brome). B: *Rosa multiflora* (multiflora rose). C: *Arthraxon hispidus* (small carpetgrass). D: *Ailanthus altissima* (tree of heaven). E: *Pyrus calleryana* (Callery pear). F: *Lespedeza cuneata* (Chinese bushclover). G: *Lespedeza bicolor* (shrub lespedeza). H: *Microstegium vamineum* (Japanese stiltgrass).

APPENDIX F: List of Plant Species Arranged by Plant Habit

* = Non-native

** = Non-native, invasive

Trees

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Acer rubrum</i>	red maple	Sapindaceae
<i>Acer saccharum</i>	sugar maple	Sapindaceae
** <i>Ailanthus altissima</i>	tree-of-heaven	Simaroubaceae
** <i>Albizia julibrissin</i>	Persian silk tree	Fabaceae
<i>Amelanchier arborea</i>	common serviceberry	Rosaceae
<i>Amelanchier laevis</i>	smooth shadbush	Rosaceae
<i>Asimina triloba</i>	common pawpaw	Annonaceae
<i>Betula alleghaniensis</i>	yellow birch	Betulaceae
<i>Betula nigra</i>	river birch	Betulaceae
<i>Carya glabra</i>	pignut hickory	Juglandaceae
<i>Carya laciniosa</i>	shellbark hickory	Juglandaceae
<i>Carya pallida</i>	sand hickory	Juglandaceae
<i>Carya tomentosa</i>	mockernut	Juglandaceae
<i>Castanea dentata</i>	American chestnut	Fagaceae
<i>Cercis canadensis</i>	eastern redbud	Fabaceae
<i>Cornus florida</i>	flowering dogwood	Cornaceae
<i>Corylus americana</i>	American hazelnut	Betulaceae
<i>Crataegus intricata</i>	Copenhagen hawthorn	Rosaceae
<i>Diospyros virginiana</i>	American persimmon	Ebenaceae
<i>Fagus grandifolia</i>	American beech	Fagaceae
<i>Fraxinus pennsylvanica</i>	green ash	Oleaceae
<i>Hamamelis virginiana</i>	American witch-hazel	Hamamelidaceae
<i>Juglans nigra</i>	eastern black walnut	Juglandaceae
<i>Juniperus virginiana</i>	eastern redcedar	Cupressaceae
<i>Liquidambar styraciflua</i>	American sweetgum	Altingiaceae
<i>Liriodendron tulipifera</i>	tulip tree	Magnoliaceae

<i>Magnolia acuminata</i>	cucumber-tree	Magnoliaceae
<i>Magnolia macrophylla</i>	bigleaf magnolia	Magnoliaceae
<i>Magnolia tripetala</i>	umbrella magnolia	Magnoliaceae
<i>Malus angustifolia</i>	southern crabapple	Rosaceae
<i>Malus coronaria</i>	sweet crabapple	Rosaceae
<i>Morus rubra</i>	red mulberry	Moraceae
<i>Nyssa sylvatica</i>	black tupelo	Nyssaceae
<i>Oxydendrum arboreum</i>	sourwood	Ericaceae
<i>Paulownia tomentosa</i>	princess tree	Paulowniaceae
<i>Pinus echinata</i>	shortleaf pine	Pinaceae
<i>Pinus strobus</i>	eastern white pine	Pinaceae
<i>Pinus virginiana</i>	Virginia pine	Pinaceae
<i>Platanus occidentalis</i>	American sycamore	Platanaceae
<i>Populus deltoides</i>	eastern cottonwood	Salicaceae
<i>Prunus americana</i>	American plum	Rosaceae
<i>Prunus serotina</i>	black cherry	Rosaceae
<i>Pyrularia pubera</i>	buffalo-nut	Santalaceae
** <i>Pyrus calleryana</i>	callery pear	Rosaceae
<i>Quercus alba</i>	white oak	Fagaceae
<i>Quercus coccinea</i>	scarlet oak	Fagaceae
<i>Quercus falcata</i>	southern red oak	Fagaceae
<i>Quercus marilandica</i>	blackjack oak	Fagaceae
<i>Quercus montana</i>	chestnut oak	Fagaceae
<i>Quercus rubra</i>	northern red oak	Fagaceae
<i>Quercus stellata</i>	post oak	Fagaceae
<i>Quercus velutina</i>	black oak	Fagaceae
<i>Robinia pseudoacacia</i>	black locust	Fabaceae
<i>Salix nigra</i>	black willow	Salicaceae
<i>Sassafras albidum</i>	sassafras	Lauraceae
<i>Tilia americana</i>	basswood	Malvaceae
<i>Tsuga canadensis</i>	eastern hemlock	Pinaceae
<i>Ulmus alata</i>	winged elm	Ulmaceae

Ulmus rubra

slippery elm

Ulmaceae

Shrubs

Scientific name

Common name

Family

Alnus serrulata

smooth alder

Betulaceae

Aralia racemosa

American spikenard

Araliaceae

Aronia arbutifolia

red chokeberry

Rosaceae

***Berberis thunbergii*

Japanese barberry

Berberidaceae

Ceanothus americanus

New Jersey tea

Rhamnaceae

***Elaeagnus umbellata*

autumn olive

Elaeagnaceae

Euonymus americanus

strawberry bush

Celastraceae

Hydrangea arborescens

wild hydrangea

Hydrangeaceae

Hypericum stragulum

low St. John's wort

Hypericaceae

Ilex ambigua

Carolina holly

Aquifoliaceae

Ilex montana

mountain winterberry

Aquifoliaceae

Ilex opaca

American holly

Aquifoliaceae

Itea virginica

Virginia sweetspire

Iteaceae

Kalmia latifolia

mountain laurel

Ericaceae

***Ligustrum sinense*

Chinese privet

Oleaceae

Rhododendron arborescens

smooth azalea

Ericaceae

Rhododendron calendulaceum

flame azalea

Ericaceae

Rhododendron canescens

mountain azalea

Ericaceae

Rhododendron cumberlandense

Cumberland rhododendron

Ericaceae

Rhododendron maximum

great rhododendron

Ericaceae

Rhododendron periclymenoides

pinxter flower

Ericaceae

Rhododendron prinophyllum

early azalea

Ericaceae

Rhus copallinum

shining sumac

Anacardiaceae

Rhus glabra

smooth sumac

Anacardiaceae

***Rosa multiflora*

multiflora rose

Rosaceae

Rubus allegheniensis

Allegheny blackberry

Rosaceae

Rubus flagellaris

common dewberry

Rosaceae

<i>Rubus occidentalis</i>	black raspberry	Rosaceae
<i>Rubus pascuus</i>	Chesapeake blackberry	Rosaceae
<i>Rubus pensilvanicus</i>	Pennsylvania blackberry	Rosaceae
<i>Rubus steelei</i>	Steele's dewberry	Rosaceae
<i>Sambucus canadensis</i>	American black elderberry	Viburnaceae
<i>Spiraea tomentosa</i>	steeplesh	Rosaceae
<i>Stewartia ovata</i>	mountain camellia	Theaceae
<i>Vaccinium arboreum</i>	sparkleberry	Ericaceae
<i>Vaccinium corymbosum</i>	northern highbush blueberry	Ericaceae
<i>Vaccinium pallidum</i>	blue ridge blueberry	Ericaceae
<i>Vaccinium stamineum</i>	deerberry	Ericaceae
<i>Viburnum acerifolium</i>	mapleleaf viburnum	Viburnaceae
<i>Xanthorhiza simplicissima</i>	shrub yellowroot	Ranunculaceae

Subshrubs

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Chimaphila maculata</i>	striped wintergreen	Ericaceae
<i>Epigaea repens</i>	trailing arbutus	Ericaceae
<i>Mitchella repens</i>	partridgeberry	Rubiaceae

Woody Vines

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
** <i>Celastrus orbiculatus</i>	Oriental bittersweet	Celastraceae
** <i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Vitaceae
<i>Smilax bona-nox</i>	saw greenbrier	Smilacaceae
<i>Smilax glauca</i>	sawbrier	Smilacaceae
<i>Smilax hispida</i>	bristly greenbrier	Smilacaceae
<i>Smilax rotundifolia</i>	roundleaf greenbrier	Smilacaceae
<i>Toxicodendron radicans</i>	eastern poison ivy	Anacardiaceae
<i>Vitis aestivalis</i> var. <i>aestivalis</i>	summer grape	Vitaceae

<i>Vitis aestivalis</i> var. <i>bicolor</i>	summer grape	Vitaceae
<i>Vitis labrusca</i>	fox grape	Vitaceae
<i>Vitis rotundifolia</i>	muscadine	Vitaceae
<i>Vitis vulpina</i>	frost grape	Vitaceae

Forbs

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Acalypha rhomboidea</i>	common copperleaf	Euphorbiaceae
<i>Achillea millefolium</i>	common yarrow	Asteraceae
<i>Actaea pachypoda</i>	white baneberry	Ranunculaceae
<i>Agalinis purpurea</i>	purple false foxglove	Orobanchaceae
<i>Agalinis tenuifolia</i>	slender false foxglove	Orobanchaceae
<i>Ageratina altissima</i>	white snakeroot	Asteraceae
<i>Agrimonia parviflora</i>	swamp agrimony	Rosaceae
<i>Agrimonia pubescens</i>	downy agrimony	Rosaceae
<i>Aletris farinosa</i>	white-tubed colicroot	Nartheciaceae
<i>Alisma subcordatum</i>	American water plantain	Alismataceae
* <i>Amaranthus spinosus</i>	spiny amaranth	Amaranthaceae
<i>Ambrosia artemisiifolia</i>	common ragweed	Asteraceae
<i>Ambrosia trifida</i>	giant ragweed	Asteraceae
<i>Amphicarpaea bracteata</i>	American hog-peanut	Fabaceae
<i>Amsonia tabernaemontana</i>	eastern bluestar	Apocynaceae
<i>Anemone virginiana</i>	tall thimbleweed	Ranunculaceae
<i>Angelica venenosa</i>	hairy angelica	Apiaceae
<i>Antennaria plantaginifolia</i>	plantain-leaved pussytoes	Asteraceae
<i>Antennaria solitaria</i>	singlehead pussytoes	Asteraceae
* <i>Anthemis cotula</i>	stinking chamomile	Asteraceae
<i>Apios americana</i>	American groundnut	Fabaceae
<i>Apocynum cannabinum</i>	hemp dogbane	Apocynaceae
<i>Arisaema triphyllum</i>	jack-in-the-pulpit	Araceae
<i>Arnoglossum atriplicifolium</i>	pale indian plantain	Asteraceae

<i>Aruncus dioicus</i>	goatsbeard	Rosaceae
<i>Asclepias exaltata</i>	poke milkweed	Apocynaceae
<i>Asclepias syriaca</i>	common milkweed	Apocynaceae
<i>Asclepias variegata</i>	redring milkweed	Apocynaceae
<i>Aureolaria virginica</i>	downy yellow false foxglove	Orobanchaceae
* <i>Barbarea vulgaris</i>	bitter wintercress	Brassicaceae
<i>Bidens aristosa</i>	bearded beggarticks	Asteraceae
<i>Bidens frondosa</i>	devil's beggarticks	Asteraceae
<i>Boltonia asteroides</i>	false aster	Asteraceae
<i>Brasenia schreberi</i>	watershield	Cabombaceae
<i>Calystegia catesbeiana</i>	Catesby's false bindweed	Convolvulaceae
<i>Campanula divaricata</i>	southern harebell	Campanulaceae
<i>Campanulastrum americanum</i>	tall bellflower	Campanulaceae
<i>Cardamine diphylla</i>	two-leaved toothwort	Brassicaceae
* <i>Carduus nutans</i>	musk thistle	Asteraceae
<i>Caulophyllum thalictroides</i>	blue cohosh	Berberidaceae
* <i>Cerastium glomeratum</i>	sticky mouse-ear chickweed	Caryophyllaceae
<i>Chamaecrista fasciculata</i>	partridge pea	Fabaceae
<i>Chamaecrista nictitans</i>	sensitive pea	Fabaceae
<i>Chelone glabra</i>	white turtlehead	Plantaginaceae
<i>Chrysopsis mariana</i>	maryland golden-aster	Asteraceae
* <i>Cichorium intybus</i>	chicory	Asteraceae
<i>Circaea canadensis</i>	broadleaf enchanter's nightshade	Onagraceae
<i>Cirsium discolor</i>	field thistle	Asteraceae
* <i>Cirsium vulgare</i>	bull thistle	Asteraceae
<i>Clematis catesbyana</i>	coastal virgin's-bower	Ranunculaceae
** <i>Clematis terniflora</i>	autumn clematis	Ranunculaceae
<i>Clematis virginiana</i>	virgin's-bower	Ranunculaceae
<i>Clinopodium vulgare</i>	wild basil	Lamiaceae
<i>Clintonia umbellulata</i>	white clintonia	Liliaceae
<i>Clitoria mariana</i>	pigeonwings	Fabaceae
<i>Collinsonia canadensis</i>	citronella horse balm	Lamiaceae

<i>*Commelina communis</i>	Asiatic dayflower	Commelinaceae
<i>Conoclinium coelestinum</i>	blue mistflower	Asteraceae
<i>Conopholis americana</i>	American cancer-root	Orobanchaceae
<i>Convallaria pseudomajalis</i>	American lily-of-the-valley	Asparagaceae
<i>Corallorhiza odontorhiza</i>	cleistogamous autumn coralroot	Orchidaceae
<i>Coreopsis major</i>	greater tickseed	Asteraceae
<i>Coreopsis tripteris</i>	tall coreopsis	Asteraceae
<i>Croton michauxii</i>	Michaux's croton	Euphorbiaceae
<i>Croton monanthogynus</i>	prairie tea	Euphorbiaceae
<i>Croton willdenowii</i>	glade rushfoil	Euphorbiaceae
<i>*Cruciata pedemontana</i>	Piedmont bedstraw	Rubiaceae
<i>Cuscuta pentagona</i>	five angled dodder	Convolvulaceae
<i>Cypripedium acaule</i>	pink lady's slipper	Orchidaceae
<i>*Daucus carota</i>	wild carrot	Apiaceae
<i>Desmodium laevigatum</i>	smooth ticktrefoil	Fabaceae
<i>Desmodium nuttallii</i>	Nuttall's ticktrefoil	Fabaceae
<i>Desmodium paniculatum</i>	panicked ticktrefoil	Fabaceae
<i>Desmodium perplexum</i>	perplexed tick-trefoil	Fabaceae
<i>Desmodium rotundifolium</i>	round-leaved trailing tick-trefoil	Fabaceae
<i>*Dianthus barbatus</i>	sweet-william	Caryophyllaceae
<i>Dioscorea quaternata</i>	four-leaved yam	Dioscoreaceae
<i>Dioscorea villosa</i>	wild yam	Dioscoreaceae
<i>*Eclipta prostrata</i>	false daisy	Asteraceae
<i>Elephantopus tomentosus</i>	common elephant's-foot	Asteraceae
<i>Erechtites hieraciifolius</i>	American burnweed	Asteraceae
<i>Erigeron annuus</i>	annual fleabane	Asteraceae
<i>Erigeron canadensis</i>	horseweed	Asteraceae
<i>Erigeron philadelphicus</i>	Philadelphia fleabane	Asteraceae
<i>Erigeron strigosus</i>	daisy fleabane	Asteraceae
<i>Eupatorium capillifolium</i>	dogfennel	Asteraceae
<i>Eupatorium vaseyi</i>	Vasey's thoroughwort	Asteraceae
<i>Eupatorium perfoliatum</i>	common boneset	Asteraceae

<i>Eupatorium pilosum</i>	rough boneset	Asteraceae
<i>Eupatorium pubescens</i>	roundleaf thoroughwort	Asteraceae
<i>Eupatorium rotundifolium</i>	round-leaved boneset	Asteraceae
<i>Eupatorium serotinum</i>	late boneset	Asteraceae
<i>Eupatorium sessilifolium</i>	upland boneset	Asteraceae
<i>Eupatorium torreyanum</i>	Torrey's eupatorium	Asteraceae
<i>Euphorbia corollata</i>	flowering spurge	Euphorbiaceae
<i>Euphorbia maculata</i>	spotted spurge	Euphorbiaceae
<i>Euphorbia mercurialina</i>	Cumberland spurge	Euphorbiaceae
<i>Euphorbia nutans</i>	nodding spurge	Euphorbiaceae
<i>Eurybia divaricata</i>	white wood aster	Asteraceae
<i>Eurybia surculosa</i>	creeping aster	Asteraceae
<i>Eutrochium fistulosum</i>	hollow joe-pye weed	Asteraceae
<i>Eutrochium purpureum</i>	sweet joe-pye-weed	Asteraceae
<i>Fragaria virginiana</i>	Virginia strawberry	Rosaceae
<i>Galium circaezans</i>	licorice bedstraw	Rubiaceae
<i>Galium lanceolatum</i>	Torrey's wild licorice	Rubiaceae
<i>Galium pilosum</i>	hairy bedstraw	Rubiaceae
<i>Galium tinctorium</i>	stiff marsh bedstraw	Rubiaceae
<i>Galium triflorum</i>	fragrant bedstraw	Rubiaceae
<i>Gamochaeta americana</i>	American everlasting	Asteraceae
<i>Gamochaeta argyrinea</i>	silvery everlasting	Asteraceae
<i>Gamochaeta purpurea</i>	purple cudweed	Asteraceae
<i>Gentiana villosa</i>	striped gentian	Gentianaceae
<i>Geranium carolinianum</i>	carolina crane's-bill	Geraniaceae
<i>Geranium maculatum</i>	wild geranium	Geraniaceae
<i>Geum canadense</i>	white avens	Rosaceae
<i>Geum virginianum</i>	cream avens	Rosaceae
<i>Gillenia trifoliata</i>	bowman's root	Rosaceae
<i>Gleditsia triacanthos</i>	honey locust	Fabaceae
<i>Goodyera pubescens</i>	downy rattlesnake plantain	Orchidaceae
<i>Gratiola virginiana</i>	Virginia hedge-hyssop	Plantaginaceae

<i>Hedeoma pulegioides</i>	American pennyroyal	Lamiaceae
<i>Helenium flexuosum</i>	southern sneezeweed	Asteraceae
<i>Helianthus angustifolius</i>	narrowleaf sunflower	Asteraceae
<i>Helianthus atrorubens</i>	purpledisk sunflower	Asteraceae
<i>Helianthus hirsutus</i>	stiff-hair sunflower	Asteraceae
<i>Helianthus microcephalus</i>	small woodland sunflower	Asteraceae
* <i>Hemerocallis fulva</i>	orange day-lily	Asphodelaceae
<i>Heterotheca camporum</i> var. <i>glandulissima</i>	Nashville camphorweed	Asteraceae
<i>Heuchera americana</i>	American alumroot	Saxifragaceae
<i>Heuchera parviflora</i>	small-flowered alumroot	Saxifragaceae
<i>Heuchera villosa</i>	hairy alumroot	Saxifragaceae
<i>Hexasepalum teres</i>	rough buttonweed	Rubiaceae
<i>Hexastylis arifolia</i> var. <i>ruthii</i>	Appalachian little brown jug	Aristolochiaceae
<i>Hieracium gronovii</i>	hairy hawkweed	Asteraceae
<i>Hieracium paniculatum</i>	panicked hawkweed	Asteraceae
<i>Hieracium venosum</i>	rattlesnakeweed	Asteraceae
<i>Houstonia caerulea</i>	azure bluet	Rubiaceae
<i>Houstonia longifolia</i>	long-leaved bluets	Rubiaceae
<i>Houstonia purpurea</i>	summer bluet	Rubiaceae
<i>Hybanthus concolor</i>	eastern green violet	Violaceae
<i>Hylodesmum nudiflorum</i>	naked-flowered tick-trefoil	Fabaceae
<i>Hypericum gentianoides</i>	pineweed	Hypericaceae
<i>Hypericum mutilum</i>	dwarf St. John's wort	Hypericaceae
* <i>Hypericum perforatum</i>	common St. John's-wort	Hypericaceae
<i>Hypericum punctatum</i>	spotted St. John's wort	Hypericaceae
<i>Hypericum virgatum</i>	sharpleaf St. John's wort	Hypericaceae
* <i>Hypochaeris radicata</i>	common cat's-ear	Asteraceae
<i>Hypoxis hirsuta</i>	yellow star grass	Hypoxidaceae
<i>Impatiens capensis</i>	common jewelweed	Balsaminaceae
<i>Ipomoea pandurata</i>	wild potato vine	Convolvulaceae
<i>Iris cristata</i>	dwarf crested iris	Iridaceae

<i>Iris verna</i>	dwarf iris	Iridaceae
* <i>Iva annua</i>	sumpweed	Asteraceae
<i>Krigia biflora</i>	two-flower dwarf-dandelion	Asteraceae
<i>Krigia dandelion</i>	potato dandelion	Asteraceae
<i>Krigia virginica</i>	Virginia dwarf-dandelion	Asteraceae
* <i>Kummerowia striata</i>	Japanese clover	Fabaceae
<i>Lactuca canadensis</i>	Canada wild lettuce	Asteraceae
<i>Lactuca floridana</i>	woodland lettuce	Asteraceae
<i>Lactuca hirsuta</i>	hairy lettuce	Asteraceae
* <i>Lactuca serriola</i>	prickly lettuce	Asteraceae
<i>Laportea canadensis</i>	wood nettle	Urticaceae
* <i>Lapsana communis</i>	nipplewort	Asteraceae
<i>Lechea minor</i>	thymeleaf pinweed	Cistaceae
<i>Lechea racemulosa</i>	Illinois pinweed	Cistaceae
* <i>Lepidium densiflorum</i>	common peppergrass	Brassicaceae
<i>Lepidium virginicum</i>	Virginia pepperweed	Brassicaceae
** <i>Lespedeza bicolor</i>	shrub lespedeza	Fabaceae
** <i>Lespedeza cuneata</i>	Chinese bushclover	Fabaceae
<i>Lespedeza hirta</i>	hairy lespedeza	Fabaceae
<i>Lespedeza procumbens</i>	trailing lespedeza	Fabaceae
<i>Lespedeza repens</i>	creeping lespedeza	Fabaceae
<i>Lespedeza stuevei</i>	tall bush-clover	Fabaceae
<i>Lespedeza violacea</i>	violet bush clover	Fabaceae
<i>Lespedeza virginica</i>	slender bush clover	Fabaceae
* <i>Leucanthemum vulgare</i>	oxeye daisy	Asteraceae
<i>Liatris microcephala</i>	smallhead blazing star	Asteraceae
<i>Ligusticum canadense</i>	American lovage	Apiaceae
<i>Linum medium</i> var. <i>texanum</i>	Texas stiff yellow flax	Linaceae
<i>Linum striatum</i>	ridged yellow flax	Linaceae
<i>Linum virginianum</i>	Virginia flax	Linaceae
<i>Lobelia cardinalis</i>	cardinal flower	Campanulaceae
<i>Lobelia inflata</i>	indian tobacco	Campanulaceae

