

Field Trip #1 (Full Day, 50 People Max, 3 Hours Travel Round Trip)

Sand Dunes and Bison Prairie Pastures in Southeast Iowa

Field trip leader: Dr. John Pearson, Iowa Department of Natural Resources

Plant and lichen specialist: John Pearson

Insect and plant specialist: Angella Moorehouse, Illinois Nature Preserves Commission

Wildlife specialist: Pete Eyherhalde, William Penn University



NorthAmericanPrairie.org

Physical challenges to expect: Low to moderate

Eddyville Dunes: Total hiking distance will be between 0.5 and 1 mile, some on a soft trail and some over rolling terrain.

DeCook Ranch: Easy walking to moderate hiking along level farm lanes, across rolling pastures, and up prairie slopes; total distance approximately 1-mile round trip. A pickup truck will be available for assistance if needed.

Eddyville Sand Dunes Prairie

Host: Wapello County Conservation Staff

The Eddyville Sand Dunes Prairie protects an example of one of Iowa's most unusual prairies. Once targeted to be the site of a major highway interchange, Eddyville Sand Dunes Prairie is now a 225-acre natural area preserving sand dunes, sand prairie, and sandy wetlands. The combination of excessive drainage and low fertility create environmental stresses that are in sharp contrast to the typical black soil prairies that covered much of Iowa.

The field trip will visit the main unit of the conservation area, where prairie and wetland habitats support many species of flora and fauna that are rare in the state. The sand dunes formed approximately 12,000 to 15,000 years ago as meltwater laden with sandy glacial outwash was conveyed down the Des Moines River, deposited on the nearby floodplain, and subsequently exposed to wind transport. Two soil types form the dunes. Sparta soils are associated with the deepest sand deposits, which are up to 60 feet thick, and formed in sandy outwash that was reworked by wind. Chelsea soils are also present and formed in very deep aeolian sand. The soils of the main unit indicate that about 90% of it was native prairie, with rest in oak-hickory forest (or woodland).

Plant species of interest: A study of the flora and fauna in 2010 by Tom Rosburg and Jeff Parmelee found 407 plant species (251 native), 52 bird species (50 native), 13 reptile species, and 10 amphibian species. Rosburg documented 23 plant species that are either listed by the state or have a coefficient of conservatism ≥ 8 . Some of these that you might see include soft rush (*Juncus effusus*), shallow sedge (*Carex lurida*), slimleaf panic grass (*Dicanthelium linearifolium*), prickly pear cactus, and four-point evening primrose (*Oenothera rhombipetala*). Other species common on the sand prairie are wild petunia, Ohio spiderwort, sand dropseed, field goldenrod, Patagonia plantain, sand puccoon, prairie three awn grass, hogwort (*Croton capitatus*) and hoary frostweed (*Helianthemum bicknellii*). Discussion topics will include management challenges, including the difficulty of removing invasive species while protecting rare, state-listed species.

Lunch at Lake Miami County Park

Lake Miami is a 135-acre lake constructed in 1967 and located 5 miles east of Lovilia in an 879-acre park. Lake Miami offers full-service facilities for camping and opportunities for picnicking, fishing, hunting, hiking, outdoor recreation and cabin rentals. A nature education center, both open and enclosed shelter houses, and a wildlife enclosure exhibit are additional park features. The lake and park are managed by the Monroe County Conservation Board.

DeCook Ranch

Hosts: Mike and Dan DeCook with Joshua and Wyatt DeCook, Lovilia, IA & staff of Iowa Natural Heritage Foundation

In 2011, the DeCook family sold their cattle and started grazing bison on their southern Iowa ranch. Their goals are 1) permanent land protection with a conservation easement, 2) rewilding, and 3) make a living that is ecologically based. Though they still custom graze cattle for other farmers, bison fit better with their management style and rewilding goals for the land. (NOTE: For 2023, the bison herd has been temporarily removed, so no animals will be seen during this field 2 trip.) The DeCooks harvest seed from their remnant prairie and with help from the Iowa Natural Heritage Foundation are clearing overgrown woodlands and interseeding their cool-season pasture with native prairie species. They are fighting invasive species, including Canada thistle, teasel, multiflora rose, autumn olive, and honeysuckle. Except for the occasional spot treatment, they manage their prairies and pastures without herbicides and pesticides.