<i>Lobelia puberula</i>	downy lobelia	Campanulaceae
<i>Lobelia siphilitica</i>	great blue lobelia	Campanulaceae
<i>Ludwigia alternifolia</i>	seedbox	Onagraceae
<i>Lycopus virginicus</i>	sweet bugleweed	Lamiaceae
<i>Lysimachia lanceolata</i>	lanceleaf loosestrife	Primulaceae
* <i>Lysimachia nummularia</i>	creeping jenny	Primulaceae
<i>Lysimachia quadrifolia</i>	whorled loosestrife	Primulaceae
<i>Lysimachia tonsa</i>	southern yellow loosestrife	Primulaceae
<i>Maianthemum racemosum</i>	Solomon's plume	Asparagaceae
<i>Medeola virginiana</i>	cucumber root	Liliaceae
* <i>Melilotus albus</i>	white sweetclover	Fabaceae
* <i>Melilotus officinalis</i>	yellow sweetclover	Fabaceae
<i>Mimosa microphylla</i>	littleleaf sensitive-briar	Fabaceae
<i>Mimosa quadrivalvis</i>	fourvalve mimosa	Fabaceae
<i>Mimulus ringens</i>	Allegheny monkeyflower	Phrymaceae
<i>Monarda fistulosa</i>	wild bergamot	Lamiaceae
<i>Monotropa hypopitys</i>	pinemap	Ericaceae
* <i>Mosla dianthera</i>	miniature beefsteak-plant	Lamiaceae
<i>Nabalus altissimus</i>	tall rattlesnake root	Asteraceae
<i>Nabalus serpentarius</i>	lion's foot rattlesnake root	Asteraceae
<i>Nabalus trifoliolatus</i>	three-leaved rattlesnake root	Asteraceae
<i>Narcissus poeticus</i>	poet's narcissus	Amaryllidaceae
<i>Oenothera biennis</i>	common evening-primrose	Onagraceae
<i>Oenothera villosa</i>	hairy evening primrose	Onagraceae
<i>Oxalis dillenii</i>	slender yellow woodsorrel	Oxalidaceae
<i>Oxalis stricta</i>	upright yellow woodsorrel	Oxalidaceae
<i>Oxalis violacea</i>	violet woodsorrel	Oxalidaceae
<i>Oxypolis rigidior</i>	stiff cowbane	Apiaceae
<i>Packera anonyma</i>	small's ragwort	Asteraceae
<i>Panax quinquefolius</i>	American ginseng	Araliaceae
<i>Paronychia canadensis</i>	forked nailwort	Caryophyllaceae
<i>Parthenium integrifolium</i>	wild quinine	Asteraceae

<i>Passiflora lutea</i>	yellow passionflower	Passifloraceae
<i>Penstemon brevisepalus</i>	short-sepaled beardtongue	Plantaginaceae
<i>Penstemon canescens</i>	eastern gray beardtongue	Plantaginaceae
<i>Penthorum sedoides</i>	ditch stonecrop	Penthoraceae
** <i>Perilla frutescens</i>	beefsteak plant	Lamiaceae
<i>Persicaria lapathifolia</i>	pale smartweed	Polygonaceae
* <i>Persicaria longiseta</i>	low smartweed	Polygonaceae
* <i>Persicaria maculosa</i>	spotted lady's thumb	Polygonaceae
<i>Persicaria pensylvanica</i>	pinkweed	Polygonaceae
<i>Persicaria sagittata</i>	arrow-leaved tearthumb	Polygonaceae
<i>Persicaria virginiana</i>	american jumpseed	Polygonaceae
<i>Phlox divaricata</i>	blue phlox	Polemoniaceae
<i>Phlox glaberrima</i>	smooth phlox	Polemoniaceae
<i>Phryma leptostachya</i>	American lopseed	Phrymaceae
<i>Physalis longifolia</i>	long-leaved groundcherry	Solanaceae
<i>Phytolacca americana</i>	American pokeweed	Phytolaccaceae
<i>Pityopsis graminifolia</i>	narrowleaf silkgrass	Asteraceae
<i>Plantago aristata</i>	bracted plantain	Plantaginaceae
* <i>Plantago lanceolata</i>	ribwort plantain	Plantaginaceae
<i>Plantago rugelii</i>	American plantain	Plantaginaceae
<i>Platanthera clavellata</i>	small green wood orchid	Orchidaceae
<i>Podophyllum peltatum</i>	mayapple	Berberidaceae
<i>Polygala ambigua</i>	ambiguous whorled milkwort	Polygalaceae
<i>Polygala curtissii</i>	curtiss's milkwort	Polygalaceae
<i>Polygala sanguinea</i>	field milkwort	Polygalaceae
<i>Polygala senega</i> var. <i>latifolia</i>	seneca snakeroot	Polygalaceae
<i>Polygala verticillata</i>	whorled milkwort	Polygalaceae
<i>Polygonatum biflorum</i>	smooth Solomon's seal	Asparagaceae
* <i>Polygonum aviculare</i>	prostrate knotweed	Polygonaceae
<i>Potamogeton diversifolius</i>	diverse-leaved pondweed	Potamogetonaceae
<i>Potamogeton nodosus</i>	longleaf pondweed	Potamogetonaceae
<i>Potentilla canadensis</i>	dwarf cinquefoil	Rosaceae

<i>Potentilla norvegica</i>	rough cinquefoil	Rosaceae
* <i>Potentilla recta</i>	sulphur cinquefoil	Rosaceae
<i>Potentilla simplex</i>	common cinquefoil	Rosaceae
<i>Prosartes lanuginosa</i>	yellow fairybells	Liliaceae
<i>Prosartes maculata</i>	spotted mandarin	Liliaceae
* <i>Prunella vulgaris</i>	common selfheal	Lamiaceae
<i>Pseudognaphalium obtusifolium</i>	sweet everlasting	Asteraceae
<i>Pycnanthemum loomisii</i>	Loomis' mountainmint	Lamiaceae
<i>Pycnanthemum muticum</i>	clustered mountainmint	Lamiaceae
<i>Pycnanthemum pycnanthemoides</i>	southern mountainmint	Lamiaceae
<i>Pycnanthemum tenuifolium</i>	narrowleaf mountainmint	Lamiaceae
<i>Pyrrhopappus carolinianus</i>	carolina desert-chicory	Asteraceae
* <i>Pyrrhopappus pauciflorus</i>	smallflower desert-chicory	Asteraceae
<i>Ranunculus recurvatus</i>	hooked buttercup	Ranunculaceae
* <i>Ranunculus sardous</i>	hairy buttercup	Ranunculaceae
<i>Rhexia mariana</i>	Maryland meadowbeauty	Melastomataceae
<i>Rhexia virginica</i>	Virginia meadowbeauty	Melastomataceae
<i>Rudbeckia fulgida</i> var. <i>umbrosa</i>	orange coneflower	Asteraceae
<i>Rudbeckia hirta</i>	black-eyed susan	Asteraceae
<i>Ruellia caroliniensis</i>	Carolina ruellia	Acanthaceae
* <i>Rumex acetosella</i>	sheep's sorrel	Polygonaceae
* <i>Rumex crispus</i>	curled dock	Polygonaceae
<i>Sabatia angularis</i>	rosepink	Gentianaceae
<i>Sanguinaria canadensis</i>	bloodroot	Papaveraceae
<i>Sanicula canadensis</i>	black snakeroot	Apiaceae
<i>Scutellaria elliptica</i> var. <i>elliptica</i>	hairy skullcap	Lamiaceae
<i>Scutellaria elliptica</i> var. <i>hirsuta</i>	hairy skullcap	Lamiaceae
<i>Scutellaria integrifolia</i>	helmet skullcap	Lamiaceae
** <i>Securigera varia</i>	purple crownvetch	Fabaceae
<i>Sericocarpus asteroides</i>	toothed white-topped aster	Asteraceae
<i>Sericocarpus linifolius</i>	narrowleaf whitetop aster	Asteraceae
* <i>Sherardia arvensis</i>	field madder	Rubiaceae

<i>*Sida spinosa</i>	prickly fanpetals	Malvaceae
<i>Silene antirrhina</i>	sleepy catchfly	Caryophyllaceae
<i>Silene virginica</i>	fire pink	Caryophyllaceae
<i>Silphium trifoliatum</i>	whorled rosinweed	Asteraceae
<i>Sisyrinchium angustifolium</i>	narrow-leaved blue-eyed grass	Iridaceae
<i>Smilax ecirrhata</i>	upright carrion flower	Smilacaceae
<i>Solanum carolinense</i>	Carolina horsenettle	Solanaceae
<i>Solidago altissima</i>	tall goldenrod	Asteraceae
<i>Solidago arguta</i> var. <i>caroliniana</i>	Atlantic goldenrod	Asteraceae
<i>Solidago bicolor</i>	silverrod	Asteraceae
<i>Solidago caesia</i>	bluestem goldenrod	Asteraceae
<i>Solidago curtisii</i>	mountain decumbent goldenrod	Asteraceae
<i>Solidago erecta</i>	slender goldenrod	Asteraceae
<i>Solidago flaccidifolia</i>	mountain goldenrod	Asteraceae
<i>Solidago gigantea</i>	giant goldenrod	Asteraceae
<i>Solidago hispida</i>	hairy goldenrod	Asteraceae
<i>Solidago nemoralis</i>	gray goldenrod	Asteraceae
<i>Solidago odora</i>	sweet goldenrod	Asteraceae
<i>Solidago rugosa</i>	wrinkle-leaved goldenrod	Asteraceae
<i>Solidago speciosa</i>	showy goldenrod	Asteraceae
<i>Spigelia marilandica</i>	indian pink	Loganiaceae
<i>Spiranthes vernalis</i>	spring ladies' tresses	Orchidaceae
<i>Stachys nuttallii</i>	heartleaf hedgenettle	Lamiaceae
<i>Stellaria pubera</i>	star chickweed	Caryophyllaceae
<i>Stenanthium gramineum</i>	featherbells	Melanthiaceae
<i>Symphyotrichum dumosum</i>	bushy aster	Asteraceae
<i>Symphyotrichum laeve</i>	smooth blue aster	Asteraceae
<i>Symphyotrichum lateriflorum</i>	calico aster	Asteraceae
<i>Symphyotrichum oblongifolium</i>	aromatic aster	Asteraceae
<i>Symphyotrichum patens</i>	late purple aster	Asteraceae
<i>Symphyotrichum phlogifolium</i>	thinleaf late purple aster	Asteraceae
<i>Symphyotrichum pilosum</i>	hairy white oldfield aster	Asteraceae

<i>Symphotrichum undulatum</i>	wavy-leaf aster	Asteraceae
* <i>Taraxacum officinale</i>	common dandelion	Asteraceae
<i>Tephrosia virginiana</i>	goat's rue	Fabaceae
<i>Thalictrum dioicum</i>	early meadow-rue	Ranunculaceae
<i>Thalictrum thalictroides</i>	rue anemone	Ranunculaceae
<i>Thaspium barbinode</i>	hairy-jointed meadow-parsnip	Apiaceae
<i>Tiarella wherryi</i>	Wherry's foamflower	Saxifragaceae
<i>Tipularia discolor</i>	crane-fly orchid	Orchidaceae
<i>Tradescantia subaspera</i>	zigzag spiderwort	Commelinaceae
<i>Trautvetteria caroliniensis</i>	Carolina bugbane	Ranunculaceae
<i>Trichostema dichotomum</i>	blue curls	Lamiaceae
* <i>Trifolium campestre</i>	hop trefoil	Fabaceae
* <i>Trifolium pratense</i>	red clover	Fabaceae
* <i>Trifolium repens</i>	white clover	Fabaceae
<i>Trillium luteum</i>	yellow wakerobin	Melanthiaceae
<i>Triodanis perfoliata</i>	clasping venus's looking glass	Campanulaceae
<i>Uvularia perfoliata</i>	perfoliate bellwort	Colchicaceae
* <i>Verbascum thapsus</i>	great mullein	Scrophulariaceae
<i>Verbena simplex</i>	narrowleaf vervain	Verbenaceae
<i>Verbesina alternifolia</i>	wingstem	Asteraceae
<i>Vernonia gigantea</i>	tall ironweed	Asteraceae
* <i>Veronica arvensis</i>	corn speedwell	Plantaginaceae
* <i>Veronica officinalis</i>	heath speedwell	Plantaginaceae
<i>Veronica peregrina</i>	purslane speedwell	Plantaginaceae
<i>Vicia caroliniana</i>	carolina vetch	Fabaceae
<i>Viola blanda</i>	sweet white violet	Violaceae
<i>Viola hastata</i>	halberd-leaved violet	Violaceae
<i>Viola hirsutula</i>	southern wood violet	Violaceae
<i>Viola lanceolata</i>	white bog violet	Violaceae
<i>Viola palmata</i>	palm violet	Violaceae
<i>Viola pedata</i>	bird's foot violet	Violaceae
<i>Viola primulifolia</i>	primrose-leaved violet	Violaceae

<i>Viola rostrata</i>	long-spurred violet	Violaceae
<i>Viola rotundifolia</i>	round-leaved violet	Violaceae
<i>Viola sagittata</i>	arrowleaf violet	Violaceae
<i>Viola sororia</i>	common blue violet	Violaceae
<i>Viola subsinuata</i>	wavy-leaved violet	Violaceae
<i>Yucca flaccida</i>	weak-leaf yucca	Asparagaceae

Graminoids (Grass-Like Plants)

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
* <i>Acorus calamus</i>	Eurasian sweet-flag	Acoraceae
* <i>Agrostis gigantea</i>	redtop	Poaceae
<i>Agrostis perennans</i>	perennial bentgrass	Poaceae
<i>Andropogon gerardi</i>	big bluestem	Poaceae
<i>Andropogon virginicus</i>	broomsedge bluestem	Poaceae
* <i>Anthoxanthum odoratum</i>	sweet vernal grass	Poaceae
<i>Aristida dichotoma</i>	churchmouse three-awn	Poaceae
** <i>Arthraxon hispidus</i>	small carpetgrass	Poaceae
<i>Avenella flexuosa</i>	wavy hair-grass	Poaceae
<i>Brachyelytrum erectum</i>	long-awned wood grass	Poaceae
* <i>Bromus commutatus</i>	meadow brome	Poaceae
* <i>Bromus hordeaceus</i>	common soft brome	Poaceae
** <i>Bromus inermis</i>	smooth brome	Poaceae
* <i>Bromus japonicus</i>	Japanese brome	Poaceae
<i>Bromus pubescens</i>	hairy woodland brome	Poaceae
<i>Calamagrostis porteri</i> ssp. <i>porteri</i>	Porter's reedgrass	Poaceae
<i>Carex albicans</i>	white-tinged sedge	Cyperaceae
<i>Carex albolutescens</i>	greenwhite sedge	Cyperaceae
<i>Carex annectans</i>	yellowfruit sedge	Cyperaceae
<i>Carex brevior</i>	shortbeak sedge	Cyperaceae
<i>Carex cephalophora</i>	oval-headed sedge	Cyperaceae
<i>Carex communis</i>	fibrous-rooted sedge	Cyperaceae

<i>Carex complanata</i>	hirsute sedge	Cyperaceae
<i>Carex crinita</i>	fringed sedge	Cyperaceae
<i>Carex cumberlandensis</i>	Cumberland sedge	Cyperaceae
<i>Carex debilis</i>	white-edge sedge	Cyperaceae
<i>Carex digitalis</i>	slender woodland sedge	Cyperaceae
<i>Carex hirsutella</i>	hairy green sedge	Cyperaceae
<i>Carex lurida</i>	sallow sedge	Cyperaceae
<i>Carex nigromarginata</i>	black-edge sedge	Cyperaceae
<i>Carex striatula</i>	lined sedge	Cyperaceae
<i>Carex swanii</i>	Swan's sedge	Cyperaceae
<i>Carex virescens</i>	ribbed sedge	Cyperaceae
<i>Carex vulpinoidea</i>	fox sedge	Cyperaceae
<i>Chasmanthium laxum</i>	slender spikegrass	Poaceae
<i>Cinna arundinacea</i>	stout wood reed	Poaceae
<i>Cyperus echinatus</i>	globe flatsedge	Cyperaceae
<i>Cyperus flavescens</i>	yellow flatsedge	Cyperaceae
* <i>Cyperus iria</i>	rice flat-sedge	Cyperaceae
<i>Cyperus strigosus</i>	straw-colored flatsedge	Cyperaceae
* <i>Dactylis glomerata</i>	orchard grass	Poaceae
<i>Danthonia sericea</i>	silky oat-grass	Poaceae
<i>Danthonia spicata</i>	poverty oatgrass	Poaceae
<i>Dichanthelium acuminatum</i>	hairy rosette-panicgrass	Poaceae
<i>Dichanthelium boscii</i>	Bosc's witchgrass	Poaceae
<i>Dichanthelium clandestinum</i>	deertongue	Poaceae
<i>Dichanthelium commutatum</i> ssp. <i>ashei</i>	Ashe's witchgrass	Poaceae
<i>Dichanthelium commutatum</i> ssp. <i>commutatum</i>	variable witchgrass	Poaceae
<i>Dichanthelium depauperatum</i>	starved witchgrass	Poaceae
<i>Dichanthelium dichotomum</i>	forked witchgrass	Poaceae
<i>Dichanthelium latifolium</i>	broad-leaved panic grass	Poaceae
<i>Dichanthelium laxiflorum</i>	open-flower witchgrass	Poaceae

<i>Dichanthelium microcarpon</i>	small-fruited witchgrass	Poaceae
<i>Dichanthelium polyanthes</i>	roundseed panicgrass	Poaceae
<i>Dichanthelium sphaerocarpon</i>	round-fruited rosette-panicgrass	Poaceae
<i>Dichanthelium villosissimum</i>	white-hair witchgrass	Poaceae
<i>Digitaria ciliaris</i>	tropical finger-grass	Poaceae
* <i>Digitaria ischaemum</i>	smooth crabgrass	Poaceae
<i>Echinochloa sp.</i>	barnyard grass	Poaceae
<i>Eleocharis obtusa</i>	blunt spikerush	Cyperaceae
* <i>Eleusine indica</i>	goose grass	Poaceae
* <i>Festuca myuros</i>	rattail sixweeks grass	Poaceae
<i>Fimbristylis autumnalis</i>	slender fimbry	Cyperaceae
<i>Greeneochloa coarctata</i>	nuttall's reedgrass	Poaceae
* <i>Holcus lanatus</i>	Yorkshire fog	Poaceae
<i>Juncus acuminatus</i>	tapered rush	Juncaceae
<i>Juncus antheratus</i>	greater poverty rush	Juncaceae
<i>Juncus canadensis</i>	Canada rush	Juncaceae
<i>Juncus debilis</i>	weak rush	Juncaceae
<i>Juncus dichotomus</i>	forked rush	Juncaceae
<i>Juncus dudleyi</i>	Dudley's rush	Juncaceae
<i>Juncus effusus</i>	soft rush	Juncaceae
<i>Juncus filipendulus</i>	ringseed rush	Juncaceae
<i>Juncus marginatus</i>	grass-leaved rush	Juncaceae
<i>Kellochloa verrucosa</i>	warty panic grass	Poaceae
<i>Leersia oryzoides</i>	rice cutgrass	Poaceae
<i>Leersia virginica</i>	white grass	Poaceae
** <i>Lolium arundinaceum</i>	tall fescue	Poaceae
* <i>Lolium perenne</i>	perennial ryegrass	Poaceae
<i>Luzula echinata</i>	hedgehog woodrush	Juncaceae
** <i>Microstegium vimineum</i>	Japanese stiltgrass	Poaceae
<i>Panicum capillare</i>	witch grass	Poaceae
<i>Panicum dichotomiflorum</i>	smooth witchgrass	Poaceae
<i>Panicum flexile</i>	wiry witch grass	Poaceae

<i>*Paspalum dilatatum</i>	dallis grass	Poaceae
<i>Paspalum laeve</i>	field paspalum	Poaceae
<i>*Phleum pratense</i>	timothy grass	Poaceae
<i>Piptochaetium avenaceum</i>	blackseed needlegrass	Poaceae
<i>*Poa pratensis</i>	smooth meadow-grass	Poaceae
<i>Rhynchospora capitellata</i>	brownish beaked-rush	Cyperaceae
<i>Rhynchospora glomerata</i>	clustered beaksedge	Cyperaceae
<i>Rhynchospora recognita</i>	globe beaksedge	Cyperaceae
<i>Schizachyrium scoparium</i>	little bluestem	Poaceae
<i>*Schoenoplectiella mucronata</i>	bog bulrush	Cyperaceae
<i>Scirpus atrovirens</i>	dark green bulrush	Cyperaceae
<i>Scirpus cyperinus</i>	woolgrass	Cyperaceae
<i>Scirpus pendulus</i>	nodding bulrush	Cyperaceae
<i>Scirpus polyphyllus</i>	leafy bulrush	Cyperaceae
<i>Scleria triglomerata</i>	whip nutrush	Cyperaceae
<i>*Setaria faberi</i>	giant foxtail	Poaceae
<i>Setaria parviflora</i>	knotroot bristlegrass	Poaceae
<i>*Setaria pumila</i>	yellow foxtail	Poaceae
<i>*Setaria viridis</i>	green bristle grass	Poaceae
<i>Sorghastrum nutans</i>	indiangrass	Poaceae
<i>Sparganium americanum</i>	American bur-reed	Typhaceae
<i>Sphenopholis intermedia</i>	slender wedgescale	Poaceae
<i>Sporobolus vaginiflorus</i>	poverty dropseed	Poaceae
<i>Tridens flavus</i>	purpletop tridens	Poaceae
<i>Typha latifolia</i>	broadleaf cattail	Typhaceae

Ferns & Fern Allies

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Adiantum pedatum</i>	northern maidenhair fern	Pteridaceae
<i>Amauropelta noveboracensis</i>	New York fern	Thelypteridaceae
<i>Asplenium montanum</i>	mountain spleenwort	Aspleniaceae

<i>Asplenium platyneuron</i>	ebony spleenwort	Aspleniaceae
<i>Athyrium asplenioides</i>	southern lady fern	Athyriaceae
<i>Athyrium filix-femina</i>	lady fern	Athyriaceae
<i>Botrypus virginianus</i>	rattlesnake fern	Ophioglossaceae
<i>Dennstaedtia punctilobula</i>	hay-scented fern	Dennstaedtiaceae
<i>Deparia acrostichoides</i>	silvery glade fern	Athyriaceae
<i>Diphasiastrum digitatum</i>	fan clubmoss	Lycopodiaceae
<i>Dryopteris intermedia</i>	intermediate wood fern	Dryopteridaceae
<i>Dryopteris marginalis</i>	marginal wood fern	Dryopteridaceae
<i>Equisetum arvense</i>	field horsetail	Equisetaceae
<i>Huperzia lucidula</i>	shining firmoss	Lycopodiaceae
<i>Lygodium palmatum</i>	Hartford fern	Lygodiaceae
<i>Onoclea sensibilis</i>	sensitive fern	Onocleaceae
<i>Osmunda spectabilis</i>	American royal fern	Osmundaceae
<i>Osmundastrum cinnamomeum</i>	cinnamon fern	Osmundaceae
<i>Phegopteris hexagonoptera</i>	broad beech fern	Thelypteridaceae
<i>Pleopeltis michauxiana</i>	resurrection fern	Polypodiaceae
<i>Polypodium appalachianum</i>	Appalachian rockcap fern	Polypodiaceae
<i>Polypodium virginianum</i>	rock polypody	Polypodiaceae
<i>Polystichum acrostichoides</i>	Christmas fern	Dryopteridaceae
<i>Pteridium aquilinum</i>	common bracken	Dennstaedtiaceae
<i>Selaginella apoda</i>	meadow spikemoss	Selaginellaceae
<i>Woodsia obtusa</i>	wood fern	Dryopteridaceae
<i>Woodwardia areolata</i>	netted chain fern	Blechnaceae

APPENDIX G: List of Plant Species Arranged by Species Scientific Name

* = Non-native

** = Non-native, invasive

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Acalypha rhomboidea</i>	common copperleaf	Euphorbiaceae
<i>Acer rubrum</i>	red maple	Sapindaceae
<i>Acer saccharum</i>	sugar maple	Sapindaceae
<i>Achillea millefolium</i>	common yarrow	Asteraceae
* <i>Acorus calamus</i>	Eurasian sweet-flag	Acoraceae
<i>Actaea pachypoda</i>	white baneberry	Ranunculaceae
<i>Adiantum pedatum</i>	northern maidenhair fern	Pteridaceae
<i>Agalinis purpurea</i>	purple false foxglove	Orobanchaceae
<i>Agalinis tenuifolia</i>	slender false foxglove	Orobanchaceae
<i>Ageratina altissima</i>	white snakeroot	Asteraceae
<i>Agrimonia parviflora</i>	swamp agrimony	Rosaceae
<i>Agrimonia pubescens</i>	downy agrimony	Rosaceae
* <i>Agrostis gigantea</i>	redtop	Poaceae
<i>Agrostis perennans</i>	perennial bentgrass	Poaceae
** <i>Ailanthus altissima</i>	tree-of-heaven	Simaroubaceae
** <i>Albizia julibrissin</i>	Persian silk tree	Fabaceae
<i>Aletris farinosa</i>	white-tubed colicroot	Nartheciaceae
<i>Alisma subcordatum</i>	American water plantain	Alismataceae
<i>Alnus serrulata</i>	smooth alder	Betulaceae
* <i>Amaranthus spinosus</i>	spiny amaranth	Amaranthaceae
<i>Amauropelta noveboracensis</i>	New York fern	Thelypteridaceae
<i>Ambrosia artemisiifolia</i>	common ragweed	Asteraceae
<i>Ambrosia trifida</i>	giant ragweed	Asteraceae
<i>Amelanchier arborea</i>	common serviceberry	Rosaceae
<i>Amelanchier laevis</i>	smooth shadbush	Rosaceae
<i>Amphicarpaea bracteata</i>	American hog-peanut	Fabaceae
<i>Amsonia tabernaemontana</i>	eastern bluestar	Apocynaceae

<i>Andropogon gerardi</i>	big bluestem	Poaceae
<i>Andropogon virginicus</i>	broomsedge bluestem	Poaceae
<i>Anemone virginiana</i>	tall thimbleweed	Ranunculaceae
<i>Angelica venenosa</i>	hairy angelica	Apiaceae
<i>Antennaria plantaginifolia</i>	plantain-leaved pussytoes	Asteraceae
<i>Antennaria solitaria</i>	singlehead pussytoes	Asteraceae
* <i>Anthemis cotula</i>	stinking chamomile	Asteraceae
* <i>Anthoxanthum odoratum</i>	sweet vernal grass	Poaceae
<i>Apios americana</i>	American groundnut	Fabaceae
<i>Apocynum cannabinum</i>	hemp dogbane	Apocynaceae
<i>Aralia racemosa</i>	American spikenard	Araliaceae
<i>Arisaema triphyllum</i>	jack-in-the-pulpit	Araceae
<i>Aristida dichotoma</i>	churchmouse three-awn	Poaceae
<i>Arnoglossum atriplicifolium</i>	pale indian plantain	Asteraceae
<i>Aronia arbutifolia</i>	red chokeberry	Rosaceae
** <i>Arthraxon hispidus</i>	small carpetgrass	Poaceae
<i>Aruncus dioicus</i>	goatsbeard	Rosaceae
<i>Asclepias exaltata</i>	poke milkweed	Apocynaceae
<i>Asclepias syriaca</i>	common milkweed	Apocynaceae
<i>Asclepias variegata</i>	redring milkweed	Apocynaceae
<i>Asimina triloba</i>	common pawpaw	Annonaceae
<i>Asplenium montanum</i>	mountain spleenwort	Aspleniaceae
<i>Asplenium platyneuron</i>	ebony spleenwort	Aspleniaceae
<i>Athyrium asplenioides</i>	southern lady fern	Athyriaceae
<i>Athyrium filix-femina</i>	lady fern	Athyriaceae
<i>Aureolaria virginica</i>	downy yellow false foxglove	Orobanchaceae
<i>Avenella flexuosa</i>	wavy hair-grass	Poaceae
* <i>Barbarea vulgaris</i>	bitter wintercress	Brassicaceae
** <i>Berberis thunbergii</i>	Japanese barberry	Berberidaceae
<i>Betula alleghaniensis</i>	yellow birch	Betulaceae
<i>Betula nigra</i>	river birch	Betulaceae
<i>Bidens aristosa</i>	bearded beggarticks	Asteraceae

<i>Bidens frondosa</i>	devil's beggarticks	Asteraceae
<i>Boltonia asteroides</i>	false aster	Asteraceae
<i>Botrypus virginianus</i>	rattlesnake fern	Ophioglossaceae
<i>Brachyelytrum erectum</i>	long-awned wood grass	Poaceae
<i>Brasenia schreberi</i>	watershield	Cabombaceae
* <i>Bromus commutatus</i>	meadow brome	Poaceae
* <i>Bromus hordeaceus</i>	common soft brome	Poaceae
** <i>Bromus inermis</i>	smooth brome	Poaceae
* <i>Bromus japonicus</i>	Japanese brome	Poaceae
<i>Bromus pubescens</i>	hairy woodland brome	Poaceae
<i>Calamagrostis porteri</i> ssp. <i>porteri</i>	Porter's reedgrass	Poaceae
<i>Calystegia catesbeiana</i>	Catesby's false bindweed	Convolvulaceae
<i>Campanula divaricata</i>	southern harebell	Campanulaceae
<i>Campanulastrum americanum</i>	tall bellflower	Campanulaceae
<i>Cardamine diphylla</i>	two-leaved toothwort	Brassicaceae
* <i>Carduus nutans</i>	musk thistle	Asteraceae
<i>Carex albicans</i>	white-tinged sedge	Cyperaceae
<i>Carex albolutescens</i>	greenwhite sedge	Cyperaceae
<i>Carex annectans</i>	yellowfruit sedge	Cyperaceae
<i>Carex brevior</i>	shortbeak sedge	Cyperaceae
<i>Carex cephalophora</i>	oval-headed sedge	Cyperaceae
<i>Carex communis</i>	fibrous-rooted sedge	Cyperaceae
<i>Carex complanata</i>	hirsute sedge	Cyperaceae
<i>Carex crinita</i>	fringed sedge	Cyperaceae
<i>Carex cumberlandensis</i>	Cumberland sedge	Cyperaceae
<i>Carex debilis</i>	white-edge sedge	Cyperaceae
<i>Carex digitalis</i>	slender woodland sedge	Cyperaceae
<i>Carex hirsutella</i>	hairy green sedge	Cyperaceae
<i>Carex lurida</i>	sallow sedge	Cyperaceae
<i>Carex nigromarginata</i>	black-edge sedge	Cyperaceae
<i>Carex striatula</i>	lined sedge	Cyperaceae
<i>Carex swanii</i>	Swan's sedge	Cyperaceae

<i>Carex virescens</i>	ribbed sedge	Cyperaceae
<i>Carex vulpinoidea</i>	fox sedge	Cyperaceae
<i>Carya glabra</i>	pignut hickory	Juglandaceae
<i>Carya laciniosa</i>	shellbark hickory	Juglandaceae
<i>Carya pallida</i>	sand hickory	Juglandaceae
<i>Carya tomentosa</i>	mockernut	Juglandaceae
<i>Castanea dentata</i>	American chestnut	Fagaceae
<i>Caulophyllum thalictroides</i>	blue cohosh	Berberidaceae
<i>Ceanothus americanus</i>	New Jersey tea	Rhamnaceae
** <i>Celastrus orbiculatus</i>	Oriental bittersweet	Celastraceae
* <i>Cerastium glomeratum</i>	sticky mouse-ear chickweed	Caryophyllaceae
<i>Cercis canadensis</i>	eastern redbud	Fabaceae
<i>Chamaecrista fasciculata</i>	partridge pea	Fabaceae
<i>Chamaecrista nictitans</i>	sensitive pea	Fabaceae
<i>Chasmanthium laxum</i>	slender spikegrass	Poaceae
<i>Chelone glabra</i>	white turtlehead	Plantaginaceae
<i>Chimaphila maculata</i>	striped wintergreen	Ericaceae
<i>Chrysopsis mariana</i>	maryland golden-aster	Asteraceae
* <i>Cichorium intybus</i>	chicory	Asteraceae
<i>Cinna arundinacea</i>	stout wood reed	Poaceae
<i>Circaea canadensis</i>	broadleaf enchanter's nightshade	Onagraceae
<i>Cirsium discolor</i>	field thistle	Asteraceae
* <i>Cirsium vulgare</i>	bull thistle	Asteraceae
<i>Clematis catesbyana</i>	coastal virgin's-bower	Ranunculaceae
** <i>Clematis terniflora</i>	autumn clematis	Ranunculaceae
<i>Clematis virginiana</i>	virgin's-bower	Ranunculaceae
<i>Clinopodium vulgare</i>	wild basil	Lamiaceae
<i>Clintonia umbellulata</i>	white clintonia	Liliaceae
<i>Clitoria mariana</i>	pigeonwings	Fabaceae
<i>Collinsonia canadensis</i>	citronella horse balm	Lamiaceae
* <i>Commelina communis</i>	Asiatic dayflower	Commelinaceae
<i>Conoclinium coelestinum</i>	blue mistflower	Asteraceae

<i>Conopholis americana</i>	American cancer-root	Orobanchaceae
<i>Convallaria pseudomajalis</i>	American lily-of-the-valley	Asparagaceae
<i>Corallorhiza odontorhiza</i>	cleistogamous autumn coralroot	Orchidaceae
<i>Coreopsis major</i>	greater tickseed	Asteraceae
<i>Coreopsis tripteris</i>	tall coreopsis	Asteraceae
<i>Cornus florida</i>	flowering dogwood	Cornaceae
<i>Corylus americana</i>	American hazelnut	Betulaceae
<i>Crataegus intricata</i>	Copenhagen hawthorn	Rosaceae
<i>Croton michauxii</i>	Michaux's croton	Euphorbiaceae
<i>Croton monanthogynus</i>	prairie tea	Euphorbiaceae
<i>Croton willdenowii</i>	glade rushfoil	Euphorbiaceae
* <i>Cruciata pedemontana</i>	Piedmont bedstraw	Rubiaceae
<i>Cuscuta pentagona</i>	five angled dodder	Convolvulaceae
<i>Cyperus echinatus</i>	globe flatsedge	Cyperaceae
<i>Cyperus flavescens</i>	yellow flatsedge	Cyperaceae
* <i>Cyperus iria</i>	rice flat-sedge	Cyperaceae
<i>Cyperus strigosus</i>	straw-colored flatsedge	Cyperaceae
<i>Cypripedium acaule</i>	pink lady's slipper	Orchidaceae
* <i>Dactylis glomerata</i>	orchard grass	Poaceae
<i>Danthonia sericea</i>	silky oat-grass	Poaceae
<i>Danthonia spicata</i>	poverty oatgrass	Poaceae
* <i>Daucus carota</i>	wild carrot	Apiaceae
<i>Dennstaedtia punctilobula</i>	hay-scented fern	Dennstaedtiaceae
<i>Deparia acrostichoides</i>	silvery glade fern	Athyriaceae
<i>Desmodium laevigatum</i>	smooth ticktrefoil	Fabaceae
<i>Desmodium nuttallii</i>	Nuttall's ticktrefoil	Fabaceae
<i>Desmodium paniculatum</i>	panicled ticktrefoil	Fabaceae
<i>Desmodium perplexum</i>	perplexed tick-trefoil	Fabaceae
<i>Desmodium rotundifolium</i>	round-leaved trailing tick-trefoil	Fabaceae
* <i>Dianthus barbatus</i>	sweet-william	Caryophyllaceae
<i>Dichanthelium acuminatum</i>	hairy rosette-panicgrass	Poaceae
<i>Dichanthelium boscii</i>	Bosc's witchgrass	Poaceae

<i>Dichanthelium clandestinum</i>	deertongue	Poaceae
<i>Dichanthelium commutatum</i> ssp. <i>ashei</i>	Ashe's witchgrass	Poaceae
<i>Dichanthelium commutatum</i> ssp. <i>commutatum</i>	variable witchgrass	Poaceae
<i>Dichanthelium depauperatum</i>	starved witchgrass	Poaceae
<i>Dichanthelium latifolium</i>	broad-leaved panic grass	Poaceae
<i>Dichanthelium laxiflorum</i>	open-flower witchgrass	Poaceae
<i>Dichanthelium microcarpon</i>	small-fruited witchgrass	Poaceae
<i>Dichanthelium polyanthes</i>	roundseed panicgrass	Poaceae
<i>Dichanthelium sphaerocarpon</i>	round-fruited rosette-panicgrass	Poaceae
<i>Dichanthelium villosissimum</i>	white-hair witchgrass	Poaceae
<i>Digitaria ciliaris</i>	tropical finger-grass	Poaceae
* <i>Digitaria ischaemum</i>	smooth crabgrass	Poaceae
<i>Dioscorea quaternata</i>	four-leaved yam	Dioscoreaceae
<i>Dioscorea villosa</i>	wild yam	Dioscoreaceae
<i>Diospyros virginiana</i>	American persimmon	Ebenaceae
<i>Diphasiastrum digitatum</i>	fan clubmoss	Lycopodiaceae
<i>Dryopteris intermedia</i>	intermediate wood fern	Dryopteridaceae
<i>Dryopteris marginalis</i>	marginal wood fern	Dryopteridaceae
<i>Echinochloa</i> sp.	barnyard grass	Poaceae
* <i>Eclipta prostrata</i>	false daisy	Asteraceae
** <i>Elaeagnus umbellata</i>	autumn olive	Elaeagnaceae
<i>Eleocharis obtusa</i>	blunt spikerush	Cyperaceae
<i>Elephantopus tomentosus</i>	common elephant's-foot	Asteraceae
* <i>Eleusine indica</i>	goose grass	Poaceae
<i>Epigaea repens</i>	trailing arbutus	Ericaceae
<i>Equisetum arvense</i>	field horsetail	Equisetaceae
<i>Erechtites hieraciifolius</i>	American burnweed	Asteraceae
<i>Erigeron annuus</i>	annual fleabane	Asteraceae
<i>Erigeron canadensis</i>	horseweed	Asteraceae
<i>Erigeron philadelphicus</i>	Philadelphia fleabane	Asteraceae

<i>Erigeron strigosus</i>	daisy fleabane	Asteraceae
<i>Euonymus americanus</i>	strawberry bush	Celastraceae
<i>Eupatorium capillifolium</i>	dogfennel	Asteraceae
<i>Eupatorium vaseyi</i>	Vasey's thoroughwort	Asteraceae
<i>Eupatorium perfoliatum</i>	common boneset	Asteraceae
<i>Eupatorium pilosum</i>	rough boneset	Asteraceae
<i>Eupatorium pubescens</i>	roundleaf thoroughwort	Asteraceae
<i>Eupatorium rotundifolium</i>	round-leaved boneset	Asteraceae
<i>Eupatorium serotinum</i>	late boneset	Asteraceae
<i>Eupatorium sessilifolium</i>	upland boneset	Asteraceae
<i>Eupatorium torreyanum</i>	Torrey's eupatorium	Asteraceae
<i>Euphorbia corollata</i>	flowering spurge	Euphorbiaceae
<i>Euphorbia maculata</i>	spotted spurge	Euphorbiaceae
<i>Euphorbia mercurialina</i>	Cumberland spurge	Euphorbiaceae
<i>Euphorbia nutans</i>	nodding spurge	Euphorbiaceae
<i>Eurybia divaricata</i>	white wood aster	Asteraceae
<i>Eurybia surculosa</i>	creeping aster	Asteraceae
<i>Eutrochium fistulosum</i>	hollow joe-pye weed	Asteraceae
<i>Eutrochium purpureum</i>	sweet joe-pye-weed	Asteraceae
<i>Fagus grandifolia</i>	American beech	Fagaceae
* <i>Festuca myuros</i>	rattail sixweeks grass	Poaceae
<i>Fimbristylis autumnalis</i>	slender fimbry	Cyperaceae
<i>Fragaria virginiana</i>	Virginia strawberry	Rosaceae
<i>Fraxinus pennsylvanica</i>	Green ash	Oleaceae
<i>Galium circaezans</i>	licorice bedstraw	Rubiaceae
<i>Galium lanceolatum</i>	Torrey's wild licorice	Rubiaceae
<i>Galium pilosum</i>	hairy bedstraw	Rubiaceae
<i>Galium tinctorium</i>	stiff marsh bedstraw	Rubiaceae
<i>Galium triflorum</i>	fragrant bedstraw	Rubiaceae
<i>Gamochaeta americana</i>	American everlasting	Asteraceae
<i>Gamochaeta argyrinea</i>	silvery everlasting	Asteraceae
<i>Gamochaeta purpurea</i>	purple cudweed	Asteraceae

<i>Gentiana villosa</i>	striped gentian	Gentianaceae
<i>Geranium carolinianum</i>	carolina crane's-bill	Geraniaceae
<i>Geranium maculatum</i>	wild geranium	Geraniaceae
<i>Geum canadense</i>	white avens	Rosaceae
<i>Geum virginianum</i>	cream avens	Rosaceae
<i>Gillenia trifoliata</i>	bowman's root	Rosaceae
<i>Gleditsia triacanthos</i>	honey locust	Fabaceae
<i>Goodyera pubescens</i>	downy rattlesnake plantain	Orchidaceae
<i>Gratiola virginiana</i>	Virginia hedge-hyssop	Plantaginaceae
<i>Greeneochloa coarctata</i>	nuttall's reedgrass	Poaceae
<i>Hamamelis virginiana</i>	American witch-hazel	Hamamelidaceae
<i>Hedeoma pulegioides</i>	American pennyroyal	Lamiaceae
<i>Helenium flexuosum</i>	southern sneezeweed	Asteraceae
<i>Helianthus angustifolius</i>	narrowleaf sunflower	Asteraceae
<i>Helianthus atrorubens</i>	purpledisk sunflower	Asteraceae
<i>Helianthus hirsutus</i>	stiff-hair sunflower	Asteraceae
<i>Helianthus microcephalus</i>	small woodland sunflower	Asteraceae
* <i>Hemerocallis fulva</i>	orange day-lily	Asphodelaceae
<i>Heterotheca camporum</i> var. <i>glandulissima</i>	Nashville camphorweed	Asteraceae
<i>Heuchera americana</i>	American alumroot	Saxifragaceae
<i>Heuchera parviflora</i>	small-flowered alumroot	Saxifragaceae
<i>Heuchera villosa</i>	hairy alumroot	Saxifragaceae
<i>Hexasepalum teres</i>	rough buttonweed	Rubiaceae
<i>Hexastylis arifolia</i> var. <i>ruthii</i>	Appalachian little brown jug	Aristolochiaceae
<i>Hieracium gronovii</i>	hairy hawkweed	Asteraceae
<i>Hieracium paniculatum</i>	panicked hawkweed	Asteraceae
<i>Hieracium venosum</i>	rattlesnakeweed	Asteraceae
* <i>Holcus lanatus</i>	Yorkshire fog	Poaceae
<i>Houstonia caerulea</i>	azure bluet	Rubiaceae
<i>Houstonia longifolia</i>	long-leaved bluets	Rubiaceae
<i>Houstonia purpurea</i>	summer bluet	Rubiaceae

<i>Huperzia lucidula</i>	shining firmoss	Lycopodiaceae
<i>Hybanthus concolor</i>	eastern green violet	Violaceae
<i>Hydrangea arborescens</i>	wild hydrangea	Hydrangeaceae
<i>Hylodesmum nudiflorum</i>	naked-flowered tick-trefoil	Fabaceae
<i>Hypericum gentianoides</i>	pineweed	Hypericaceae
<i>Hypericum mutilum</i>	dwarf St. John's wort	Hypericaceae
* <i>Hypericum perforatum</i>	common St. John's-wort	Hypericaceae
<i>Hypericum punctatum</i>	spotted St. John's wort	Hypericaceae
<i>Hypericum stragulum</i>	low St. John's wort	Hypericaceae
<i>Hypericum virgatum</i>	sharp-leaf St. John's wort	Hypericaceae
* <i>Hypochaeris radicata</i>	common cat's-ear	Asteraceae
<i>Hypoxis hirsuta</i>	yellow star grass	Hypoxidaceae
<i>Ilex ambigua</i>	Carolina holly	Aquifoliaceae
<i>Ilex montana</i>	mountain winterberry	Aquifoliaceae
<i>Ilex opaca</i>	American holly	Aquifoliaceae
<i>Impatiens capensis</i>	common jewelweed	Balsaminaceae
<i>Ipomoea pandurata</i>	wild potato vine	Convolvulaceae
<i>Iris cristata</i>	dwarf crested iris	Iridaceae
<i>Iris verna</i>	dwarf iris	Iridaceae
<i>Itea virginica</i>	Virginia sweetspire	Iteaceae
* <i>Iva annua</i>	sumpweed	Asteraceae
<i>Juglans nigra</i>	eastern black walnut	Juglandaceae
<i>Juncus acuminatus</i>	tapered rush	Juncaceae
<i>Juncus antheratus</i>	greater poverty rush	Juncaceae
<i>Juncus canadensis</i>	Canada rush	Juncaceae
<i>Juncus debilis</i>	weak rush	Juncaceae
<i>Juncus dichotomus</i>	forked rush	Juncaceae
<i>Juncus dudleyi</i>	Dudley's rush	Juncaceae
<i>Juncus effusus</i>	soft rush	Juncaceae
<i>Juncus filipendulus</i>	ringseed rush	Juncaceae
<i>Juncus marginatus</i>	grass-leaved rush	Juncaceae
<i>Juniperus virginiana</i>	eastern redcedar	Cupressaceae

<i>Kalmia latifolia</i>	mountain laurel	Ericaceae
<i>Kellochloa verrucosa</i>	warty panic grass	Poaceae
<i>Krigia biflora</i>	two-flower dwarf-dandelion	Asteraceae
<i>Krigia dandelion</i>	potato dandelion	Asteraceae
<i>Krigia virginica</i>	Virginia dwarf-dandelion	Asteraceae
* <i>Kummerowia striata</i>	Japanese clover	Fabaceae
<i>Lactuca canadensis</i>	Canada wild lettuce	Asteraceae
<i>Lactuca floridana</i>	woodland lettuce	Asteraceae
<i>Lactuca hirsuta</i>	hairy lettuce	Asteraceae
* <i>Lactuca serriola</i>	prickly lettuce	Asteraceae
<i>Laportea canadensis</i>	wood nettle	Urticaceae
* <i>Lapsana communis</i>	nipplewort	Asteraceae
<i>Lechea minor</i>	thymeleaf pinweed	Cistaceae
<i>Lechea racemulosa</i>	Illinois pinweed	Cistaceae
<i>Leersia oryzoides</i>	rice cutgrass	Poaceae
<i>Leersia virginica</i>	white grass	Poaceae
* <i>Lepidium densiflorum</i>	common peppergrass	Brassicaceae
<i>Lepidium virginicum</i>	Virginia pepperweed	Brassicaceae
** <i>Lespedeza bicolor</i>	shrub lespedeza	Fabaceae
** <i>Lespedeza cuneata</i>	Chinese bushclover	Fabaceae
<i>Lespedeza hirta</i>	hairy lespedeza	Fabaceae
<i>Lespedeza procumbens</i>	trailing lespedeza	Fabaceae
<i>Lespedeza repens</i>	creeping lespedeza	Fabaceae
<i>Lespedeza stuevei</i>	tall bush-clover	Fabaceae
<i>Lespedeza violacea</i>	violet bush clover	Fabaceae
<i>Lespedeza virginica</i>	slender bush clover	Fabaceae
* <i>Leucanthemum vulgare</i>	oxeye daisy	Asteraceae
<i>Liatris microcephala</i>	smallhead blazing star	Asteraceae
<i>Ligusticum canadense</i>	American lovage	Apiaceae
** <i>Ligustrum sinense</i>	Chinese privet	Oleaceae
<i>Linum medium</i> var. <i>texanum</i>	Texas stiff yellow flax	Linaceae
<i>Linum striatum</i>	ridged yellow flax	Linaceae