Field Trip #2 (Full Day, 50 People Max, 1 Hour Travel Round Trip)

Chichaqua Bottoms Greenbelt

Field trip co-leader: Doug Sheeley, Polk County Conservation and Todd Gosselink, IDNR

Plant specialist: Loren Lown, retired Polk County Conservation Board

Insect specialist: Sadie Todd, Iowa Department of Agriculture and Land Stewardship



NorthAmericanPrairie.org

Physical challenges to expect: Low to moderate

Most sites will entail easy to moderate hiking over level to slightly sloping topography for a distance of 0.25 to 0.5 miles. Uneven ground and potential trip hazards will be primary mobility impediments. Sturdy, supportive footwear is recommended. Ticks and biting insects may be problematic so please include repellent in your daypack. Waterproof chore/muck boots are recommended for a more immersive experience at Engledinger Marsh.

Just north of the Des Moines metro is an expanse of 11,500 acres of natural land and reconstructions stretching nearly ten miles along the South Skunk River. Chichaqua Bottoms Greenbelt (CBG) was created in 1962, with a 300-acre acquisition by Polk County Conservation (PCC) in an effort to protect the remnant channel of the South Skunk River, which had been cut off when the stream was straightened at the turn of the 20th century. It has been expanded and restored piece by piece over six decades. Most of CBG is in Polk County (10,000 acres) and is owned by PCC, with the Iowa Department of Natural Resources (IDNR) owning approximately 20%. PCC and IDNR share management of CBG with PCC managing properties north of Highway 65 and the IDNR managing parcels to the south. The presettlement landscape of CBG was a mosaic of wet and mesic tallgrass prairie, sand prairie, swamp white oak savanna, and wetlands. Restoration plans are designed to replicate this diverse landscape. Field trip participants will visit several sites representing both remnants and reconstructions.

Puccoon Annex – 8:30 to 9:45

The Puccoon Annex Parcel is former flood plain crop land that was acquired in 1999 and is enrolled in the NRCS WRE program. Over time, the seeding has become grass-dominated. We will visit plots on the reconstruction where various rates and types of herbicides have been applied with the goal reducing grass vigor and increasing forb and legume density.

Puccoon Prairie – 10:00 to 11:45

Puccoon Prairie is a sand prairie formed from alluvial sand deposits on the floodplain of the Skunk River. It was acquired in 2004 and was historically used for grazing cattle. It's known for its displays of the orange-yellow flowers of sand puccoon (*Lithospermum carolinense*), as well as other dry-mesic species such as green milkweed, prairie larkspur, June grass as well as velvet ants and tiger beetles. Discussion will focus on the control of staghorn sumac that has invaded the site as well as plans to expand the area to the south. **Lunch - Chichaqua Longhouse for lunch & restrooms – Noon to 1 pm**

Bolton-Hay Parcel – 1:15 to 2:30

Like Puccoon Annex, the Bolton-Hay Parcel was historically cropped. It was purchased by Polk County in 1996 and restored to a prairie-wetland complex. Over time, restored prairie became grass-dominated and options were considered to recreate diversity on this site. A four-year study was implemented from 2008 to 2011 to ascertain the impact of cattle grazing on stand architecture and diversity. Impacts of cattle grazing on wildlife (birds, herps, lepidoptera, and small mammals) were also monitored. The NRCS assisted with funding of the four-strand high-tensile electric fence. More recent invasion by early successional native woody species (gray dogwood, sandbar willow and cottonwood) prompted additional grazing trials (2019-21) in an effort to control the woody species, as well as Reed canary grass. Discussion will address the outcome of these management strategies.