<i>Linum virginianum</i>	Virginia flax	Linaceae
<i>Liquidambar styraciflua</i>	American sweetgum	Altingiaceae
<i>Liriodendron tulipifera</i>	tulip tree	Magnoliaceae
<i>Lobelia cardinalis</i>	cardinal flower	Campanulaceae
<i>Lobelia inflata</i>	indian tobacco	Campanulaceae
<i>Lobelia puberula</i>	downy lobelia	Campanulaceae
<i>Lobelia siphilitica</i>	great blue lobelia	Campanulaceae
** <i>Lolium arundinaceum</i>	tall fescue	Poaceae
* <i>Lolium perenne</i>	perennial ryegrass	Poaceae
** <i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae
<i>Ludwigia alternifolia</i>	seedbox	Onagraceae
<i>Luzula echinata</i>	hedgehog woodrush	Juncaceae
<i>Lycopus virginicus</i>	sweet bugleweed	Lamiaceae
<i>Lygodium palmatum</i>	Hartford fern	Lygodiaceae
<i>Lysimachia lanceolata</i>	lanceleaf loosestrife	Primulaceae
* <i>Lysimachia nummularia</i>	creeping jenny	Primulaceae
<i>Lysimachia quadrifolia</i>	whorled loosestrife	Primulaceae
<i>Lysimachia tonsa</i>	southern yellow loosestrife	Primulaceae
<i>Magnolia acuminata</i>	cucumber-tree	Magnoliaceae
<i>Magnolia macrophylla</i>	bigleaf magnolia	Magnoliaceae
<i>Magnolia tripetala</i>	umbrella magnolia	Magnoliaceae
<i>Maianthemum racemosum</i>	Solomon's plume	Asparagaceae
<i>Malus angustifolia</i>	southern crabapple	Rosaceae
<i>Malus coronaria</i>	sweet crabapple	Rosaceae
<i>Medeola virginiana</i>	cucumber root	Liliaceae
* <i>Melilotus albus</i>	white sweetclover	Fabaceae
* <i>Melilotus officinalis</i>	yellow sweetclover	Fabaceae
** <i>Microstegium vimineum</i>	Japanese stiltgrass	Poaceae
<i>Mimosa microphylla</i>	littleleaf sensitive-briar	Fabaceae
<i>Mimosa quadrivalvis</i>	fourvalve mimosa	Fabaceae
<i>Mimulus ringens</i>	Allegheny monkeyflower	Phrymaceae
<i>Mitchella repens</i>	partridgeberry	Rubiaceae

<i>Monarda fistulosa</i>	wild bergamot	Lamiaceae
<i>Monotropa hypopitys</i>	pinemap	Ericaceae
<i>Morus rubra</i>	red mulberry	Moraceae
* <i>Mosla dianthera</i>	miniature beefsteak-plant	Lamiaceae
<i>Nabalus altissimus</i>	tall rattlesnake root	Asteraceae
<i>Nabalus serpentarius</i>	lion's foot rattlesnake root	Asteraceae
<i>Nabalus trifoliolatus</i>	three-leaved rattlesnake root	Asteraceae
<i>Narcissus poeticus</i>	poet's narcissus	Amaryllidaceae
<i>Nyssa sylvatica</i>	black tupelo	Nyssaceae
<i>Oenothera biennis</i>	common evening-primrose	Onagraceae
<i>Oenothera villosa</i>	hairy evening primrose	Onagraceae
<i>Onoclea sensibilis</i>	sensitive fern	Onocleaceae
<i>Osmunda spectabilis</i>	American royal fern	Osmundaceae
<i>Osmundastrum cinnamomeum</i>	cinnamon fern	Osmundaceae
<i>Oxalis dillenii</i>	slender yellow woodsorrel	Oxalidaceae
<i>Oxalis stricta</i>	upright yellow woodsorrel	Oxalidaceae
<i>Oxalis violacea</i>	violet woodsorrel	Oxalidaceae
<i>Oxydendrum arboreum</i>	sourwood	Ericaceae
<i>Oxypolis rigidior</i>	stiff cowbane	Apiaceae
<i>Packera anonyma</i>	small's ragwort	Asteraceae
<i>Panax quinquefolius</i>	American ginseng	Araliaceae
<i>Panicum capillare</i>	witch grass	Poaceae
<i>Panicum dichotomiflorum</i>	smooth witchgrass	Poaceae
<i>Panicum flexile</i>	wiry witch grass	Poaceae
<i>Paronychia canadensis</i>	forked nailwort	Caryophyllaceae
<i>Parthenium integrifolium</i>	wild quinine	Asteraceae
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Vitaceae
* <i>Paspalum dilatatum</i>	dallis grass	Poaceae
<i>Paspalum laeve</i>	field paspalum	Poaceae
<i>Passiflora lutea</i>	yellow passionflower	Passifloraceae
<i>Paulownia tomentosa</i>	princess tree	Paulowniaceae
<i>Penstemon brevisepalus</i>	short-sepaled beardtongue	Plantaginaceae

<i>Penstemon canescens</i>	eastern gray beardtongue	Plantaginaceae
<i>Penthorum sedoides</i>	ditch stonecrop	Penthoraceae
** <i>Perilla frutescens</i>	beefsteak plant	Lamiaceae
<i>Persicaria lapathifolia</i>	pale smartweed	Polygonaceae
* <i>Persicaria longiseta</i>	low smartweed	Polygonaceae
* <i>Persicaria maculosa</i>	spotted lady's thumb	Polygonaceae
<i>Persicaria pensylvanica</i>	pinkweed	Polygonaceae
<i>Persicaria sagittata</i>	arrow-leaved tearthumb	Polygonaceae
<i>Persicaria virginiana</i>	american jumpseed	Polygonaceae
<i>Phegopteris hexagonoptera</i>	broad beech fern	Thelypteridaceae
* <i>Phleum pratense</i>	timothy grass	Poaceae
<i>Phlox divaricata</i>	blue phlox	Polemoniaceae
<i>Phlox glaberrima</i>	smooth phlox	Polemoniaceae
<i>Phryma leptostachya</i>	American lopseed	Phrymaceae
<i>Physalis longifolia</i>	long-leaved groundcherry	Solanaceae
<i>Phytolacca americana</i>	American pokeweed	Phytolaccaceae
<i>Pinus echinata</i>	shortleaf pine	Pinaceae
<i>Pinus strobus</i>	eastern white pine	Pinaceae
<i>Pinus virginiana</i>	Virginia pine	Pinaceae
<i>Piptochaetium avenaceum</i>	blackseed needlegrass	Poaceae
<i>Pityopsis graminifolia</i>	narrowleaf silkgrass	Asteraceae
<i>Plantago aristata</i>	bracted plantain	Plantaginaceae
* <i>Plantago lanceolata</i>	ribwort plantain	Plantaginaceae
<i>Plantago rugelii</i>	American plantain	Plantaginaceae
<i>Platanthera clavellata</i>	small green wood orchid	Orchidaceae
<i>Platanus occidentalis</i>	American sycamore	Platanaceae
<i>Pleopeltis michauxiana</i>	resurrection fern	Polypodiaceae
* <i>Poa pratensis</i>	smooth meadow-grass	Poaceae
<i>Podophyllum peltatum</i>	mayapple	Berberidaceae
<i>Polygala ambigua</i>	ambiguous whorled milkwort	Polygalaceae
<i>Polygala curtissii</i>	curtiss's milkwort	Polygalaceae
<i>Polygala sanguinea</i>	field milkwort	Polygalaceae

<i>Polygala senega latifolia</i>	seneca snakeroot	Polygalaceae
<i>Polygala verticillata</i>	whorled milkwort	Polygalaceae
<i>Polygonatum biflorum</i>	smooth Solomon's seal	Asparagaceae
* <i>Polygonum aviculare</i>	prostrate knotweed	Polygonaceae
<i>Polypodium appalachianum</i>	Appalachian rockcap fern	Polypodiaceae
<i>Polypodium virginianum</i>	rock polypody	Polypodiaceae
<i>Polystichum acrostichoides</i>	Christmas fern	Dryopteridaceae
<i>Populus deltoides</i>	eastern cottonwood	Salicaceae
<i>Potamogeton diversifolius</i>	diverse-leaved pondweed	Potamogetonaceae
<i>Potamogeton nodosus</i>	longleaf pondweed	Potamogetonaceae
<i>Potentilla canadensis</i>	dwarf cinquefoil	Rosaceae
<i>Potentilla norvegica</i>	rough cinquefoil	Rosaceae
* <i>Potentilla recta</i>	sulphur cinquefoil	Rosaceae
<i>Potentilla simplex</i>	common cinquefoil	Rosaceae
<i>Prosartes lanuginosa</i>	yellow fairybells	Liliaceae
<i>Prosartes maculata</i>	spotted mandarin	Liliaceae
* <i>Prunella vulgaris</i>	common selfheal	Lamiaceae
<i>Prunus americana</i>	American plum	Rosaceae
<i>Prunus serotina</i>	black cherry	Rosaceae
<i>Pseudognaphalium obtusifolium</i>	sweet everlasting	Asteraceae
<i>Pteridium aquilinum</i>	common bracken	Dennstaedtiaceae
<i>Pycnanthemum loomisii</i>	Loomis' mountainmint	Lamiaceae
<i>Pycnanthemum muticum</i>	clustered mountainmint	Lamiaceae
<i>Pycnanthemum pycnanthemoides</i>	southern mountainmint	Lamiaceae
<i>Pycnanthemum tenuifolium</i>	narrowleaf mountainmint	Lamiaceae
<i>Pyrrhopappus carolinianus</i>	carolina desert-chicory	Asteraceae
* <i>Pyrrhopappus pauciflorus</i>	smallflower desert-chicory	Asteraceae
<i>Pyrolaria pubera</i>	buffalo-nut	Santalaceae
** <i>Pyrus calleryana</i>	callery pear	Rosaceae
<i>Quercus alba</i>	white oak	Fagaceae
<i>Quercus coccinea</i>	scarlet oak	Fagaceae
<i>Quercus falcata</i>	southern red oak	Fagaceae

<i>Quercus marilandica</i>	blackjack oak	Fagaceae
<i>Quercus montana</i>	chestnut oak	Fagaceae
<i>Quercus rubra</i>	northern red oak	Fagaceae
<i>Quercus stellata</i>	post oak	Fagaceae
<i>Quercus velutina</i>	black oak	Fagaceae
<i>Ranunculus recurvatus</i>	hooked buttercup	Ranunculaceae
* <i>Ranunculus sardous</i>	hairy buttercup	Ranunculaceae
<i>Rhexia mariana</i>	Maryland meadowbeauty	Melastomataceae
<i>Rhexia virginica</i>	Virginia meadowbeauty	Melastomataceae
<i>Rhododendron arborescens</i>	smooth azalea	Ericaceae
<i>Rhododendron calendulaceum</i>	flame azalea	Ericaceae
<i>Rhododendron canescens</i>	mountain azalea	Ericaceae
<i>Rhododendron cumberlandense</i>	Cumberland rhododendron	Ericaceae
<i>Rhododendron maximum</i>	great rhododendron	Ericaceae
<i>Rhododendron periclymenoides</i>	pinxter flower	Ericaceae
<i>Rhododendron prinophyllum</i>	early azalea	Ericaceae
<i>Rhus copallinum</i>	shining sumac	Anacardiaceae
<i>Rhus glabra</i>	smooth sumac	Anacardiaceae
<i>Rhynchospora capitellata</i>	brownish beaked-rush	Cyperaceae
<i>Rhynchospora glomerata</i>	clustered beaksedge	Cyperaceae
<i>Rhynchospora recognita</i>	globe beaksedge	Cyperaceae
<i>Robinia pseudoacacia</i>	black locust	Fabaceae
** <i>Rosa multiflora</i>	multiflora rose	Rosaceae
<i>Rubus allegheniensis</i>	Allegheny blackberry	Rosaceae
<i>Rubus flagellaris</i>	common dewberry	Rosaceae
<i>Rubus occidentalis</i>	black raspberry	Rosaceae
<i>Rubus pascuus</i>	Chesapeake blackberry	Rosaceae
<i>Rubus pensilvanicus</i>	Pennsylvania blackberry	Rosaceae
<i>Rubus steelei</i>	Steele's dewberry	Rosaceae
<i>Rudbeckia fulgida</i> var. <i>umbrosa</i>	orange coneflower	Asteraceae
<i>Rudbeckia hirta</i>	black-eyed susan	Asteraceae
<i>Ruellia caroliniensis</i>	Carolina ruellia	Acanthaceae

<i>*Rumex acetosella</i>	sheep's sorrel	Polygonaceae
<i>*Rumex crispus</i>	curled dock	Polygonaceae
<i>Sabatia angularis</i>	rosepink	Gentianaceae
<i>Salix nigra</i>	black willow	Salicaceae
<i>Sambucus canadensis</i>	American black elderberry	Viburnaceae
<i>Sanguinaria canadensis</i>	bloodroot	Papaveraceae
<i>Sanicula canadensis</i>	black snakeroot	Apiaceae
<i>Sassafras albidum</i>	sassafras	Lauraceae
<i>Schizachyrium scoparium</i>	little bluestem	Poaceae
<i>*Schoenoplectiella mucronata</i>	bog bulrush	Cyperaceae
<i>Scirpus atrovirens</i>	dark green bulrush	Cyperaceae
<i>Scirpus cyperinus</i>	woolgrass	Cyperaceae
<i>Scirpus pendulus</i>	nodding bulrush	Cyperaceae
<i>Scirpus polyphyllus</i>	leafy bulrush	Cyperaceae
<i>Scleria triglomerata</i>	whip nutrush	Cyperaceae
<i>Scutellaria elliptica var. elliptica</i>	hairy skullcap	Lamiaceae
<i>Scutellaria elliptica var. hirsuta</i>	hairy skullcap	Lamiaceae
<i>Scutellaria integrifolia</i>	helmet skullcap	Lamiaceae
<i>**Securigera varia</i>	purple crownvetch	Fabaceae
<i>Selaginella apoda</i>	meadow spikemoss	Selaginellaceae
<i>Sericocarpus asteroides</i>	toothed white-topped aster	Asteraceae
<i>Sericocarpus linifolius</i>	narrowleaf whitetop aster	Asteraceae
<i>*Setaria faberi</i>	giant foxtail	Poaceae
<i>Setaria parviflora</i>	knotroot bristlegrass	Poaceae
<i>*Setaria pumila</i>	yellow foxtail	Poaceae
<i>*Setaria viridis</i>	green bristle grass	Poaceae
<i>*Sherardia arvensis</i>	field madder	Rubiaceae
<i>*Sida spinosa</i>	prickly fanpetals	Malvaceae
<i>Silene antirrhina</i>	sleepy catchfly	Caryophyllaceae
<i>Silene virginica</i>	fire pink	Caryophyllaceae
<i>Silphium trifoliatum</i>	whorled rosinweed	Asteraceae
<i>Sisyrinchium angustifolium</i>	narrow-leaved blue-eyed grass	Iridaceae

<i>Smilax bona-nox</i>	saw greenbrier	Smilacaceae
<i>Smilax ecirrhata</i>	upright carrion flower	Smilacaceae
<i>Smilax glauca</i>	sawbrier	Smilacaceae
<i>Smilax hispida</i>	bristly greenbrier	Smilacaceae
<i>Smilax rotundifolia</i>	roundleaf greenbrier	Smilacaceae
<i>Solanum carolinense</i>	Carolina horsenettle	Solanaceae
<i>Solidago altissima</i>	tall goldenrod	Asteraceae
<i>Solidago arguta</i> var. <i>caroliniana</i>	Atlantic goldenrod	Asteraceae
<i>Solidago bicolor</i>	silverrod	Asteraceae
<i>Solidago caesia</i>	bluestem goldenrod	Asteraceae
<i>Solidago curtisii</i>	mountain decumbent goldenrod	Asteraceae
<i>Solidago erecta</i>	slender goldenrod	Asteraceae
<i>Solidago flaccidifolia</i>	mountain goldenrod	Asteraceae
<i>Solidago gigantea</i>	giant goldenrod	Asteraceae
<i>Solidago hispida</i>	hairy goldenrod	Asteraceae
<i>Solidago nemoralis</i>	gray goldenrod	Asteraceae
<i>Solidago odora</i>	sweet goldenrod	Asteraceae
<i>Solidago rugosa</i>	common wrinkle-leaved goldenrod	Asteraceae
<i>Solidago speciosa</i>	showy goldenrod	Asteraceae
<i>Sorghastrum nutans</i>	indiangrass	Poaceae
<i>Sparganium americanum</i>	American bur-reed	Typhaceae
<i>Sphenopholis intermedia</i>	slender wedgescale	Poaceae
<i>Spigelia marilandica</i>	indian pink	Loganiaceae
<i>Spiraea tomentosa</i>	steeplebush	Rosaceae
<i>Spiranthes vernalis</i>	spring ladies' tresses	Orchidaceae
<i>Sporobolus vaginiflorus</i>	poverty dropseed	Poaceae
<i>Stachys nuttallii</i>	heartleaf hedgenettle	Lamiaceae
<i>Stellaria pubera</i>	star chickweed	Caryophyllaceae
<i>Stenanthium gramineum</i>	featherbells	Melanthiaceae
<i>Stewartia ovata</i>	mountain camellia	Theaceae
<i>Symphyotrichum dumosum</i>	bushy aster	Asteraceae
<i>Symphyotrichum laeve</i>	smooth blue aster	Asteraceae

<i>Symphyotrichum lateriflorum</i>	calico aster	Asteraceae
<i>Symphyotrichum oblongifolium</i>	aromatic aster	Asteraceae
<i>Symphyotrichum patens</i>	late purple aster	Asteraceae
<i>Symphyotrichum phlogifolium</i>	thinleaf late purple aster	Asteraceae
<i>Symphyotrichum pilosum</i>	hairy white oldfield aster	Asteraceae
<i>Symphyotrichum undulatum</i>	wavy-leaf aster	Asteraceae
* <i>Taraxacum officinale</i>	common dandelion	Asteraceae
<i>Tephrosia virginiana</i>	goat's rue	Fabaceae
<i>Thalictrum dioicum</i>	early meadow-rue	Ranunculaceae
<i>Thalictrum thalictroides</i>	rue anemone	Ranunculaceae
<i>Thaspium barbinode</i>	hairy-jointed meadow-parsnip	Apiaceae
<i>Tiarella wherryi</i>	Wherry's foamflower	Saxifragaceae
<i>Tilia americana</i>	basswood	Malvaceae
<i>Tipularia discolor</i>	crane-fly orchid	Orchidaceae
<i>Toxicodendron radicans</i>	eastern poison ivy	Anacardiaceae
<i>Tradescantia subaspera</i>	zigzag spiderwort	Commelinaceae
<i>Trautvetteria caroliniensis</i>	Carolina bugbane	Ranunculaceae
<i>Trichostema dichotomum</i>	blue curls	Lamiaceae
<i>Tridens flavus</i>	purpletop tridens	Poaceae
* <i>Trifolium campestre</i>	hop trefoil	Fabaceae
* <i>Trifolium pratense</i>	red clover	Fabaceae
* <i>Trifolium repens</i>	white clover	Fabaceae
<i>Trillium luteum</i>	yellow wakerobin	Melanthiaceae
<i>Triodanis perfoliata</i>	clasping venus's looking glass	Campanulaceae
<i>Tsuga canadensis</i>	eastern hemlock	Pinaceae
<i>Typha latifolia</i>	broadleaf cattail	Typhaceae
<i>Ulmus alata</i>	winged elm	Ulmaceae
<i>Ulmus rubra</i>	slippery elm	Ulmaceae
<i>Uvularia perfoliata</i>	perfoliate bellwort	Colchicaceae
<i>Vaccinium arboreum</i>	sparkleberry	Ericaceae
<i>Vaccinium corymbosum</i>	northern highbush blueberry	Ericaceae
<i>Vaccinium pallidum</i>	blue ridge blueberry	Ericaceae

<i>Vaccinium stamineum</i>	deerberry	Ericaceae
* <i>Verbascum thapsus</i>	great mullein	Scrophulariaceae
<i>Verbena simplex</i>	narrowleaf vervain	Verbenaceae
<i>Verbesina alternifolia</i>	wingstem	Asteraceae
<i>Vernonia gigantea</i>	tall ironweed	Asteraceae
* <i>Veronica arvensis</i>	corn speedwell	Plantaginaceae
* <i>Veronica officinalis</i>	heath speedwell	Plantaginaceae
<i>Veronica peregrina</i>	purslane speedwell	Plantaginaceae
<i>Viburnum acerifolium</i>	mapleleaf viburnum	Viburnaceae
<i>Vicia caroliniana</i>	carolina vetch	Fabaceae
<i>Viola blanda</i>	sweet white violet	Violaceae
<i>Viola hastata</i>	halberd-leaved violet	Violaceae
<i>Viola hirsutula</i>	southern wood violet	Violaceae
<i>Viola lanceolata</i>	white bog violet	Violaceae
<i>Viola palmata</i>	palm violet	Violaceae
<i>Viola pedata</i>	bird's foot violet	Violaceae
<i>Viola primulifolia</i>	primrose-leaved violet	Violaceae
<i>Viola rostrata</i>	long-spurred violet	Violaceae
<i>Viola rotundifolia</i>	round-leaved violet	Violaceae
<i>Viola sagittata</i>	arrowleaf violet	Violaceae
<i>Viola sororia</i>	common blue violet	Violaceae
<i>Viola subsinuata</i>	wavy-leaved violet	Violaceae
<i>Vitis aestivalis</i> var. <i>aestivalis</i>	summer grape	Vitaceae
<i>Vitis aestivalis</i> var. <i>bicolor</i>	summer grape	Vitaceae
<i>Vitis labrusca</i>	fox grape	Vitaceae
<i>Vitis rotundifolia</i>	muscadine	Vitaceae
<i>Vitis vulpina</i>	frost grape	Vitaceae
<i>Woodsia obtusa</i>	wood fern	Dryopteridaceae
<i>Woodwardia areolata</i>	netted chain fern	Blechnaceae
<i>Xanthorhiza simplicissima</i>	shrub yellowroot	Ranunculaceae
<i>Yucca flaccida</i>	weak-leaf yucca	Asparagaceae