Engeldinger Marsh – 2:45 to 4:30 pm

Engeldinger Marsh is an 81-acre site, and has been described by scientists as a “geological and ecological museum”. It features a pothole wetland bordered by remnant wet-mesic tallgrass prairie, sedge meadow and degraded mesic & dry-mesic tallgrass prairie. Prior to 2000, Highway 65/330 bisected the marsh. High traffic counts precipitated a plan to convert this highway to a four-lane thoroughfare. Discovery of the threatened mulberry-winged skipper and public opposition triggered a realignment that bypassed the marsh complex. Notable species present include Sullivant's milkweed, water hemlock, water parsnip, common bur-reed and many species of sedges. A year-long survey at Engeldinger counted 314 species of plants, 19 species of mammals, 15 species of reptiles and amphibians, and 82 species of birds. Because of its high quality, Engeldinger Marsh has been utilized for many research projects. In 2005 it was used as a control site in a study funded by the Environmental Protection Agency and conducted by Dr. Tom Rosburg to compare wetland reconstructions with natural wetlands to assess the functionality and quality of wetland reconstructions. There were 16 high conservative plant species observed. In 2017, the wetland ecosystems at Engeldinger Marsh were sampled by Rosburg in a study funded by the NRCS and the Ecological Site program to collect plant species composition and plant productivity data on the native ecosystems associated with specific soils. Discussion will include future efforts to convert adjacent cropland to prairie and plans to increase hydroperiod length.

Field Trip #3 (Full Day, 50 People Max, 2 Hours Travel Round Trip)

From Sand Prairie to Sedge Meadow

Field trip leader: Dr. William Norris, Western New Mexico University

Plant specialist: Bill Norris

Insect specialist: Stephanie Shepherd, Iowa Department of Natural Resources



NorthAmericanPrairie.org

Physical challenges to expect: Low to moderate

Marietta Sand: Easy access and walking in the sand prairie, moderate difficulty in the wetlands. Bring boots if you want to explore the wetlands. Hiking distance of 0.75 to 1.0 mile.

Doolittle: Total hiking distance about 1.25 to 1.5 miles over level terrain. The route may encounter shallowly flooded conditions.

Marietta Sand Prairie Complex

Host: Marshall County Conservation Staff

The original 17-acre Marietta Sand Prairie was purchased in 1983 and dedicated as a State Preserve in 1984. In 2006, the Iowa Natural Heritage Foundation and Marshall County Conservation combined their efforts to purchase, protect and restore 212 adjacent acres, including 56 acres of sand prairie remnant. This formerly farmed sand prairie has been restored via a decade old reconstruction and by natural succession. The site also has a fen and two seepage meadows. The sand was deposited in the Iowa River valley following the melting of the Des Moines Lobe glacier about 12,000 years ago. It was then moved from the valley by wind and redeposited on the nearby uplands. These aeolian sands are up to 36 feet deep in places.

Plant species of interest: The variety of habitats found here supports nearly 200 species of plants. In April, an abundance of hairy puccoon can be seen, along with golden alexanders and marsh marigolds. Sand milkweed, green milkweed, wild four-o'clock, spotted horsemint, sand primrose, shaggy false gromwell (*Onosmodium bejariense*), purple lovegrass, round-headed bush clover and prairie sage bloom later in the sand prairie. In the wet meadow, marsh bellflower, marsh St. John's wort, great lobelia, sensitive fern and marsh fern can be seen. The more thinly vegetated areas of sand prairie and a blowout are home to velvet ants (actually a native species of wasp) as well as the ferocious big sand (*Cicindela formosa*) and Leconte's festive (*Cicindela scutellaris lecontei*) tiger beetles.

Lunch at McFarland Park and Conservation Center

McFarland Park and Conservation Center is a 200-acre area just north of Ames. The park offers visitors a variety of habitats to explore including tallgrass prairie, woodland, and stream. Restrooms and educational displays are available.

Doolittle Prairie

Host: Story County Conservation Staff

Doolittle Prairie State Preserve is a 26-acre mosaic of tallgrass prairie and pothole marsh. Three native plant communities are present – wet-mesic prairie, sedge meadow, and shallow emergent marsh (or seasonally flooded wetland). A floristic study (Wetzel, Norris and Lyles 1999) documented 265 vascular plant species, including 223 native species. Examples of some of the species you may find include cowbane (*Oxypolis rigidior*), Sullivant's milkweed, rattlesnake master, sneezeweed, compass plant, marsh vetchling, wood betony, prairie dropseed, bluejoint and 19 species of sedge.