APPENDIX H: List of Plant Species Arranged by Plant Family

* = Non-native

** = Non-native, invasive

<u>Family</u>	<u>Scientific name</u>	<u>Common name</u>
Acanthaceae	<i>Ruellia caroliniensis</i>	Carolina ruellia
Acoraceae	* <i>Acorus calamus</i>	Eurasian sweet-flag
Alismataceae	<i>Alisma subcordatum</i>	American water plantain
Altingiaceae	<i>Liquidambar styraciflua</i>	American sweetgum
Amaranthaceae	* <i>Amaranthus spinosus</i>	spiny amaranth
Amaryllidaceae	<i>Narcissus poeticus</i>	poet's narcissus
Anacardiaceae	<i>Rhus copallinum</i>	shining sumac
Anacardiaceae	<i>Rhus glabra</i>	smooth sumac
Anacardiaceae	<i>Toxicodendron radicans</i>	eastern poison ivy
Annonaceae	<i>Asimina triloba</i>	common pawpaw
Apiaceae	<i>Angelica venenosa</i>	hairy angelica
Apiaceae	* <i>Daucus carota</i>	wild carrot
Apiaceae	<i>Ligusticum canadense</i>	American lovage
Apiaceae	<i>Oxypolis rigidior</i>	stiff cowbane
Apiaceae	<i>Sanicula canadensis</i>	black snakeroot
Apiaceae	<i>Thaspium barbinode</i>	hairy-jointed meadow-parsnip
Apocynaceae	<i>Amsonia tabernaemontana</i>	eastern bluestar
Apocynaceae	<i>Apocynum cannabinum</i>	hemp dogbane
Apocynaceae	<i>Asclepias exaltata</i>	poke milkweed
Apocynaceae	<i>Asclepias syriaca</i>	common milkweed
Apocynaceae	<i>Asclepias variegata</i>	redring milkweed
Aquifoliaceae	<i>Ilex ambigua</i>	Carolina holly
Aquifoliaceae	<i>Ilex montana</i>	mountain winterberry
Aquifoliaceae	<i>Ilex opaca</i>	American holly
Araceae	<i>Arisaema triphyllum</i>	jack-in-the-pulpit
Araliaceae	<i>Aralia racemosa</i>	American spikenard
Araliaceae	<i>Panax quinquefolius</i>	American ginseng

Aristolochiaceae	<i>Hexastylis arifolia</i> var. <i>ruthii</i>	Appalachian little brown jug
Asparagaceae	<i>Convallaria pseudomajalis</i>	American lily-of-the-valley
Asparagaceae	<i>Maianthemum racemosum</i>	Solomon's plume
Asparagaceae	<i>Polygonatum biflorum</i>	smooth Solomon's seal
Asparagaceae	<i>Yucca flaccida</i>	weak-leaf yucca
Asphodelaceae	* <i>Hemerocallis fulva</i>	orange day-lily
Aspleniaceae	<i>Asplenium montanum</i>	mountain spleenwort
Aspleniaceae	<i>Asplenium platyneuron</i>	ebony spleenwort
Asteraceae	<i>Achillea millefolium</i>	common yarrow
Asteraceae	<i>Ageratina altissima</i>	white snakeroot
Asteraceae	<i>Ambrosia artemisiifolia</i>	common ragweed
Asteraceae	<i>Ambrosia trifida</i>	giant ragweed
Asteraceae	<i>Antennaria plantaginifolia</i>	plantain-leaved pussytoes
Asteraceae	<i>Antennaria solitaria</i>	singlehead pussytoes
Asteraceae	* <i>Anthemis cotula</i>	stinking chamomile
Asteraceae	<i>Arnoglossum atriplicifolium</i>	pale indian plantain
Asteraceae	<i>Bidens aristosa</i>	bearded beggarticks
Asteraceae	<i>Bidens frondosa</i>	devil's beggarticks
Asteraceae	<i>Boltonia asteroides</i>	false aster
Asteraceae	* <i>Carduus nutans</i>	musk thistle
Asteraceae	<i>Chrysopsis mariana</i>	maryland golden-aster
Asteraceae	* <i>Cichorium intybus</i>	chicory
Asteraceae	<i>Cirsium discolor</i>	field thistle
Asteraceae	* <i>Cirsium vulgare</i>	bull thistle
Asteraceae	<i>Conoclinium coelestinum</i>	blue mistflower
Asteraceae	<i>Coreopsis major</i>	greater tickseed
Asteraceae	<i>Coreopsis tripteris</i>	tall coreopsis
Asteraceae	* <i>Eclipta prostrata</i>	false daisy
Asteraceae	<i>Elephantopus tomentosus</i>	common elephant's-foot
Asteraceae	<i>Erechtites hieraciifolius</i>	American burnweed
Asteraceae	<i>Erigeron annuus</i>	annual fleabane
Asteraceae	<i>Erigeron canadensis</i>	horseweed

Asteraceae	<i>Erigeron philadelphicus</i>	Philadelphia fleabane
Asteraceae	<i>Erigeron strigosus</i>	daisy fleabane
Asteraceae	<i>Eupatorium capillifolium</i>	dogfennel
Asteraceae	<i>Eupatorium vaseyi</i>	Vasey's thoroughwort
Asteraceae	<i>Eupatorium perfoliatum</i>	common boneset
Asteraceae	<i>Eupatorium pilosum</i>	rough boneset
Asteraceae	<i>Eupatorium pubescens</i>	roundleaf thoroughwort
Asteraceae	<i>Eupatorium rotundifolium</i>	round-leaved boneset
Asteraceae	<i>Eupatorium serotinum</i>	late boneset
Asteraceae	<i>Eupatorium sessilifolium</i>	upland boneset
Asteraceae	<i>Eupatorium torreyanum</i>	Torrey's eupatorium
Asteraceae	<i>Eurybia divaricata</i>	white wood aster
Asteraceae	<i>Eurybia surculosa</i>	creeping aster
Asteraceae	<i>Eutrochium fistulosum</i>	hollow joe-pye weed
Asteraceae	<i>Eutrochium purpureum</i>	sweet joe-pye-weed
Asteraceae	<i>Gamochaeta americana</i>	American everlasting
Asteraceae	<i>Gamochaeta argyrinea</i>	silvery everlasting
Asteraceae	<i>Gamochaeta purpurea</i>	purple cudweed
Asteraceae	<i>Helenium flexuosum</i>	southern sneezeweed
Asteraceae	<i>Helianthus angustifolius</i>	narrowleaf sunflower
Asteraceae	<i>Helianthus atrorubens</i>	purpldisk sunflower
Asteraceae	<i>Helianthus hirsutus</i>	stiff-hair sunflower
Asteraceae	<i>Helianthus microcephalus</i>	small woodland sunflower
Asteraceae	<i>Heterotheca camporum</i> var. <i>glandulissima</i>	Nashville camphorweed
Asteraceae	<i>Hieracium gronovii</i>	hairy hawkweed
Asteraceae	<i>Hieracium paniculatum</i>	panicked hawkweed
Asteraceae	<i>Hieracium venosum</i>	rattlesnakeweed
Asteraceae	* <i>Hypochaeris radicata</i>	common cat's-ear
Asteraceae	* <i>Iva annua</i>	sumpweed
Asteraceae	<i>Krigia biflora</i>	two-flower dwarf-dandelion
Asteraceae	<i>Krigia dandelion</i>	potato dandelion

Asteraceae	<i>Krigia virginica</i>	Virginia dwarf dandelion
Asteraceae	<i>Lactuca canadensis</i>	Canada wild lettuce
Asteraceae	<i>Lactuca floridana</i>	woodland lettuce
Asteraceae	<i>Lactuca hirsuta</i>	hairy lettuce
Asteraceae	* <i>Lactuca serriola</i>	prickly lettuce
Asteraceae	* <i>Lapsana communis</i>	nipplewort
Asteraceae	* <i>Leucanthemum vulgare</i>	oxeye daisy
Asteraceae	<i>Liatris microcephala</i>	smallhead blazing star
Asteraceae	<i>Nabalus altissimus</i>	tall rattlesnake root
Asteraceae	<i>Nabalus serpentarius</i>	lion's foot rattlesnake root
Asteraceae	<i>Nabalus trifoliolatus</i>	three-leaved rattlesnake root
Asteraceae	<i>Packera anonyma</i>	small's ragwort
Asteraceae	<i>Parthenium integrifolium</i>	wild quinine
Asteraceae	<i>Pityopsis graminifolia</i>	narrowleaf silkgrass
Asteraceae	<i>Pseudognaphalium obtusifolium</i>	sweet everlasting
Asteraceae	<i>Pyrrhopappus carolinianus</i>	carolina desert-chicory
Asteraceae	* <i>Pyrrhopappus pauciflorus</i>	smallflower desert-chicory
Asteraceae	<i>Rudbeckia fulgida</i> var. <i>umbrosa</i>	orange coneflower
Asteraceae	<i>Rudbeckia hirta</i>	black-eyed susan
Asteraceae	<i>Sericocarpus asteroides</i>	toothed white-topped aster
Asteraceae	<i>Sericocarpus linifolius</i>	narrowleaf whitetop aster
Asteraceae	<i>Silphium trifoliatum</i>	whorled rosinweed
Asteraceae	<i>Solidago altissima</i>	tall goldenrod
Asteraceae	<i>Solidago arguta</i> var. <i>caroliniana</i>	Atlantic goldenrod
Asteraceae	<i>Solidago bicolor</i>	silverrod
Asteraceae	<i>Solidago caesia</i>	bluestem goldenrod
Asteraceae	<i>Solidago curtisii</i>	mountain decumbent goldenrod
Asteraceae	<i>Solidago erecta</i>	slender goldenrod
Asteraceae	<i>Solidago flaccidifolia</i>	mountain goldenrod
Asteraceae	<i>Solidago gigantea</i>	giant goldenrod
Asteraceae	<i>Solidago hispida</i>	hairy goldenrod
Asteraceae	<i>Solidago nemoralis</i>	gray goldenrod

Asteraceae	<i>Solidago odora</i>	sweet goldenrod
Asteraceae	<i>Solidago rugosa</i>	common wrinkle-leaved goldenrod
Asteraceae	<i>Solidago speciosa</i>	showy goldenrod
Asteraceae	<i>Symphyotrichum dumosum</i>	bushy aster
Asteraceae	<i>Symphyotrichum laeve</i>	smooth blue aster
Asteraceae	<i>Symphyotrichum lateriflorum</i>	calico aster
Asteraceae	<i>Symphyotrichum oblongifolium</i>	aromatic aster
Asteraceae	<i>Symphyotrichum patens</i>	late purple aster
Asteraceae	<i>Symphyotrichum phlogifolium</i>	thinleaf late purple aster
Asteraceae	<i>Symphyotrichum pilosum</i>	hairy white oldfield aster
Asteraceae	<i>Symphyotrichum undulatum</i>	wavy-leaf aster
Asteraceae	* <i>Taraxacum officinale</i>	common dandelion
Asteraceae	<i>Verbesina alternifolia</i>	wingstem
Asteraceae	<i>Vernonia gigantea</i>	tall ironweed
Athyriaceae	<i>Athyrium asplenioides</i>	southern lady fern
Athyriaceae	<i>Athyrium filix-femina</i>	lady fern
Athyriaceae	<i>Deparia acrostichoides</i>	silvery glade fern
Balsaminaceae	<i>Impatiens capensis</i>	common jewelweed
Berberidaceae	** <i>Berberis thunbergii</i>	Japanese barberry
Berberidaceae	<i>Caulophyllum thalictroides</i>	blue cohosh
Berberidaceae	<i>Podophyllum peltatum</i>	mayapple
Betulaceae	<i>Alnus serrulata</i>	smooth alder
Betulaceae	<i>Betula alleghaniensis</i>	yellow birch
Betulaceae	<i>Betula nigra</i>	river birch
Betulaceae	<i>Corylus americana</i>	American hazelnut
Blechnaceae	<i>Woodwardia areolata</i>	netted chain fern
Brassicaceae	* <i>Barbarea vulgaris</i>	bitter wintercress
Brassicaceae	<i>Cardamine diphylla</i>	two-leaved toothwort
Brassicaceae	* <i>Lepidium densiflorum</i>	common peppergrass
Brassicaceae	<i>Lepidium virginicum</i>	Virginia pepperweed
Cabombaceae	<i>Brasenia schreberi</i>	watershield
Campanulaceae	<i>Campanula divaricata</i>	southern harebell

Campanulaceae	<i>Campanulastrum americanum</i>	tall bellflower
Campanulaceae	<i>Lobelia cardinalis</i>	cardinal flower
Campanulaceae	<i>Lobelia inflata</i>	indian tobacco
Campanulaceae	<i>Lobelia puberula</i>	downy lobelia
Campanulaceae	<i>Lobelia siphilitica</i>	great blue lobelia
Campanulaceae	<i>Triodanis perfoliata</i>	clasping venus's looking glass
Caprifoliaceae	** <i>Lonicera japonica</i>	Japanese honeysuckle
Caryophyllaceae	* <i>Cerastium glomeratum</i>	sticky mouse-ear chickweed
Caryophyllaceae	* <i>Dianthus barbatus</i>	sweet-william
Caryophyllaceae	<i>Paronychia canadensis</i>	forked nailwort
Caryophyllaceae	<i>Silene antirrhina</i>	sleepy catchfly
Caryophyllaceae	<i>Silene virginica</i>	fire pink
Caryophyllaceae	<i>Stellaria pubera</i>	star chickweed
Celastraceae	** <i>Celastrus orbiculatus</i>	Oriental bittersweet
Celastraceae	<i>Euonymus americanus</i>	strawberry bush
Cistaceae	<i>Lechea minor</i>	thymeleaf pinweed
Cistaceae	<i>Lechea racemulosa</i>	Illinois pinweed
Colchicaceae	<i>Uvularia perfoliata</i>	perfoliate bellwort
Commelinaceae	* <i>Commelina communis</i>	Asiatic dayflower
Commelinaceae	<i>Tradescantia subaspera</i>	zigzag spiderwort
Convolvulaceae	<i>Calystegia catesbeiana</i>	Catesby's false bindweed
Convolvulaceae	<i>Cuscuta pentagona</i>	five angled dodder
Convolvulaceae	<i>Ipomoea pandurata</i>	wild potato vine
Cornaceae	<i>Cornus florida</i>	flowering dogwood
Cupressaceae	<i>Juniperus virginiana</i>	eastern redcedar
Cyperaceae	<i>Carex albicans</i>	white-tinged sedge
Cyperaceae	<i>Carex albolutescens</i>	greenwhite sedge
Cyperaceae	<i>Carex annectans</i>	yellowfruit sedge
Cyperaceae	<i>Carex brevior</i>	shortbeak sedge
Cyperaceae	<i>Carex cephalophora</i>	oval-headed sedge
Cyperaceae	<i>Carex communis</i>	fibrous-rooted sedge
Cyperaceae	<i>Carex complanata</i>	hirsute sedge

Cyperaceae	<i>Carex crinita</i>	fringed sedge
Cyperaceae	<i>Carex cumberlandensis</i>	Cumberland sedge
Cyperaceae	<i>Carex debilis</i>	white-edge sedge
Cyperaceae	<i>Carex digitalis</i>	slender woodland sedge
Cyperaceae	<i>Carex hirsutella</i>	hairy green sedge
Cyperaceae	<i>Carex lurida</i>	sallow sedge
Cyperaceae	<i>Carex nigromarginata</i>	black-edge sedge
Cyperaceae	<i>Carex striatula</i>	lined sedge
Cyperaceae	<i>Carex swanii</i>	Swan's sedge
Cyperaceae	<i>Carex virescens</i>	ribbed sedge
Cyperaceae	<i>Carex vulpinoidea</i>	fox sedge
Cyperaceae	<i>Cyperus echinatus</i>	globe flatsedge
Cyperaceae	<i>Cyperus flavescens</i>	yellow flatsedge
Cyperaceae	* <i>Cyperus iria</i>	rice flat-sedge
Cyperaceae	<i>Cyperus strigosus</i>	straw-colored flatsedge
Cyperaceae	<i>Eleocharis obtusa</i>	blunt spikerush
Cyperaceae	<i>Fimbristylis autumnalis</i>	slender fimbry
Cyperaceae	<i>Rhynchospora capitellata</i>	brownish beaked-rush
Cyperaceae	<i>Rhynchospora glomerata</i>	clustered beaksedge
Cyperaceae	<i>Rhynchospora recognita</i>	globe beaksedge
Cyperaceae	* <i>Schoenoplectiella mucronata</i>	bog bulrush
Cyperaceae	<i>Scirpus atrovirens</i>	dark green bulrush
Cyperaceae	<i>Scirpus cyperinus</i>	woolgrass
Cyperaceae	<i>Scirpus pendulus</i>	nodding bulrush
Cyperaceae	<i>Scirpus polyphyllus</i>	leafy bulrush
Cyperaceae	<i>Scleria triglomerata</i>	whip nutrush
Dennstaedtiaceae	<i>Dennstaedtia punctilobula</i>	hay-scented fern
Dennstaedtiaceae	<i>Pteridium aquilinum</i>	common bracken
Dioscoreaceae	<i>Dioscorea quaternata</i>	four-leaved yam
Dioscoreaceae	<i>Dioscorea villosa</i>	wild yam
Dryopteridaceae	<i>Dryopteris intermedia</i>	intermediate wood fern
Dryopteridaceae	<i>Dryopteris marginalis</i>	marginal wood fern

Dryopteridaceae	<i>Polystichum acrostichoides</i>	Christmas fern
Dryopteridaceae	<i>Woodsia obtusa</i>	wood fern
Ebenaceae	<i>Diospyros virginiana</i>	American persimmon
Elaeagnaceae	** <i>Elaeagnus umbellata</i>	autumn olive
Equisetaceae	<i>Equisetum arvense</i>	field horsetail
Ericaceae	<i>Chimaphila maculata</i>	striped wintergreen
Ericaceae	<i>Epigaea repens</i>	trailing arbutus
Ericaceae	<i>Kalmia latifolia</i>	mountain laurel
Ericaceae	<i>Monotropa hypopitys</i>	pinemap
Ericaceae	<i>Oxydendrum arboreum</i>	sourwood
Ericaceae	<i>Rhododendron arborescens</i>	smooth azalea
Ericaceae	<i>Rhododendron calendulaceum</i>	flame azalea
Ericaceae	<i>Rhododendron canescens</i>	mountain azalea
Ericaceae	<i>Rhododendron cumberlandense</i>	Cumberland rhododendron
Ericaceae	<i>Rhododendron maximum</i>	great rhododendron
Ericaceae	<i>Rhododendron periclymenoides</i>	pinxter flower
Ericaceae	<i>Rhododendron prinophyllum</i>	early azalea
Ericaceae	<i>Vaccinium arboreum</i>	sparkleberry
Ericaceae	<i>Vaccinium corymbosum</i>	northern highbush blueberry
Ericaceae	<i>Vaccinium pallidum</i>	blue ridge blueberry
Ericaceae	<i>Vaccinium stamineum</i>	deerberry
Euphorbiaceae	<i>Acalypha rhomboidea</i>	common copperleaf
Euphorbiaceae	<i>Croton michauxii</i>	Michaux's croton
Euphorbiaceae	<i>Croton monanthogynus</i>	prairie tea
Euphorbiaceae	<i>Croton willdenowii</i>	glade rushfoil
Euphorbiaceae	<i>Euphorbia corollata</i>	flowering spurge
Euphorbiaceae	<i>Euphorbia maculata</i>	spotted spurge
Euphorbiaceae	<i>Euphorbia mercurialina</i>	Cumberland spurge
Euphorbiaceae	<i>Euphorbia nutans</i>	nodding spurge
Fabaceae	** <i>Albizia julibrissin</i>	Persian silk tree
Fabaceae	<i>Amphicarpaea bracteata</i>	American hog-peanut
Fabaceae	<i>Apios americana</i>	American groundnut

Fabaceae	<i>Cercis canadensis</i>	eastern redbud
Fabaceae	<i>Chamaecrista fasciculata</i>	partridge pea
Fabaceae	<i>Chamaecrista nictitans</i>	sensitive pea
Fabaceae	<i>Clitoria mariana</i>	pigeonwings
Fabaceae	<i>Desmodium laevigatum</i>	smooth ticktrefoil
Fabaceae	<i>Desmodium nuttallii</i>	Nuttall's ticktrefoil
Fabaceae	<i>Desmodium paniculatum</i>	panicked ticktrefoil
Fabaceae	<i>Desmodium perplexum</i>	perplexed tick-trefoil
Fabaceae	<i>Desmodium rotundifolium</i>	round-leaved trailing tick-trefoil
Fabaceae	<i>Gleditsia triacanthos</i>	honey locust
Fabaceae	<i>Hylodesmum nudiflorum</i>	naked-flowered tick-trefoil
Fabaceae	* <i>Kummerowia striata</i>	Japanese clover
Fabaceae	** <i>Lespedeza bicolor</i>	shrub lespedeza
Fabaceae	** <i>Lespedeza cuneata</i>	Chinese bushclover
Fabaceae	<i>Lespedeza hirta</i>	hairy lespedeza
Fabaceae	<i>Lespedeza procumbens</i>	trailing lespedeza
Fabaceae	<i>Lespedeza repens</i>	creeping lespedeza
Fabaceae	<i>Lespedeza stuevei</i>	tall bush-clover
Fabaceae	<i>Lespedeza violacea</i>	violet bush clover
Fabaceae	<i>Lespedeza virginica</i>	slender bush clover
Fabaceae	* <i>Melilotus albus</i>	white sweetclover
Fabaceae	* <i>Melilotus officinalis</i>	yellow sweetclover
Fabaceae	<i>Mimosa microphylla</i>	littleleaf sensitive-briar
Fabaceae	<i>Mimosa quadrivalvis</i>	fourvalve mimosa
Fabaceae	<i>Robinia pseudoacacia</i>	black locust
Fabaceae	** <i>Securigera varia</i>	purple crownvetch
Fabaceae	<i>Tephrosia virginiana</i>	goat's rue
Fabaceae	* <i>Trifolium campestre</i>	hop trefoil
Fabaceae	* <i>Trifolium pratense</i>	red clover
Fabaceae	* <i>Trifolium repens</i>	white clover
Fabaceae	<i>Vicia caroliniana</i>	carolina vetch
Fagaceae	<i>Castanea dentata</i>	American chestnut

Fagaceae	<i>Fagus grandifolia</i>	American beech
Fagaceae	<i>Quercus alba</i>	white oak
Fagaceae	<i>Quercus coccinea</i>	scarlet oak
Fagaceae	<i>Quercus falcata</i>	southern red oak
Fagaceae	<i>Quercus marilandica</i>	blackjack oak
Fagaceae	<i>Quercus montana</i>	chestnut oak
Fagaceae	<i>Quercus rubra</i>	northern red oak
Fagaceae	<i>Quercus stellata</i>	post oak
Fagaceae	<i>Quercus velutina</i>	black oak
Gentianaceae	<i>Gentiana villosa</i>	striped gentian
Gentianaceae	<i>Sabatia angularis</i>	rosepink
Geraniaceae	<i>Geranium carolinianum</i>	carolina crane's-bill
Geraniaceae	<i>Geranium maculatum</i>	wild geranium
Hamamelidaceae	<i>Hamamelis virginiana</i>	American witch-hazel
Hydrangeaceae	<i>Hydrangea arborescens</i>	wild hydrangea
Hypericaceae	<i>Hypericum gentianoides</i>	pineweed
Hypericaceae	<i>Hypericum mutilum</i>	dwarf St. John's wort
Hypericaceae	* <i>Hypericum perforatum</i>	common St. John's-wort
Hypericaceae	<i>Hypericum punctatum</i>	spotted St. John's wort
Hypericaceae	<i>Hypericum stragulum</i>	low St. John's wort
Hypericaceae	<i>Hypericum virgatum</i>	sharpleaf St. John's wort
Hypoxidaceae	<i>Hypoxis hirsuta</i>	yellow star grass
Iridaceae	<i>Iris cristata</i>	dwarf crested iris
Iridaceae	<i>Iris verna</i>	dwarf iris
Iridaceae	<i>Sisyrinchium angustifolium</i>	narrow-leaved blue-eyed grass
Iteaceae	<i>Itea virginica</i>	Virginia sweetspire
Juglandaceae	<i>Carya glabra</i>	pignut hickory
Juglandaceae	<i>Carya laciniosa</i>	shellbark hickory
Juglandaceae	<i>Carya pallida</i>	sand hickory
Juglandaceae	<i>Carya tomentosa</i>	mockernut
Juglandaceae	<i>Juglans nigra</i>	eastern black walnut
Juncaceae	<i>Juncus acuminatus</i>	tapered rush

Juncaceae	<i>Juncus antheratus</i>	greater poverty rush
Juncaceae	<i>Juncus canadensis</i>	Canada rush
Juncaceae	<i>Juncus debilis</i>	weak rush
Juncaceae	<i>Juncus dichotomus</i>	forked rush
Juncaceae	<i>Juncus dudleyi</i>	Dudley's rush
Juncaceae	<i>Juncus effusus</i>	soft rush
Juncaceae	<i>Juncus filipendulus</i>	ringseed rush
Juncaceae	<i>Juncus marginatus</i>	grass-leaved rush
Juncaceae	<i>Luzula echinata</i>	hedgehog woodrush
Lamiaceae	<i>Clinopodium vulgare</i>	wild basil
Lamiaceae	<i>Collinsonia canadensis</i>	citronella horse balm
Lamiaceae	<i>Hedeoma pulegioides</i>	American pennyroyal
Lamiaceae	<i>Lycopus virginicus</i>	sweet bugleweed
Lamiaceae	<i>Monarda fistulosa</i>	wild bergamot
Lamiaceae	* <i>Mosla dianthera</i>	miniature beefsteak-plant
Lamiaceae	** <i>Perilla frutescens</i>	beefsteak plant
Lamiaceae	* <i>Prunella vulgaris</i>	common selfheal
Lamiaceae	<i>Pycnanthemum loomisii</i>	Loomis' mountainmint
Lamiaceae	<i>Pycnanthemum muticum</i>	clustered mountainmint
Lamiaceae	<i>Pycnanthemum pycnanthemoides</i>	southern mountainmint
Lamiaceae	<i>Pycnanthemum tenuifolium</i>	narrowleaf mountainmint
Lamiaceae	<i>Scutellaria elliptica</i> var. <i>elliptica</i>	hairy skullcap
Lamiaceae	<i>Scutellaria elliptica</i> var. <i>hirsuta</i>	hairy skullcap
Lamiaceae	<i>Scutellaria integrifolia</i>	helmet skullcap
Lamiaceae	<i>Stachys nuttallii</i>	heartleaf hedgenettle
Lamiaceae	<i>Trichostema dichotomum</i>	blue curls
Lauraceae	<i>Sassafras albidum</i>	sassafras
Liliaceae	<i>Clintonia umbellulata</i>	white clintonia
Liliaceae	<i>Medeola virginiana</i>	cucumber root
Liliaceae	<i>Prosartes lanuginosa</i>	yellow fairybells
Liliaceae	<i>Prosartes maculata</i>	spotted mandarin
Linaceae	<i>Linum medium</i> var. <i>texanum</i>	Texas stiff yellow flax

Linaceae	<i>Linum striatum</i>	ridged yellow flax
Linaceae	<i>Linum virginianum</i>	Virginia flax
Loganiaceae	<i>Spigelia marilandica</i>	indian pink
Lycopodiaceae	<i>Diplazium digitatum</i>	fan clubmoss
Lycopodiaceae	<i>Huperzia lucidula</i>	shining firmoss
Lygodiaceae	<i>Lygodium palmatum</i>	Hartford fern
Magnoliaceae	<i>Liriodendron tulipifera</i>	tulip tree
Magnoliaceae	<i>Magnolia acuminata</i>	cucumber-tree
Magnoliaceae	<i>Magnolia macrophylla</i>	bigleaf magnolia
Magnoliaceae	<i>Magnolia tripetala</i>	umbrella magnolia
Malvaceae	* <i>Sida spinosa</i>	prickly fanpetals
Malvaceae	<i>Tilia americana</i>	basswood
Melanthiaceae	<i>Stenanthium gramineum</i>	featherbells
Melanthiaceae	<i>Trillium luteum</i>	yellow wakerobin
Melastomataceae	<i>Rhexia mariana</i>	Maryland meadowbeauty
Melastomataceae	<i>Rhexia virginica</i>	Virginia meadowbeauty
Moraceae	<i>Morus rubra</i>	red mulberry
Nartheciaceae	<i>Aletris farinosa</i>	white-tubed colicroot
Nyssaceae	<i>Nyssa sylvatica</i>	black tupelo
Oleaceae	<i>Fraxinus pennsylvanica</i>	green ash
Oleaceae	** <i>Ligustrum sinense</i>	Chinese privet
Onagraceae	<i>Circaea canadensis</i>	broadleaf enchanter's nightshade
Onagraceae	<i>Ludwigia alternifolia</i>	seedbox
Onagraceae	<i>Oenothera biennis</i>	common evening-primrose
Onagraceae	<i>Oenothera villosa</i>	hairy evening primrose
Onocleaceae	<i>Onoclea sensibilis</i>	sensitive fern
Ophioglossaceae	<i>Botrypus virginianus</i>	rattlesnake fern
Orchidaceae	<i>Corallorhiza odontorhiza</i>	cleistogamous autumn coralroot
Orchidaceae	<i>Cypripedium acaule</i>	pink lady's slipper
Orchidaceae	<i>Goodyera pubescens</i>	downy rattlesnake plantain
Orchidaceae	<i>Platanthera clavellata</i>	small green wood orchid
Orchidaceae	<i>Spiranthes vernalis</i>	spring ladies' tresses

Orchidaceae	<i>Tipularia discolor</i>	crane-fly orchid
Orobanchaceae	<i>Agalinis purpurea</i>	purple false foxglove
Orobanchaceae	<i>Agalinis tenuifolia</i>	slender false foxglove
Orobanchaceae	<i>Aureolaria virginica</i>	downy yellow false foxglove
Orobanchaceae	<i>Conopholis americana</i>	American cancer-root
Osmundaceae	<i>Osmunda spectabilis</i>	American royal fern
Osmundaceae	<i>Osmundastrum cinnamomeum</i>	cinnamon fern
Oxalidaceae	<i>Oxalis dillenii</i>	slender yellow woodsorrel
Oxalidaceae	<i>Oxalis stricta</i>	upright yellow woodsorrel
Oxalidaceae	<i>Oxalis violacea</i>	violet woodsorrel
Papaveraceae	<i>Sanguinaria canadensis</i>	bloodroot
Passifloraceae	<i>Passiflora lutea</i>	yellow passionflower
Paulowniaceae	<i>Paulownia tomentosa</i>	princess tree
Penthoraceae	<i>Penthorum sedoides</i>	ditch stonecrop
Phrymaceae	<i>Mimulus ringens</i>	Allegheny monkeyflower
Phrymaceae	<i>Phryma leptostachya</i>	American lopseed
Phytolaccaceae	<i>Phytolacca americana</i>	American pokeweed
Pinaceae	<i>Pinus echinata</i>	shortleaf pine
Pinaceae	<i>Pinus strobus</i>	eastern white pine
Pinaceae	<i>Pinus virginiana</i>	Virginia pine
Pinaceae	<i>Tsuga canadensis</i>	eastern hemlock
Plantaginaceae	<i>Chelone glabra</i>	white turtlehead
Plantaginaceae	<i>Gratiola virginiana</i>	Virginia hedge-hyssop
Plantaginaceae	<i>Penstemon brevisepalus</i>	short-sepaled beardtongue
Plantaginaceae	<i>Penstemon canescens</i>	eastern gray beardtongue
Plantaginaceae	<i>Plantago aristata</i>	bracted plantain
Plantaginaceae	* <i>Plantago lanceolata</i>	ribwort plantain
Plantaginaceae	<i>Plantago rugelii</i>	American plantain
Plantaginaceae	* <i>Veronica arvensis</i>	corn speedwell
Plantaginaceae	* <i>Veronica officinalis</i>	heath speedwell
Plantaginaceae	<i>Veronica peregrina</i>	purslane speedwell
Platanaceae	<i>Platanus occidentalis</i>	American sycamore

Poaceae	<i>*Agrostis gigantea</i>	redtop
Poaceae	<i>Agrostis perennans</i>	perennial bentgrass
Poaceae	<i>Andropogon gerardi</i>	big bluestem
Poaceae	<i>Andropogon virginicus</i>	broomsedge bluestem
Poaceae	<i>*Anthoxanthum odoratum</i>	sweet vernal grass
Poaceae	<i>Aristida dichotoma</i>	churchmouse three-awn
Poaceae	<i>**Arthraxon hispidus</i>	small carpetgrass
Poaceae	<i>Avenella flexuosa</i>	wavy hair-grass
Poaceae	<i>Brachyelytrum erectum</i>	long-awned wood grass
Poaceae	<i>*Bromus commutatus</i>	meadow brome
Poaceae	<i>*Bromus hordeaceus</i>	common soft brome
Poaceae	<i>**Bromus inermis</i>	smooth brome
Poaceae	<i>*Bromus japonicus</i>	Japanese brome
Poaceae	<i>Bromus pubescens</i>	hairy woodland brome
Poaceae	<i>Calamagrostis porteri ssp. porteri</i>	Porter's reedgrass
Poaceae	<i>Chasmanthium laxum</i>	slender spikegrass
Poaceae	<i>Cinna arundinacea</i>	stout wood reed
Poaceae	<i>*Dactylis glomerata</i>	orchard grass
Poaceae	<i>Danthonia sericea</i>	silky oat-grass
Poaceae	<i>Danthonia spicata</i>	poverty oatgrass
Poaceae	<i>Dichantherium acuminatum</i>	hairy rosette-panicgrass
Poaceae	<i>Dichantherium boscii</i>	Bosc's witchgrass
Poaceae	<i>Dichantherium clandestinum</i>	deertongue
Poaceae	<i>Dichantherium commutatum ssp. ashei</i>	Ashe's witchgrass
Poaceae	<i>Dichantherium commutatum ssp. commutatum</i>	variable witchgrass
Poaceae	<i>Dichantherium depauperatum</i>	starved witchgrass
Poaceae	<i>Dichantherium latifolium</i>	broad-leaved panic grass
Poaceae	<i>Dichantherium laxiflorum</i>	open-flower witchgrass
Poaceae	<i>Dichantherium microcarpon</i>	small-fruited witchgrass
Poaceae	<i>Dichantherium polyanthes</i>	roundseed panicgrass

Poaceae	<i>Dichantherium sphaerocarpon</i>	round-fruited rosette-panicgrass
Poaceae	<i>Dichantherium villosissimum</i>	white-hair witchgrass
Poaceae	<i>Digitaria ciliaris</i>	tropical finger-grass
Poaceae	* <i>Digitaria ischaemum</i>	smooth crabgrass
Poaceae	<i>Echinochloa sp.</i>	barnyard grass
Poaceae	* <i>Eleusine indica</i>	goose grass
Poaceae	* <i>Festuca myuros</i>	rattail sixweeks grass
Poaceae	<i>Greeneochloa coarctata</i>	nuttall's reedgrass
Poaceae	* <i>Holcus lanatus</i>	Yorkshire fog
Poaceae	<i>Kelloggchloa verrucosa</i>	warty panic grass
Poaceae	<i>Leersia oryzoides</i>	rice cutgrass
Poaceae	<i>Leersia virginica</i>	white grass
Poaceae	** <i>Lolium arundinaceum</i>	tall fescue
Poaceae	* <i>Lolium perenne</i>	perennial ryegrass
Poaceae	** <i>Microstegium vimineum</i>	Japanese stiltgrass
Poaceae	<i>Panicum capillare</i>	witch grass
Poaceae	<i>Panicum dichotomiflorum</i>	smooth witchgrass
Poaceae	<i>Panicum flexile</i>	wiry witch grass
Poaceae	* <i>Paspalum dilatatum</i>	dallis grass
Poaceae	<i>Paspalum laeve</i>	field paspalum
Poaceae	* <i>Phleum pratense</i>	timothy grass
Poaceae	<i>Piptochaetium avenaceum</i>	blackseed needlegrass
Poaceae	* <i>Poa pratensis</i>	smooth meadow-grass
Poaceae	<i>Schizachyrium scoparium</i>	little bluestem
Poaceae	* <i>Setaria faberi</i>	giant foxtail
Poaceae	<i>Setaria parviflora</i>	knotroot bristlegrass
Poaceae	* <i>Setaria pumila</i>	yellow foxtail
Poaceae	* <i>Setaria viridis</i>	green bristle grass
Poaceae	<i>Sorghastrum nutans</i>	indiangrass
Poaceae	<i>Sphenopholis intermedia</i>	slender wedgescale
Poaceae	<i>Sporobolus vaginiflorus</i>	poverty dropseed
Poaceae	<i>Tridens flavus</i>	purpletop tridens

Polemoniaceae	<i>Phlox divaricata</i>	blue phlox
Polemoniaceae	<i>Phlox glaberrima</i>	smooth phlox
Polygalaceae	<i>Polygala ambigua</i>	ambiguous whorled milkwort
Polygalaceae	<i>Polygala curtissii</i>	curtiss's milkwort
Polygalaceae	<i>Polygala sanguinea</i>	field milkwort
Polygalaceae	<i>Polygala senega latifolia</i>	seneca snakeroot
Polygalaceae	<i>Polygala verticillata</i>	whorled milkwort
Polygonaceae	<i>Persicaria lapathifolia</i>	pale smartweed
Polygonaceae	* <i>Persicaria longiseta</i>	low smartweed
Polygonaceae	* <i>Persicaria maculosa</i>	spotted lady's thumb
Polygonaceae	<i>Persicaria pensylvanica</i>	pinkweed
Polygonaceae	<i>Persicaria sagittata</i>	arrow-leaved tearthumb
Polygonaceae	<i>Persicaria virginiana</i>	american jumpseed
Polygonaceae	* <i>Polygonum aviculare</i>	prostrate knotweed
Polygonaceae	* <i>Rumex acetosella</i>	sheep's sorrel
Polygonaceae	* <i>Rumex crispus</i>	curled dock
Polypodiaceae	<i>Pleopeltis michauxiana</i>	resurrection fern
Polypodiaceae	<i>Polypodium appalachianum</i>	Appalachian rockcap fern
Polypodiaceae	<i>Polypodium virginianum</i>	rock polypody
Potamogetonaceae	<i>Potamogeton diversifolius</i>	diverse-leaved pondweed
Potamogetonaceae	<i>Potamogeton nodosus</i>	longleaf pondweed
Primulaceae	<i>Lysimachia lanceolata</i>	lanceleaf loosestrife
Primulaceae	* <i>Lysimachia nummularia</i>	creeping jenny
Primulaceae	<i>Lysimachia quadrifolia</i>	whorled loosestrife
Primulaceae	<i>Lysimachia tonsa</i>	southern yellow loosestrife
Pteridaceae	<i>Adiantum pedatum</i>	northern maidenhair fern
Ranunculaceae	<i>Actaea pachypoda</i>	white baneberry
Ranunculaceae	<i>Anemone virginiana</i>	tall thimbleweed
Ranunculaceae	<i>Clematis catesbyana</i>	coastal virgin's-bower
Ranunculaceae	** <i>Clematis terniflora</i>	autumn clematis
Ranunculaceae	<i>Clematis virginiana</i>	virgin's-bower
Ranunculaceae	<i>Ranunculus recurvatus</i>	hooked buttercup

Ranunculaceae	<i>*Ranunculus sardous</i>	hairy buttercup
Ranunculaceae	<i>Thalictrum dioicum</i>	early meadow-rue
Ranunculaceae	<i>Thalictrum thalictroides</i>	rue anemone
Ranunculaceae	<i>Trautvetteria caroliniensis</i>	Carolina bugbane
Ranunculaceae	<i>Xanthorhiza simplicissima</i>	shrub yellowroot
Rhamnaceae	<i>Ceanothus americanus</i>	New Jersey tea
Rosaceae	<i>Agrimonia parviflora</i>	swamp agrimony
Rosaceae	<i>Agrimonia pubescens</i>	downy agrimony
Rosaceae	<i>Amelanchier arborea</i>	common serviceberry
Rosaceae	<i>Amelanchier laevis</i>	smooth shadbush
Rosaceae	<i>Aronia arbutifolia</i>	red chokeberry
Rosaceae	<i>Aruncus dioicus</i>	goatsbeard
Rosaceae	<i>Crataegus intricata</i>	Copenhagen hawthorn
Rosaceae	<i>Fragaria virginiana</i>	Virginia strawberry
Rosaceae	<i>Geum canadense</i>	white avens
Rosaceae	<i>Geum virginianum</i>	cream avens
Rosaceae	<i>Gillenia trifoliata</i>	bowman's root
Rosaceae	<i>Malus angustifolia</i>	southern crabapple
Rosaceae	<i>Malus coronaria</i>	sweet crabapple
Rosaceae	<i>Potentilla canadensis</i>	dwarf cinquefoil
Rosaceae	<i>Potentilla norvegica</i>	rough cinquefoil
Rosaceae	<i>*Potentilla recta</i>	sulphur cinquefoil
Rosaceae	<i>Potentilla simplex</i>	common cinquefoil
Rosaceae	<i>Prunus americana</i>	American plum
Rosaceae	<i>Prunus serotina</i>	black cherry
Rosaceae	<i>**Pyrus calleryana</i>	callery pear
Rosaceae	<i>**Rosa multiflora</i>	multiflora rose
Rosaceae	<i>Rubus allegheniensis</i>	Allegheny blackberry
Rosaceae	<i>Rubus flagellaris</i>	common dewberry
Rosaceae	<i>Rubus occidentalis</i>	black raspberry
Rosaceae	<i>Rubus pascuus</i>	Chesapeake blackberry
Rosaceae	<i>Rubus pensilvanicus</i>	Pennsylvania blackberry

Rosaceae	<i>Rubus steelei</i>	Steele's dewberry
Rosaceae	<i>Spiraea tomentosa</i>	steeplebush
Rubiaceae	* <i>Cruciata pedemontana</i>	Piedmont bedstraw
Rubiaceae	<i>Galium circaezans</i>	licorice bedstraw
Rubiaceae	<i>Galium lanceolatum</i>	Torrey's wild licorice
Rubiaceae	<i>Galium pilosum</i>	hairy bedstraw
Rubiaceae	<i>Galium tinctorium</i>	stiff marsh bedstraw
Rubiaceae	<i>Galium triflorum</i>	fragrant bedstraw
Rubiaceae	<i>Hexasepalum teres</i>	rough buttonweed
Rubiaceae	<i>Houstonia caerulea</i>	azure bluet
Rubiaceae	<i>Houstonia longifolia</i>	long-leaved bluets
Rubiaceae	<i>Houstonia purpurea</i>	summer bluet
Rubiaceae	<i>Mitchella repens</i>	partridgeberry
Rubiaceae	* <i>Sherardia arvensis</i>	field madder
Salicaceae	<i>Populus deltoides</i>	eastern cottonwood
Salicaceae	<i>Salix nigra</i>	black willow
Santalaceae	<i>Pyrolaria pubera</i>	buffalo-nut
Sapindaceae	<i>Acer rubrum</i>	red maple
Sapindaceae	<i>Acer saccharum</i>	sugar maple
Saxifragaceae	<i>Heuchera americana</i>	American alumroot
Saxifragaceae	<i>Heuchera parviflora</i>	small-flowered alumroot
Saxifragaceae	<i>Heuchera villosa</i>	hairy alumroot
Saxifragaceae	<i>Tiarella wherryi</i>	Wherry's foamflower
Scrophulariaceae	* <i>Verbascum thapsus</i>	great mullein
Selaginellaceae	<i>Selaginella apoda</i>	meadow spikemoss
Simaroubaceae	** <i>Ailanthus altissima</i>	tree-of-heaven
Smilacaceae	<i>Smilax bona-nox</i>	saw greenbrier
Smilacaceae	<i>Smilax ecirrhata</i>	upright carrion flower
Smilacaceae	<i>Smilax glauca</i>	sawbrier
Smilacaceae	<i>Smilax hispida</i>	bristly greenbrier
Smilacaceae	<i>Smilax rotundifolia</i>	roundleaf greenbrier
Solanaceae	<i>Physalis longifolia</i>	long-leaved groundcherry

Solanaceae	<i>Solanum carolinense</i>	Carolina horsenettle
Theaceae	<i>Stewartia ovata</i>	mountain camellia
Thelypteridaceae	<i>Amauropelta noveboracensis</i>	New York fern
Thelypteridaceae	<i>Phegopteris hexagonoptera</i>	broad beech fern
Typhaceae	<i>Sparganium americanum</i>	American bur-reed
Typhaceae	<i>Typha latifolia</i>	broadleaf cattail
Ulmaceae	<i>Ulmus alata</i>	winged elm
Ulmaceae	<i>Ulmus rubra</i>	slippery elm
Urticaceae	<i>Laportea canadensis</i>	wood nettle
Verbenaceae	<i>Verbena simplex</i>	narrowleaf vervain
Viburnaceae	<i>Sambucus canadensis</i>	American black elderberry
Viburnaceae	<i>Viburnum acerifolium</i>	mapleleaf viburnum
Violaceae	<i>Hybanthus concolor</i>	eastern green violet
Violaceae	<i>Viola blanda</i>	sweet white violet
Violaceae	<i>Viola hastata</i>	halberd-leaved violet
Violaceae	<i>Viola hirsutula</i>	southern wood violet
Violaceae	<i>Viola lanceolata</i>	white bog violet
Violaceae	<i>Viola palmata</i>	palm violet
Violaceae	<i>Viola pedata</i>	bird's foot violet
Violaceae	<i>Viola primulifolia</i>	primrose-leaved violet
Violaceae	<i>Viola rostrata</i>	long-spurred violet
Violaceae	<i>Viola rotundifolia</i>	round-leaved violet
Violaceae	<i>Viola sagittata</i>	arrowleaf violet
Violaceae	<i>Viola sororia</i>	common blue violet
Violaceae	<i>Viola subsinuata</i>	wavy-leaved violet
Vitaceae	<i>Parthenocissus quinquefolia</i>	Virginia creeper
Vitaceae	<i>Vitis aestivalis</i> var. <i>aestivalis</i>	summer grape
Vitaceae	<i>Vitis aestivalis</i> var. <i>bicolor</i>	summer grape
Vitaceae	<i>Vitis labrusca</i>	fox grape
Vitaceae	<i>Vitis rotundifolia</i>	muscadine
Vitaceae	<i>Vitis vulpina</i>	frost grape

APPENDIX I: List of Non-Vascular Plant Species Found

Mosses

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Atrichum</i> sp.	smoothcap moss	Polytrichaceae
<i>Bryoandersonia illecebra</i>	spoon-leaved moss	Brachytheciaceae
<i>Dicranum scoparium</i>	broom forkmoss	Dicranaceae
<i>Entodon seductrix</i>	seductive entodon moss	Entodontaceae
<i>Hedwigia ciliata</i>	ciliate hoarmoss	Hedwigiaceae
<i>Leucobryum albidum</i>	white moss	Leucobryaceae
<i>Leucobryum glaucum</i>	pincushion moss	Leucobryaceae
<i>Leucodon julaceus</i>	smooth hook moss	Leucodontaceae
<i>Mnium hornum</i>	horn calcareous moss	Mniaceae
<i>Plagiomnium ciliare</i>	wavy-leaf moss	Mniaceae
<i>Polytrichastrum</i> sp.	haircap moss	Polytrichaceae
<i>Polytrichum commune</i>	common haircap moss	Polytrichaceae
<i>Sphagnum</i> sp.	sphagnum moss	Sphagnaceae
<i>Thuidium delicatulum</i>	delicate fern moss	Thuidiaceae