In addition to the flora, 45 birds, several mammals, and 31 butterflies have been observed on the preserve. Doolittle Prairie has served as a study site for many research projects. The preserve provides a good contrast between the effects of land use. The southern half was more heavily used and impacted by both grazing and tillage. The northern half was never grazed or tilled and instead prairie hay was harvested. Discussion topics will address land use effects, management issues, and the sedge flora.

Doolittle Prairie is named after Fidelia & William Doolittle, who originally settled the area in 1855. Their descendants farmed the land adjacent to the preserve, but the sentimental value of their ancestor's original homestead prevented them from draining and plowing the area. The family harvested prairie hay from the "wild meadow" until the late 1960s. In 1979, the 26-acre northern tract was sold to the Iowa Department of Natural Resources and was dedicated as a State Preserve in 1980. At this time, management of the area was transferred to Story County Conservation (SCC).

The 16-acre southern tract is owned by SCC. It was purchased with the assistance of the Iowa Natural Heritage Foundation (INHF) in 1981. Though there are fragments of remnant vegetation along fence lines, most of the tract is reconstructed from seed harvested from the northern tract. Today, the Doolittle Family still owns 21 acres of remnant prairie to the south of the SCC owned tract. INHF currently leases this area to harvest prairie seed to benefit local reconstructions. Overall, the Doolittle Prairie complex is a 63-acre gem in the middle of an agricultural landscape.

Field Trip #4 (Full Day, 50 People Max, 2.25 Hours Travel Round Trip)

Gems of Madison County

Field trip leader: Derek Miner, Iowa Natural Heritage Foundation

Plant specialists: Dr. Tom Rosburg, Drake University; Joyce Hornstein, Iowa Prairie Network

Insect specialists: MJ Hatfield, Citizen Scientist; Jessica Peterson, MDNR



NorthAmericanPrairie.org

Physical challenges to expect: Moderate

Peru Quarry: A hike of about 0.75 miles on slopes with a rocky and uneven surface and both downhill and uphill segments.

Criss Cove: Easy access to the prairie, distance less than 0.5 mile. Paule Preserve: A hike of about 1 mile, mostly on mowed trails. A portion of it will be through a sedge meadow, which may have some standing water in places. There will be a gradual climb up a hill to gain about 70 feet of elevation. A tractor and hayrack will be available to help transport participants as needed.

Peru Quarry Savanna & Prairie

Hosts: Roslea Johnson, Des Moines & Iowa Natural Heritage Foundation, Des Moines, IA

Roslea and her late husband Bob acquired this site in 1985, and eventually owned about 195 acres. The quarry was first opened in the mid-19th century to extract Pennsylvanian-age limestone for hand tooled building blocks. In the early 20th century a larger quarry site was opened farther east which had a rock crusher and a spur of the Chicago Northwestern RR which hauled crushed rock to Des Moines for pavement and concrete. There are numerous remnants throughout the quarry site. When it was an active quarry, mowed trails and roads were maintained throughout the site. These are the places where high quality savanna and prairie were found. The 35-year long restoration has included renovating native savanna and prairie remnants, interseeding remnant natural areas which were not very diverse, and reconstructing prairie on CRP fields with seed from the remnants and using a very diverse mix of locally purchased seed. The soils on the site formed in either glacial till or loess, and under oak savanna and tallgrass prairie. Currently the site also contains upland oak forest and woodland, aquatic habitat, and some small wetlands. The field trip will focus on a remnant of dry-mesic prairie and woodland. We will discuss land use history, soils, management, reconstruction methods and future conservation plans. Some of the plants you may see include: prairie parsley (*Polytaenia nuttallii*) leadplant, white and purple prairie clover, scurfpea (*Psoralea tenuiflora*), American gromwell (*Lithospermum latifolium*), false gromwell, purple milkweed, violet bush clover (*Lespedeza violacea*), New Jersey tea, and large twayblade (*Liparis liliifolia*).