Liverworts

<u>Scientific name</u>	<u>Common name</u>	<u>Family</u>
<i>Bazzania trilobata</i>	greater whipwort	Lepidoziaceae
<i>Frullania</i> sp.	scalewort	Frullaniaceae
<i>Leucolejeunea</i> sp.	leafy liverwort	Lejeuneaceae
<i>Pallavicinia lyellii</i>	ribbonwort	Pallaviciniaceae
<i>Scapania nemorea</i>	grove earwort	Scapaniaceae

APPENDIX J: List of Fungus Species Found (including lichens and slime mold)

<u>Scientific name</u>	<u>Common name</u>
<i>Allodus podophylli</i>	mayapple rust
<i>Amanita amerirubescens</i>	yellow American blusher
<i>Amanita bisporigera</i>	Eastern North American destroying angel
<i>Amanita farinosa</i>	American floury amanita
<i>Amanita parcivolvata</i>	false Caesar's mushroom
<i>Apioperdon pyriforme</i>	pear-shaped puffball
<i>Armillaria mellea</i>	honey mushroom
<i>Artomyces pyxidatus</i>	crown-tipped coral fungus
<i>Aspicilia</i> sp.	sunken disk lichen
<i>Austroboletus gracilis</i>	graceful bolete
<i>Boletus</i> sp.	porcini
<i>Bondarzewia berkeleyi</i>	Berkeley's polypore
<i>Buellia</i> sp.	button lichen
<i>Calostoma ravenelii</i>	calostoma
<i>Candelaria concolor</i>	candleflame lichen
<i>Candolleomyces candolleanus</i>	pale brittlestem
<i>Cantharellus cinnabarinus</i>	red chanterelle
<i>Cerioporus leptcephalus</i>	blackfoot polypore
<i>Cerioporus varius</i>	elegant polypore
<i>Chlorociboria aeruginascens</i>	green wood cup
<i>Chlorophyllum brunneum</i>	shaggy parasol
<i>Chlorophyllum molybdites</i>	green-spored parasol
<i>Circinaria caesiocinerea</i>	common lichen
<i>Cladonia chlorophaea</i>	mealy pixie cup
<i>Cladonia coniocraea</i>	common powderhorn
<i>Cladonia cristatella</i>	british soldier lichen
<i>Cladonia furcata</i>	many-forked cladonia
<i>Cladonia peziziformis</i>	turban cup lichen
<i>Cladonia rangiferina</i>	gray reindeer lichen

<i>Cladonia squamosa</i>	dragon horn
<i>Cladonia subtenuis</i>	dixie reindeer lichen
<i>Clavariadelphus sp.</i>	club fungus
<i>Clavulina coralloides</i>	white coral fungus
<i>Clavulinopsis sp.</i>	club fungus
<i>Collybiopsis sp.</i>	parachute
<i>Cortinarius iodes</i>	viscid violet cort
<i>Craterellus ignicolor</i>	flame chanterelle
<i>Cryphonectria parasitica</i>	chestnut blight
<i>Dacrymyces spathularia</i>	fan-shaped jelly fungus
<i>Dibaeis baeomyces</i>	pink earth lichen
<i>Entoloma quadratum</i>	salmon pinkgill
<i>Flavoparmelia baltimorensis</i>	rock greenshield lichen
<i>Flavoparmelia caperata</i>	common greenshield lichen
<i>Galiella rufa</i>	hairy rubber cup
<i>Ganoderma curtisii</i>	golden reishi
<i>Gymnopus dryophilus</i>	oak-loving gymnopus
<i>Helvella macropus</i>	felt saddle fungus
<i>Hemileccinum hortonii</i>	corrugated bolete
<i>Hemimycena sp.</i>	bonnet
<i>Hericium erinaceus</i>	lion's-mane mushroom
<i>Heterodermia hypoleuca</i>	cupped fringe lichen
<i>Humidicutis marginata</i>	orange gilled waxcap
<i>Hygrocybe cantharellus</i>	goblet waxcap
<i>Hygrocybe coccinea</i>	scarlet waxy cap
<i>Hypholoma fasciculare</i>	sulphur tuft
<i>Hypotrachyna horrescens</i>	loop lichen
<i>Laccaria sp.</i>	Laccaria
<i>Lactarius sp.</i>	common milkcap
<i>Lactifluus glaucescens</i>	milk cap
<i>Lactifluus volemus</i>	weeping milk cap
<i>Laetiporus cincinnatus</i>	white-pored chicken of the woods

<i>Laetiporus sulphureus</i>	chicken of the woods
<i>Lecanora</i> sp.	rim lichen
<i>Leotia lubrica</i>	ochre jelly club
<i>Lepra pustulata</i>	pustule crust lichen
<i>Lycogala epidendrum</i>	wolf's milk
<i>Lycoperdon pulcherrimum</i>	long-spined puffball
<i>Marasmiellus candidus</i>	fairy parachutes
<i>Marasmius fulvoferrugineus</i>	pinwheel mushroom
<i>Megacollybia rodmanii</i>	eastern american platterful mushroom
<i>Mycena</i> sp.	bonnet
<i>Omphalotus illudens</i>	eastern american jack-o'-lantern
<i>Oudemansiella furfuracea</i>	beech rooter
<i>Panaeolus papilionaceus</i>	petticoat mottlegill
<i>Parmelia</i> sp.	shield lichen
<i>Parmotrema hypotropum</i>	powdered ruffle lichen
<i>Parmotrema reticulatum</i>	black sheet lichen
<i>Peltigera</i> sp.	pelt lichen
<i>Pertusaria</i> sp.	pore lichen
<i>Phaeophyscia decolor</i>	starburst shadow lichen
<i>Phaeophyscia rubropulchra</i>	orange-cored shadow lichen
<i>Phellinus</i> sp.	bracket fungus
<i>Physcia phaea</i>	black-eyed rosette lichen
<i>Pleurotus ostreatus</i>	oyster mushroom
<i>Psathyrella</i> sp.	brittlestem
<i>Punctelia</i> sp.	speckled shield lichen
<i>Ramaria</i> sp.	coral fungus
<i>Ramariopsis kunzei</i>	white coral fungus
<i>Retiboletus ornatipes</i>	ornate-stalked bolete
<i>Rhodofomes cajanderi</i>	rosy conk
<i>Ropalospora viridis</i>	common lichen
<i>Russula</i> sp.	brittle gills
<i>Scleroderma citrinum</i>	common earthball

<i>Stereum complicatum</i>	crowded parchment
<i>Stereum ostrea</i>	false turkey-tail
<i>Strobilomyces strobilaceus</i>	old-man-of-the-woods
<i>Suillus spraguei</i>	painted suillus
<i>Tetrapyrgos nigripes</i>	black-stalked marasmius
<i>Thelephora</i> sp.	Earthfan
<i>Tolypocladium ophioglossoides</i>	snaketongue truffleclub
<i>Trametes betulina</i>	gilled polypore
<i>Trametes cinnabarina</i>	northern cinnabar polypore
<i>Trametes cubensis</i>	polypore
<i>Trametes versicolor</i>	turkey-tail
<i>Tremella</i> sp.	jelly fungus
<i>Trichaptum biforme</i>	violet-toothed polypore
<i>Tyromyces chioneus</i>	white cheese polypore
<i>Umbilicaria mammulata</i>	smooth rock tripe
<i>Usnea rubicunda</i>	red beard lichen
<i>Usnea strigosa</i>	bushy beard lichen

APPENDIX K: List of Animal Species Found

Fish

Scientific name

Micropterus salmoides

Common name

largemouth bass

Amphibians

Scientific name

Acris crepitans

Common name

northern cricket frog

Anaxyrus americanus

American toad

Anaxyrus fowleri

Fowler's toad

Desmognathus sp.

dusky salamander

Gastrophryne carolinensis

eastern narrow-mouthed toad

Gyrinophilus porphyriticus

spring salamander

Hyla chrysoscelis

Cope's gray treefrog

Lithobates catesbeianus

American bullfrog

Lithobates clamitans

green frog

Lithobates palustris

pickerel frog

Notophthalmus viridescens

eastern newt

Pseudacris crucifer

spring peeper

Pseudotriton ruber

red salamander

Reptiles

Scientific name

Agkistrodon contortrix

Common name

eastern copperhead

Carphophis amoenus

eastern worm snake

Chelydra serpentina

common snapping turtle

Chrysemys picta

painted turtle

Coluber constrictor

North American racer

Crotalus horridus

timber rattlesnake

Diadophis punctatus

ring-necked snake

<i>Heterodon platirhinos</i>	eastern hognose snake
<i>Pantherophis guttatus</i>	corn snake
<i>Pantherophis spiloides</i>	gray ratsnake
<i>Plestiodon fasciatus</i>	common five-lined skink
<i>Sceloporus undulatus</i>	eastern fence lizard
<i>Storeria occipitomaculata</i>	red-bellied snake
<i>Trachemys scripta</i>	pond slider

Birds

<u>Scientific name</u>	<u>Common name</u>
<i>Accipiter cooperii</i>	Cooper's hawk
<i>Agelaius phoeniceus</i>	red-winged blackbird
<i>Aix sponsa</i>	wood duck
<i>Ammodramus savannarum</i>	grasshopper sparrow
<i>Archilochus colubris</i>	ruby-throated hummingbird
<i>Ardea herodias</i>	great blue heron
<i>Baeolophus bicolor</i>	tufted titmouse
<i>Branta canadensis</i>	Canada goose
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Buteo lineatus</i>	red-shouldered hawk
<i>Buteo platypterus</i>	broad-winged hawk
<i>Cardinalis cardinalis</i>	northern cardinal
<i>Cathartes aura</i>	turkey vulture
<i>Charadrius vociferus</i>	killdeer
<i>Circus hudsonius</i>	northern harrier
<i>Coccyzus americanus</i>	yellow-billed cuckoo
<i>Colaptes auratus</i>	northern flicker
<i>Colinus virginianus</i>	northern bobwhite
<i>Contopus virens</i>	eastern wood-pewee
<i>Corvus brachyrhynchos</i>	American crow
<i>Cyanocitta cristata</i>	blue jay

<i>Dolichonyx oryzivorus</i>	bobolink
<i>Dryobates villosus</i>	hairy woodpecker
<i>Dryocopus pileatus</i>	pileated woodpecker
<i>Empidonax virescens</i>	Acadian flycatcher
<i>Falco sparverius</i>	American kestrel
<i>Haemorhous mexicanus</i>	house finch
<i>Hirundo rustica</i>	barn swallow
<i>Hylocichla mustelina</i>	wood thrush
<i>Icteria virens</i>	yellow-breasted chat
<i>Icterus spurius</i>	orchard oriole
<i>Lanius ludovicianus</i>	loggerhead shrike
<i>Melanerpes carolinus</i>	red-bellied woodpecker
<i>Melanerpes erythrocephalus</i>	red-headed woodpecker
<i>Meleagris gallopavo</i>	wild turkey
<i>Melospiza melodia</i>	song sparrow
<i>Mimus polyglottos</i>	northern mockingbird
<i>Mniotilta varia</i>	black-and-white warbler
<i>Molothrus ater</i>	brown-headed cowbird
<i>Myiarchus crinitus</i>	great crested flycatcher
<i>Pandion haliaetus</i>	osprey
<i>Passerculus sandwichensis</i>	savannah sparrow
<i>Passerina caerulea</i>	blue grosbeak
<i>Passerina cyanea</i>	indigo bunting
<i>Phalacrocorax auritus</i>	double-crested cormorant
<i>Pheucticus ludovicianus</i>	rose-breasted grosbeak
<i>Pipilo erythrophthalmus</i>	eastern towhee
<i>Piranga olivacea</i>	scarlet tanager
<i>Piranga rubra</i>	summer tanager
<i>Poecile carolinensis</i>	Carolina chickadee
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<i>Sayornis phoebe</i>	eastern phoebe
<i>Seiurus aurocapilla</i>	ovenbird

<i>Setophaga americana</i>	northern parula
<i>Setophaga citrina</i>	hooded warbler
<i>Setophaga discolor</i>	prairie warbler
<i>Setophaga dominica</i>	yellow-throated warbler
<i>Setophaga fusca</i>	Blackburnian warbler
<i>Setophaga ruticilla</i>	American redstart
<i>Setophaga striata</i>	blackpoll warbler
<i>Setophaga virens</i>	black-throated green warbler
<i>Sialia sialis</i>	eastern bluebird
<i>Sitta carolinensis</i>	white-breasted nuthatch
<i>Spinus tristis</i>	American goldfinch
<i>Spiza americana</i>	dickcissel
<i>Spizella passerina</i>	chipping sparrow
<i>Spizella pusilla</i>	field sparrow
<i>Sturnella magna</i>	eastern meadowlark
<i>Sturnus vulgaris</i>	European starling
<i>Thryothorus ludovicianus</i>	Carolina wren
<i>Toxostoma rufum</i>	brown thrasher
<i>Tringa flavipes</i>	lesser yellowlegs
<i>Tyrannus tyrannus</i>	eastern kingbird
<i>Vireo olivaceus</i>	red-eyed vireo
<i>Vireo solitarius</i>	blue-headed vireo
<i>Zenaidura macroura</i>	mourning dove

Mammals

<u>Scientific name</u>	<u>Common name</u>
<i>Canis latrans</i>	coyote
<i>Castor canadensis</i>	American beaver
<i>Felis catus</i>	domestic cat
<i>Mephitinae</i>	true skunks
<i>Odocoileus virginianus</i>	white-tailed deer

Sylvilagus floridanus

eastern cottontail

Snails & Slugs

Scientific name

Philomycus carolinianus

Philomycus togatus

Polygyridae sp.

Common name

Carolina mantleslug

toga mantleslug

polygyrid snail

Centipedes & Millipedes

Scientific name

Abacion sp.

Apheloria montana

Hemiscolopendra marginata

Narceus americanus

Pseudopolydesmus sp.

Common name

crested millipede

cherry millipede

eastern bark centipede

American giant millipede

flat-backed millipede

Arachnids

Scientific name

Amblyomma americanum

Argiope aurantia

Bassaniana versicolor

Coras sp.

Cyclosa conica

Dolomedes triton

Dolomedes vittatus

Hibana sp.

Latrodectus sp.

Leiobunum ventricosum

Leiobunum vittatum

Lycosidae sp.

Naphrys pulex

Common name

lone star tick

yellow garden spider

multicolored bark crab spider

funnel weaver

conical trashline orbweaver

six-spotted fishing spider

banded fishing spider

ghost spider

widow spider

early-season harvestman

eastern harvestman

wolf spider

flea jumping spider

<i>Phidippus audax</i>	bold jumping spider
<i>Phidippus putnami</i>	Putnam's jumping spider
Thomisidae sp.	crab spider
<i>Vaejovis carolinianus</i>	southern devil scorpion
<i>Verrucosa arenata</i>	arrowhead orbweaver
<i>Xysticus</i> sp.	ground crab spider

Insects

Cockroaches

<u>Scientific name</u>	<u>Common name</u>
<i>Blatta orientalis</i>	Oriental cockroach
<i>Cryptocercus darwini</i>	brown-headed cockroach

Beetles

<u>Scientific name</u>	<u>Common name</u>
<i>Acmaeodera pulchella</i>	flat-headed baldcypress sapwood beetle
<i>Aegomorphus modestus</i>	flat-faced longhorn beetle
<i>Aleochara</i> sp.	rove beetle
<i>Anotylus</i> sp.	rove beetle
Aphodiinae sp.	small dung beetle
<i>Arrhenodes minutus</i>	oak timberworm weevil
Bolboceratinae sp.	Earth-boring scarab beetle
<i>Carpelimus</i> sp.	rove beetle
<i>Cerotoma trifurcata</i>	bean leaf beetle
<i>Chauliognathus pensylvanicus</i>	goldenrod soldier beetle
<i>Chrysochus auratus</i>	dogbane leaf beetle
<i>Cicindela punctulata</i>	punctured tiger beetle
<i>Cicindela sexguttata</i>	six-spotted tiger beetle
<i>Coccinella septempunctata</i>	seven-spotted lady beetle
<i>Colaspis brunnea</i>	grape colaspis
<i>Cotinis nitida</i>	common green june beetle

<i>Cryptocephalini</i> sp.	case-bearing leaf beetle
<i>Curculio</i> sp.	nut and acorn weevil
<i>Cycloneda</i> sp.	spotless lady beetle
<i>Dircaea liturata</i>	false darkling beetle
<i>Ellychnia corrusca</i>	winter firefly
<i>Epicauta</i> sp.	burning blister beetle
<i>Euphoria sepulcralis</i>	dark flower scarab
<i>Euspilotus</i> sp.	hister beetle
<i>Galerita</i> sp.	false bombardier beetle
<i>Ophraella</i> sp.	skeletonizing leaf beetle
<i>Harmonia axyridis</i>	Asian lady beetle
<i>Harpalus pensylvanicus</i>	Pennsylvania dingy ground beetle
Hydrophilidae sp.	water scavenger beetle
<i>Jonthonota nigripes</i>	blacklegged tortoise beetle
<i>Lepturges confluens</i>	flat-faced longhorn beetle
<i>Luperaltica</i> sp.	flea beetle
<i>Macrosiagon limbata</i>	wedge-shaped beetle
<i>Melanotus</i> sp.	click beetle
Mordellidae sp.	tumbling flower beetle
<i>Onthophagus taurus</i>	bull-headed dung beetle
<i>Phanaeus vindex</i>	rainbow scarab
<i>Platynus angustatus</i>	ground beetle
<i>Strangalia luteicornis</i>	yellow-horned flower longhorn beetle
<i>Tropisternus lateralis nimbatus</i>	water scavenger beetle
<i>Typocerus lugubris</i>	flower longhorn beetle
<i>Valgus</i> sp.	valgus
<i>Xyloryctes jamaicensis</i>	eastern rhinoceros beetle

Flies

Scientific name

Acericecis ocellaris
Bombylius pygmaeus

Common name

ocellate gall midge
pygmy bee fly

<i>Chrysops univittatus</i>	deer fly
Limoniidae sp.	limoniid crane fly
<i>Neolasioptera</i> sp.	gall midge
<i>Rhagio mystaceus</i>	common snipe fly
Sarcophagidae sp.	flesh fly
<i>Tabanus atratus</i>	black horse fly
<i>Toxomerus geminatus</i>	eastern calligrapher
<i>Triorla interrupta</i>	robber fly

True Bugs, Hoppers, Aphids, & Allies

Scientific name

Common name

<i>Acanthocephala declivis</i>	giant leaf-footed bug
<i>Acanthocephala terminalis</i>	leaf-footed bug
<i>Adelges tsugae</i>	hemlock woolly adelgid
<i>Agallia constricta</i>	constricted leafhopper
Aphididae sp.	aphid
<i>Calyptoproctus marmoratus</i>	lanternfly
<i>Chinavia hilaris</i>	green stink bug
<i>Chlorotettix</i> sp.	leafhopper
<i>Corimelaena</i> sp.	ebony bug
Emesinae sp.	thread-legged bug
<i>Flatormenis proxima</i>	northern flatid planthopper
Gerrini sp.	water strider
<i>Holcostethus</i> sp.	stink bug
<i>Lopidea</i> sp.	scarlet plant bug
Macrosiphini sp.	aphid
<i>Melanoliarus placitus</i>	cixiid planthopper
<i>Philaenus</i> sp.	true spittlebug
<i>Phymata fasciata</i>	jagged ambush bug
<i>Piezogaster calcarator</i>	leaf-footed bug
<i>Podisus maculiventris</i>	spined soldier bug
<i>Prosapia bicincta</i>	two-lined spittlebug

<i>Rugosana querci</i>	typical leafhopper
<i>Scolops sulcipes</i>	partridge planthopper
<i>Taylorilygus apicalis</i>	broken-backed bug
<i>Triatoma sanguisuga</i>	eastern bloodsucking conenose

Ants, Bees, & Wasps

Scientific name

Common name

<i>Acrotaphus wiltii</i>	ichneumonid wasp
<i>Amphibolips confluenta</i>	spongy oak apple gall wasp
<i>Andrena</i> sp.	mining bee
<i>Aphaenogaster carolinensis</i>	Carolina collared ant
<i>Aphaenogaster fulva</i>	tawny collared ant
<i>Aphaenogaster picea</i>	pitch-black collared ant
<i>Aphaenogaster tennesseensis</i>	Tennessee thread-waisted ant
<i>Bombus pensylvanicus</i>	American bumble bee
<i>Brachymyrmex depilis</i>	hairless rover ant
<i>Callirhytis seminator</i>	wool sower gall wasp
<i>Camponotus americanus</i>	American carpenter ant
<i>Camponotus nearcticus</i>	nearctic carpenter ant
<i>Camponotus pennsylvanicus</i>	eastern black carpenter ant
<i>Camponotus snellingi</i>	Snelling's carpenter ant
<i>Camponotus subbarbatus</i>	bearded carpenter ant
<i>Colobopsis mississippiensis</i>	Mississippi gate-keeper ant
<i>Crematogaster lineolata</i>	shiny acrobat ant
<i>Crematogaster pilosa</i>	hairy-headed acrobat ant
<i>Dolichoderus pustulatus</i>	odorous ant
<i>Dolichovespula maculata</i>	bald-faced hornet
<i>Forelius mccooki</i>	leptomymecine ants
<i>Formica pallidefulva</i>	pale field ant
<i>Formica subsericea</i>	silky field ant
<i>Fuscopolistes</i> sp.	paper wasp
<i>Halictus</i> sp.	furrow bee

<i>Hylaeus modestus</i>	modest masked bee
<i>Lasioglossum sp.</i>	sweat bee
<i>Lasius americanus</i>	woodland fuzzy ant
<i>Lasius neoniger</i>	turfgrass ant
<i>Monomorium minimum</i>	timid ant
<i>Myrmecina americana</i>	American mite-eating ant
<i>Nylanderia faisonensis</i>	woodland crazy ant
<i>Nylanderia vividula</i>	field crazy ant
<i>Pheidole bicarinata</i>	variable big-headed ant
<i>Pheidole dentata</i>	toothed big-headed ant
<i>Ponera pennsylvanica</i>	ponerine ant
<i>Prenolepis imparis</i>	American winter ant
<i>Proceratium crassicornis</i>	fat curtail ant
<i>Solenopsis carolinensis</i>	Carolina thief ant
<i>Solenopsis invicta</i>	red imported fire ant
<i>Solenopsis invicta x richteri</i>	hybrid imported fire ant
<i>Solenopsis saevissima</i>	fire ant
<i>Stenammina impar</i>	stennamine ant
<i>Stigmatomma pallipes</i>	vampire ant
<i>Strumigenys abdita</i>	mustache ant
<i>Strumigenys clypeata</i>	shinings-snouted mustache ant
<i>Strumigenys dietrichi</i>	Dietrich's mustache ant
<i>Strumigenys ohioensis</i>	hairy-snouted mustache ant
<i>Strumigenys ornata</i>	ornate mustache ant
<i>Strumigenys rostrata</i>	square-snouted mustache ant
<i>Tapinoma sessile</i>	odorous house ant
<i>Temnothorax curvispinosus</i>	bent-spined acorn ant
<i>Temnothorax longispinosus</i>	long-spined acorn ant
<i>Temnothorax schaumii</i>	Schaum's acorn ant
<i>Trachymyrmex septentrionalis</i>	Northern fungus-farming ant
<i>Trypoxylon politum</i>	organ-pipe mud-dauber wasp
<i>Vespa crabro</i>	European hornet

Vespula maculifrons

Eastern yellowjacket

Butterflies & Moths

Scientific name

Common name

Acharia stimulea

saddleback caterpillar moth

Acrobasis amplexella

cranberry fruitworm moth

Acrobasis demotella

walnut shoot moth

Acrolophus plumifrontella

eastern grass tubeworm moth

Acrolophus popeanella

Clemens' grass tubeworm moth

Acronicta sp.