Criss Cove Park

Host: Tanner Donovan, Natural Resource Specialist, Madison County Conservation Board

Criss Cove is a small park, about 45 acres, that offers a recreational area with fishing, camping and hiking. It was purchased in 1983 from a local landowner with the grant from the Federal Land & Water Conservation Fund. About half of the park protects a remnant, dry-mesic tallgrass prairie. Some plant species likely to be seen here include butterfly milkweed, hoary puccoon, golden alexander, Culver's root, tuberous Indian plantain, tall cinquefoil, wild petunia, wild prairie rose, swamp milkweed and white wild indigo.

Lunch at Paule Preserve

Host: John and Shari Paule, West Des Moines & Iowa Natural Heritage Foundation, Des Moines, IA

The first 40 acres of Paule Preserve were acquired by John and Shari in 2007. Since then they have purchased additional parcels that bring the total acreage to 215 acres. In the early days, John and Shari had no idea what they were getting into, nor did they have any idea how it would become such an important part of their life and work. In the beginning the savanna was a mass of brambles, multiflora rose, prickly ash, vines, poison ivy, shade-tolerant trees and shrubs. Guided and helped by Iowa Natural Heritage Foundation and the Southern Iowa Oak Savanna Alliance, John and Shari are into the 16th year of an ambitious restoration. The sedge meadow is one of the finest examples known in the state. The soils mapped on the site range from wetland types formed in poorly drained alluvium (58%) to upland types formed in glacial till (23%) and loess (13%). The soils suggest that originally savanna occupied about 64% of the area, wet prairie and sedge meadow about 28%, and mesic to wet-mesic prairie about 8%. The extant communities on the site include oak savanna, sedge meadow, bur-reed wetland, reed canary grass wet meadow, upland and lowland forest, and reconstructed prairie. The field trip will highlight the oak savanna and sedge meadow. Discussion will focus on land use history, restoration history and strategies, recent floristic research, future conservation goals, and ongoing research in the reed canary grass wet meadow to ascertain the effects of fire, mowing and herbicide on the renovation of a remnant sedge meadow. A recent floristic survey by Dr. Tom Rosburg identified 260 vascular plant species, including three county records – pin cherry (*Prunus pensylvanica*), Georgia bulrush (*Scirpus georgianus*), and rough hedge-nettle (*Stachys aspera*). Other plant species on this site include 26 species of sedge, pale Indian plantain (*Arnoglossum atriplicifolium*), wingstem (*Verbesina alternifolia*), horse gentian, purple meadow rue, Culver's root, starry campion, bluejoint, prairie cordgrass, swamp milkweed, bur reed, indigo bush and some impressive bur oaks.

Field Trip #5 (Full Day, 50 People Max, 2.25 Hours Travel Round Trip)

Remnants and Reconstruction in Marshall County

Field trip leader: Ryan Schmidt, Iowa Natural Heritage Foundation

Plant specialist: Mark Leoschke, Iowa Department of Natural Resources

Insect specialist: Doug Veal, Citizen Scientist



NorthAmericanPrairie.org

Physical challenges to expect: Low to moderate

Spring Hill: An easy round trip hike of about 0.75 miles on a mowed trail over slightly rolling terrain. Prairie Creek: Easy walking on trails, less than 0.5 miles. Marietta: Easy access and walking in the sand prairie, moderate difficulty in the wetlands. Bring boots if you want to explore the wetlands.

Spring Hill Prairie

Host: Carl and Linda Kurtz, St. Anthony & Iowa Natural Heritage Foundation, Des Moines, IA