dagger moth

Acronicta afflicta

afflicted dagger

Acronicta funeralis

funerary dagger

Acronicta noctivaga

night-wandering dagger

Acronicta tritona

tritton dagger

Actias luna

North American luna moth

Aglossa cuprina

grease moth

Aglossa disciferalis

pink-masked pyralid moth

Allotria elonympha

false underwing

Amolita fessa

feeble grass moth

Amorbia humerosana

white-lined leafroller moth

Amphion floridensis

nessus sphinx

Anageshna primordialis

yellow-spotted webworm moth

Anania tertialis

Guenee's pearl

Anavitrinella pampinaria

common gray

Ancylis divisana

two-toned ancylis moth

Ancylis laciniana

leafroller moth

Anisota stigma

spiny oakworm moth

Antaeotricha humilis

dotted antaeotricha moth

Antaeotricha schlaegeri

Schlaeger's fruitworm moth

Anterastria teratophora

gray marvel moth

Antheraea polyphemus

polyphemus moth

Apamea dubitans

doubtful apamea moth

<i>Apantesis</i> sp.	tiger moth
<i>Apantesis anna</i>	Anna tiger moth
<i>Apantesis placentia</i>	tiger moth
<i>Apatelodes torrefacta</i>	spotted apatelodes moth
<i>Aphomia fulminalis</i>	pyralid snout moth
<i>Apoda biguttata</i>	shagreened slug moth
<i>Apoda y-inversum</i>	yellow-collared slug moth
<i>Archips argyrospila</i>	fruit-tree leafroller moth
<i>Archips grisea</i>	gray archips moth
<i>Argyrotaenia alisellana</i>	white-spotted leafroller moth
<i>Argyrotaenia juglandana</i>	hickory leafroller moth
<i>Argyrotaenia quercifoliana</i>	yellow-winged oak leafroller moth
<i>Argyrotaenia velutinana</i>	red-banded leafroller moth
<i>Artace cribrarius</i>	dot-lined white
<i>Atalopedes campestris</i>	sachem
<i>Athetis tarda</i>	slowpoke moth
<i>Atteva aurea</i>	Ailanthus webworm moth
<i>Automeris io</i>	io moth
<i>Baileya dormitans</i>	sleeping baileya moth
<i>Baileya ophthalmica</i>	eyed baileya moth
<i>Balsa labecula</i>	white-blotched balsa moth
<i>Blastobasidae</i> sp.	blastabasid moth
<i>Blepharomastix ranalis</i>	blepharomastix moth
<i>Bucculatrix</i> sp.	ribbed cocoon-making moth
<i>Caenurgia chloropha</i>	vetch looper moth
<i>Callopietria mollissima</i>	pink-shaded fern moth
<i>Callosamia angulifera</i>	tulip-tree silkmoth
<i>Calycopis cecrops</i>	red-banded hairstreak
<i>Caripeta aretaria</i>	geometer moth
<i>Catocala ilia</i>	Ilia underwing
<i>Catocala praeclara</i>	praeclara underwing moth
<i>Celastrina neglecta</i>	summer azure

<i>Cenopis pettitana</i>	maple-basswood leafroller moth
<i>Cerma cerintha</i>	tufted bird-dropping moth
<i>Charadra deridens</i>	laugher moth
<i>Choristoneura rosaceana</i>	oblique-banded leafroller moth
<i>Chrysanympha formosa</i>	formosa looper moth
<i>Chytolita morbidalis</i>	morbid owlet
<i>Chytonix palliatricula</i>	cloaked marvel
<i>Cisseps fulvicollis</i>	yellow-collared scape moth
<i>Cisthene plumbea</i>	lead-collared lichen moth
<i>Clemensia albata</i>	little white lichen moth
<i>Clostera inclusa</i>	angle-lined prominent
<i>Clydonopteron sacculana</i>	trumped vine moth
<i>Coelodasys unicornis</i>	unicorn prominent
<i>Condylolomia participalis</i>	drab condylolomia moth
<i>Costaconvexa centrostrigaria</i>	bent-lined carpet moth
<i>Crambidia</i> sp.	snout moth
<i>Crambidia pallida</i>	pale lichen moth
<i>Crambidia uniformis</i>	uniform lichen moth
<i>Crambus laqueatellus</i>	eastern grass-veneer
<i>Cucullia convexipennis</i>	brown-hooded owlet
<i>Cupido comyntas</i>	eastern tailed-blue
<i>Cycnia oregonensis</i>	Oregon cycnia moth
<i>Cycnia tenera</i>	delicate cycnia moth
<i>Cydia caryana</i>	hickory shuckworm moth
<i>Darapsa choerilus</i>	azalea sphinx
<i>Darapsa myron</i>	Virginia creeper sphinx
<i>Depressariidae</i> sp.	flat-bodied moth
<i>Desmia funeralis</i>	grape leaffolder moth
<i>Diathrausta reconditalis</i>	recondite webworm moth
<i>Dichomeris punctidiscella</i>	spotted dichomeris moth
<i>Dichorda iridaria</i>	showy emerald
<i>Dioryctria clarioralis</i>	blister coneworm moth

<i>Diploschizia impigritella</i>	yellow nutsedge moth
<i>Donacaula</i> sp.	donacaula moth
<i>Dryocampa rubicunda</i>	rosy maple moth
<i>Dyspteris abortivaria</i>	bad-wing moth
<i>Ecdytolopha insiticiana</i>	locust twig borer moth
<i>Ectropis crepuscularia</i>	small engrailed
<i>Ellida caniplaga</i>	linden prominent
<i>Emmelina monodactyla</i>	morning-glory plume moth
<i>Epargyreus clarus</i>	silver-spotted skipper
<i>Epiblema infelix</i>	epiblema moth
<i>Epiblema obfuscana</i>	epiblema moth
<i>Epiblema otiosana</i>	Bidens borer moth
<i>Epiblema strenuana</i>	ragweed borer moth
<i>Epicallima argenticinctella</i>	orange-headed epicallima moth
<i>Epimecis hortaria</i>	tulip-tree beauty
<i>Epipaschia superatalis</i>	dimorphic macalla moth
<i>Episimus argutana</i>	sumac leaftier moth
<i>Erebidae</i> sp.	underwing moth
<i>Erynnis baptisiae</i>	wild indigo duskywing
<i>Erynnis brizo</i>	sleepy duskywing
<i>Erynnis zarucco</i>	Zarucco duskywing
<i>Estigmene acrea</i>	salt marsh moth
<i>Eubaphe mendica</i>	beggar moth
<i>Euchlaena amoenaria</i>	deep yellow euchlaena moth
<i>Euchlaena irraria</i>	least-marked euchlaena moth
<i>Euchlaena johnsonaria</i>	Johnson's euchlaena moth
<i>Euchlaena obtusaria</i>	obtuse euchlaena moth
<i>Euchlaena pectinaria</i>	forked Euchlaena moth
<i>Euclidia cuspidea</i>	toother somberwing
<i>Eucosma parmatana</i>	reddish Eucosma moth
<i>Eudonia</i> sp.	moss-eating Crambid snout moth
<i>Eudryas grata</i>	beautiful wood-nymph

<i>Eulithis diversilineata</i>	lesser grapevine looper moth
<i>Eulogia ochrifrontella</i>	broad-banded Eulogia moth
<i>Euparthenos nubilis</i>	locust underwing
<i>Eupithecia</i> sp.	pug moth
<i>Eupithecia miserulata</i>	common eupithecia moth
<i>Euptoieta claudia</i>	variegated fritillary
<i>Eusarca confusaria</i>	confused eusarca moth
<i>Eustixia pupula</i>	spotted peppergrass moth
<i>Eutelia pulcherrimus</i>	beautiful eutelia moth
<i>Furcula borealis</i>	white furcula moth
<i>Geina</i> sp.	plume moth
<i>Gelechiidae</i> sp.	twirler moth
<i>Geometridae</i> sp.	geometer moth
<i>Gillmeria pallidactyla</i>	yarrow plume moth
<i>Glaphyria sesquialis</i>	white-roped glaphyria moth
<i>Gracillariidae</i> sp.	leaf blotch miner moth
<i>Gymnandrosoma punctidiscanum</i>	dotted gymnandrosoma moth
<i>Halysidota tessellaris</i>	banded tussock moth
<i>Haploa clymene</i>	clymene moth
<i>Harrisina americana</i>	grapeleaf skeletonizer moth
<i>Heliomata cycladata</i>	common spring moth
<i>Heliomata infulata</i>	rare spring moth
<i>Henricus edwardsiana</i>	contrasting henricus moth
<i>Horisme intestinata</i>	brown bark carpet moth
<i>Hypagyrtis esther</i>	Esther moth
<i>Hypagyrtis unipunctata</i>	one-spotted variant
<i>Hypena baltimoralis</i>	Baltimore snout
<i>Hypena bijugalis</i>	dimorphic snout
<i>Hypena deceptalis</i>	deceptive snout
<i>Hypena scabra</i>	green cloverworm moth
<i>Hypena sordidula</i>	sordid snout
<i>Hypenodes fractilinea</i>	broken-lined Hypenodes moth

<i>Hyperstrotia secta</i>	black-patched graylet
<i>Hyphantria cunea</i>	fall webworm moth
<i>Hypoprepia fucosa</i>	painted lichen moth
<i>Hypsopygia olinalis</i>	yellow-fringed dolichomia moth
<i>Hypsoropha hormos</i>	small necklace moth
<i>Idaea</i> sp.	wave
<i>Idia aemula</i>	common idia moth
<i>Idia americalis</i>	American idia moth
<i>Idia diminuendis</i>	orange-spotted idia moth
<i>Idia julia</i>	Julia's idia moth
<i>Idia lubricalis</i>	glossy black idia moth
<i>Idia rotundalis</i>	rotund idia moth
<i>Iridopsis defectaria</i>	brown-shaded gray
<i>Iridopsis larvaria</i>	bent-line gray
<i>Lacinipolia renigera</i>	bristly cutworm moth
<i>Lacosoma chiridota</i>	scalloped sack-bearer moth
<i>Lagoa crispata</i>	black-waved flannel moth
<i>Larisa subsolana</i>	dark-based larisa moth
<i>Lesmone detrahens</i>	detracted owlet
<i>Leucania</i> sp.	wainscot moth
<i>Leuconycta diphteroides</i>	green leuconycta moth
<i>Leuconycta lepidula</i>	marbled-green leuconycta moth
<i>Limacodidae</i> sp.	slug caterpillar moth
<i>Limenitis arthemis</i>	red-spotted admiral
<i>Limenitis arthemis astyanax</i>	red-spotted purple
<i>Lipocosma sicalis</i>	brown-banded lipocosma moth
<i>Lithacodes fasciola</i>	yellow-shouldered slug moth
<i>Lochmaeus bilineata</i>	double-lined prominer
<i>Lochmaeus mantee</i>	variable oakleaf caterpillar moth
<i>Lomographa vestaliata</i>	white spring moth
<i>Loxostege sticticalis</i>	beet webworm moth
<i>Lymantriinae</i> sp.	tussock moth

<i>Lytrosis permagnaria</i>	charcoal lytrosis
<i>Lytrosis sinuosa</i>	sinuous lytrosis
<i>Macaria</i> sp.	angle moth
<i>Macaria bicolorata</i>	bicolored angle
<i>Macaria bisignata</i>	red-headed inchworm moth
<i>Macaria fissinotata</i>	hemlock angle
<i>Macaria granitata</i>	granite angle
<i>Macaria notata appalachiata</i>	Appalachian birch angle
<i>Macaria pustularia</i>	lesser maple spanworm moth
<i>Macrurocampa marthesia</i>	mottled prominent
<i>Malacosoma americana</i>	eastern tent caterpillar moth
<i>Malacosoma disstria</i>	forest tent caterpillar moth
<i>Mathildana newmanella</i>	Newman's mathildana moth
<i>Marimatha nigrofimbria</i>	black-bordered lemon moth
<i>Megalopyge crispata</i>	black-waved flannel moth
<i>Meganola phylla</i>	coastal plain meganola moth
<i>Meganola spodia</i>	ashy meganola moth
<i>Melanolophia canadaria</i>	Canadian melanolophia moth
<i>Metalectra</i> sp.	fungus moth
<i>Metalectra diabolica</i>	diabolical fungus moth
<i>Metalectra richardsi</i>	Richards' fungus moth
<i>Metarranthis angularia</i>	angled metarranthis moth
<i>Metarranthis duaria</i>	ruddy metarranthis moth
<i>Metaxaglaea violacea</i>	holly sallow
<i>Microcrambus</i> sp.	grass-veneer
<i>Microcrambus elegans</i>	elegant grass-veneer
<i>Mocis texana</i>	Texas mocis moth
<i>Mythimna unipuncta</i>	white-speck moth
<i>Nadata gibbosa</i>	white-dotted prominent
<i>Natada nasoni</i>	Nason's slug moth
<i>Neoligia crytora</i>	arch
<i>Noctuidae</i> sp.	cutworm moth

<i>Nola clethrae</i>	sweet pepperbush nola moth
<i>Nola pustulata</i>	sharp-blotched nola moth
<i>Notodontidae</i> sp.	prominent moth
<i>Nycteola metaspilella</i>	forgotten frigid owlet
<i>Ogdoconta cinereola</i>	common pinkband
<i>Olethreutes appendiceum</i>	serviceberry leafroller
<i>Olethreutes ferrolina</i>	iron-lined olethreutes moth
<i>Olethreutes permundana</i>	raspberry leafroller moth
<i>Oligocentria</i> sp.	prominent moth
<i>Orgyia leucostigma</i>	white-marked tussock moth
<i>Orthodes detracta</i>	disparaged arches moth
<i>Oruza albocostaliata</i>	white edge moth
<i>Packardia geminata</i>	jeweled tailed slug moth
<i>Paectes</i> sp.	paectes moth
<i>Paectes oculatrix</i>	eyed paectes moth
<i>Paectes pygmaea</i>	pygmy paectes moth
<i>Palthis asopialis</i>	faint-spotted palthis moth
<i>Palpita</i> sp.	palpita moth
<i>Pandemis limitata</i>	three-lined leafroller moth
<i>Pangrapta decoralis</i>	decorated owlet
<i>Panopoda carneicosta</i>	brown panopoda moth
<i>Panopoda rufimargo</i>	red-lined panopoda moth
<i>Pantographa limata</i>	basswood leafroller moth
<i>Paonias excaecata</i>	blinded sphinx
<i>Papaipema arctivorens</i>	northern burdock borer moth
<i>Papaipema baptisiae</i>	indigo stem borer moth
<i>Papaipema impecuniosa</i>	aster borer moth
<i>Papaipema inquaesita</i>	sensitive fern borer moth
<i>Papaipema pterisii</i>	bracken borer moth
<i>Papilio glaucus</i>	eastern tiger swallowtail
<i>Papilio troilus</i>	spicebush swallowtail
<i>Paraeschra georgica</i>	Georgian prominent

<i>Parallelia bistriaris</i>	maple looper moth
<i>Paralobesia</i> sp.	paralobesia moth
<i>Patalene olyzonaria</i>	juniper geometer moth
<i>Pelochrista robinsonana</i>	Robinson's pelochrista moth
<i>Pero morrisonaria</i>	Morrison's pero moth
<i>Phaecasiophora niveiguttana</i>	labyrinth moth
<i>Phalaenophana pyramusalis</i>	dark-banded owlet
<i>Phalaenostola larentioides</i>	black-banded owlet
<i>Phlogophora periculosa</i>	brown angle shades
<i>Phoebis sennae</i>	cloudless sulphur
<i>Phyciodes tharos</i>	pearl crescent
<i>Phycitodes reliquellum</i>	white-edged phycitodes moth
<i>Phytometra rhodarialis</i>	pink-bordered yellow
<i>Platynota flavedana</i>	black-shaded platynota moth
<i>Platynota idaeusalis</i>	tufted apple bud moth
<i>Pleuroprucha</i> sp.	wave
<i>Pleuroprucha insulsaria</i>	common tan wave
<i>Pococera</i> sp.	webworm moth
<i>Pococera expandens</i>	striped oak webworm moth
<i>Pococera scortealis</i>	lespedeza webworm moth
<i>Polygonia interrogationis</i>	question mark
<i>Polygrammate cadburyi</i>	Cadbury's mystique
<i>Polygrammate hebraeicum</i>	Hebrew moth
<i>Ponometia erastrioides</i>	small bird-dropping moth
<i>Prionoxystus macmurtrei</i>	little carpenterworm moth
<i>Prionoxystus robiniae</i>	carpenterworm moth
<i>Probole amicaria</i>	friendly probole moth
<i>Prochoerodes lineola</i>	large maple spanworm moth
<i>Prolimacodes badia</i>	skiff moth
<i>Promalactis suzukiella</i>	Suzuki's promalactis moth
<i>Proteoteras naracana</i>	leafroller moth
<i>Protoboarmia porcelaria</i>	porcelain gray

<i>Protodeltote muscosa</i>	large mossy glyph
<i>Protolampra brunneicollis</i>	brown-collared dart
<i>Pseudochelaria walsinghami</i>	twirler moth
<i>Pseudothyatira cymatophoroides</i>	tufted thyatirine moth
<i>Pseudothyris sepulchralis</i>	mournful thyris moth
<i>Psilocorsis quercicella</i>	oak leaftier moth
<i>Psilocorsis reflexella</i>	dotted leaftier moth
<i>Pterophoridae sp.</i>	plume moth
<i>Pyralidae sp.</i>	pyralid snout moth
<i>Pyrausta bicoloralis</i>	bicolored pyrausta moth
<i>Pyrausta signatalis</i>	raspberry pyrausta moth
<i>Pyromorpha dimidiata</i>	orange-patched smoky moth
<i>Pyrrharctia isabella</i>	Isabella tiger moth
<i>Renia adspersgillus</i>	speckled renia moth
<i>Renia fraternalis</i>	fraternal renia moth
<i>Renia flavipunctalis</i>	yellow-spotted renia moth
<i>Retinia gemistrigulana</i>	gray retinia moth
<i>Rheumaptera prunivorata</i>	cherry scallop shell moth
<i>Rivula propinqualis</i>	spotted grass moth
<i>Rudenia leguminana</i>	black-tipped rudenia moth
<i>Salebriaria turpidella</i>	knot horn moth
<i>Schinia arcigera</i>	arcigera flower moth
<i>Sciota subcaesiella</i>	locust leafroller moth
<i>Sciota uvinella</i>	sweetgum leafroller moth
<i>Sciota vetustella</i>	belted leafroller moth
<i>Scolecocampa liburna</i>	deadwood borer moth
<i>Scopula limboundata</i>	large lace-border moth
<i>Sparganothis sulfureana</i>	sparganothis fruitworm moth
<i>Speyeria cybele</i>	great spangled fritillary
<i>Spilosoma congrua</i>	agreeable tiger moth
<i>Spilosoma virginica</i>	Virginian tiger moth
<i>Spragueia leo</i>	common spragueia moth

<i>Strymon melinus</i>	gray hairstreak
<i>Symmerista canicosta</i>	red-humped oakworm moth
<i>Synchlora aerata</i>	wavy-lined emerald
<i>Synanthedon acerni</i>	maple callus borer moth
<i>Tetanolita mynesalis</i>	smoky tetanolita moth
<i>Tinea mandarinella</i>	mandarin tine moth
<i>Tineidae</i> sp.	fungus moth
<i>Tortricidia testacea</i>	early button slug moth
<i>Tosale oviplagalis</i>	dimorphic tosale moth
<i>Tripudia rectangula</i>	rectangular tripudia moth
<i>Udea rubigalis</i>	celery leaftier moth
<i>Urola nivalis</i>	snowy urola moth
<i>Venusia cambrica</i>	welsh wave moth
<i>Virbia aurantiaca</i>	orange virbia moth
<i>Virbia opella</i>	tawny virbia moth
<i>Zale minerea</i>	colorful zale moth
<i>Zale undularis</i>	black zale moth
<i>Zanclognatha</i> sp.	fan-foot moth
<i>Zanclognatha lituralis</i>	lettered fan-foot
<i>Zanclognatha obscuripennis</i>	dark fan-foot
<i>Zelleria haimbachi</i>	pine needle sheathminer

Dragonflies & Damselflies

<u>Scientific name</u>	<u>Common name</u>
<i>Argia fumipennis</i>	variable dancer
<i>Calopteryx maculata</i>	ebony jewelwing
<i>Celithemis elisa</i>	calico pennant
<i>Celithemis fasciata</i>	banded pennant
<i>Dromogomphus spinosus</i>	black-shouldered spinyleg
<i>Enallagma aspersum</i>	azure bluet
<i>Ischnura verticalis</i>	eastern forktail

<i>Ladona deplanata</i>	blue corporal
<i>Lestes australis</i>	southern spreadwing
<i>Libellula cyanea</i>	spangled skimmer
<i>Libellula semifasciata</i>	painted skimmer
<i>Phanogomphus exilis</i>	lancet clubtail
<i>Sympetrum vicinum</i>	autumn meadowhawk

Grasshoppers, Crickets, & Katydid

Scientific name

Common name

<i>Arphia sulphurea</i>	sulphur-winged grasshopper
<i>Arphia xanthoptera</i>	autumn yellow-winged grasshopper
<i>Camptonotus carolinensis</i>	Carolina leafroller cricket
<i>Ceuthophilus maculatus</i>	spotted camel cricket
<i>Chortophaga viridifasciata</i>	green-striped grasshopper
<i>Dichromorpha viridis</i>	short-winged green grasshopper
<i>Dissosteira carolina</i>	Carolina grasshopper
<i>Gryllus</i> sp.	field cricket
Hadenocini sp.	cave cricket
<i>Hippiscus ocelote</i>	
<i>Melanoplus bivittatus</i>	two-striped grasshopper
<i>Melanoplus differentialis</i>	differential grasshopper
<i>Melanoplus femurrubrum</i>	red-legged grasshopper
<i>Melanoplus gracilis</i>	graceful grasshopper
<i>Melanoplus keeleri keeleri</i>	Keeler's spur-throated grasshopper
<i>Melanoplus lindemanni</i>	Lindemann's spur-throated grasshopper
<i>Melanoplus punctulatus</i>	pine tree spur-throat grasshopper
<i>Melanoplus sanguinipes vulturnus</i>	migratory grasshopper
<i>Melanoplus scudderi</i>	Scudder's short-winged grasshopper
<i>Melanoplus similis</i>	green-legged grasshopper
<i>Microcentrum retinerve</i>	lesser anglewing
<i>Orphulella pelidna</i>	spotted-winged grasshopper
<i>Pardalophora phoenicoptera</i>	orange-winged grasshopper

<i>Pterophylla camellifolia</i>	common true katydid
<i>Schistocerca americana</i>	American bird grasshopper
<i>Schistocerca damnifica</i>	mischievous bird grasshopper
<i>Spharagemon bolli</i>	Boll's grasshopper
<i>Spharagemon saxatile</i>	ledge grasshopper
<i>Syrbula admirabilis</i>	admirable grasshopper
Tettigoniinae sp.	shieldback katydid

Other Insects

Scientific name

Common name

Chrysoperla sp.	common green lacewing
<i>Diaperomera femorata</i>	northern walkingstick
<i>Neohermes concolor</i>	gray fishfly
<i>Oecetis</i> sp.	long-horned caddisfly
<i>Panorpa</i> sp.	scorpionfly
Perlidae sp.	common stonefly
<i>Tenodera sinensis</i>	Chinese mantis