Carl and Linda Kurtz first noticed this 80-acre prairie/pasture in the mid-1970s and were able to purchase it in 1997. Its hilly terrain, which is bisected by South Minerva Creek, helped to protect it from tillage. As far as can be determined, it has always been used for pasture since settlement. However, portions of it, and especially the eastern third, were severely disturbed due to cattle feeding, the presence of corrals, and two small quarries. Restoration has included the renovation of the remnant areas with the use of fire, control of invasive non-native species, and seeding species to augment the native communities. The best remnant prairie communities occur on the steeper and drier slopes. Reconstruction has occurred in the heavily degraded areas. In 2014, Carl and Linda permanently protected this land by transferring ownership to Iowa Natural Heritage Foundation while continuing a strong partnership in land stewardship. Plant species of interest: Dr. Tom Rosburg, Drake University, completed a floristic survey in 2017 that also mapped and identified the site's extant plant communities. The soils formed in either glacial till (62%) or alluvium/colluvium (38%) and support native vegetation that ranges from wet tallgrass prairie to dry-mesic tallgrass prairie. Currently the site contains upland mesic prairie (66%), alluvial grassland/prairie (23%), lowland mixed grassland (10%), lowland boxelder grove (0.6%) and a sedge-dominated wet seep (0.4%). Rosburg documented 211 vascular plant species (178 native, 33 non-native) on Spring Hill Prairie. There were 25 high conservative species (coefficient of conservatism ≥ 7) observed in the upland mesic prairie community, 11 were found in the alluvial grassland, 6 were in the wet seep, 1 observed in the lowland mixed grassland, and 0 in the lowland grove. Discussion topics will address land use history, restoration methods and future land stewardship plans. Among the more common species you could see are Virginia mountain mint, hairy-fruited sedge (*Carex trichocarpa*), ox-eye, rigid goldenrod, big bluestem, sweet coneflower, compass plant, golden alexander and purple meadow rue. More conservative species associated with the best remnant populations include white prairie clover, prairie gentian, rough blazingstar, prairie violet, prairie cinquefoil, prairie dandelion (*Nothocalais cuspidata*), prairie dropseed, sky blue aster, prairie larkspur, plains muhly (*Muhlenbergia cuspidata*), and thimbleweed.

Prairie Creek Wildlife Refuge

Host: Carl and Linda Kurtz, St. Anthony

Prairie Creek Wildlife Refuge is approximately 88 acres of prairie reconstruction established by Carl and Linda on the family land owned by Carl and his sister Karlene Kingery. Some of the reconstructed prairies on the farm are over 30 years old. Carl turned the Kurtz farm into the site of his prairie seed business—which has been a seed source for many reconstructed prairies throughout Iowa. It all started in 1975 with an effort to convert a 38-acre brome and bluegrass pasture to tallgrass prairie. In 1988, after deciding to grow prairie grasses and forbs as seed cash crop, they converted 50 acres of cropland to tallgrass prairie using seed harvested from a local seed source. It now has more than 120 native species and because of its diversity has remarkable stability and is excellent wildlife habitat. Carl will share his experiences establishing diverse prairies and combating invasive species. Carl is also a noted photographer and author of Iowa's Wild Places, which features many outstanding photos of this refuge.

Lunch at Grimes Farm and Conservation Center

Grimes Farm is 160 acres of public land that includes forests, reconstructed prairies, wetlands, and wildlife as well as agricultural land. The Conservation Center is the hub for Marshall County Conservation's environmental education programs, natural history exhibits, and administrative offices. Thousands of students in all grade levels enjoy this outdoor classroom every year. This site was donated and protected by the Grimes family through Iowa Natural Heritage Foundation.

Marietta Sand Prairie Complex

Host: Marshall County Conservation Staff

The original 17-acre Marietta Sand Prairie was purchased in 1983 and dedicated as a State Preserve in 1984. In 2006, the Iowa Natural Heritage Foundation and Marshall County Conservation combined their efforts to purchase, protect and restore 212 adjacent acres, including 56 acres of sand prairie remnant. This formerly farmed sand prairie has been restored via a decade old reconstruction and by natural succession. The site also has a fen and two seepage meadows. The sand was deposited in the Iowa River valley following the melting of the Des Moines Lobe glacier about 12,000 years ago. It was then moved from the valley by wind and redeposited on the nearby uplands. These aeolian sands are up to 36 feet deep in places. Plant species of interest: The variety of habitats found here supports nearly 200 species of plants. In April, an abundance of hairy puccoon can be seen, along with golden alexanders and marsh marigolds. Sand milkweed, green milkweed, wild four-o'clock, spotted horsemint, sand primrose, shaggy false gromwell (*Onosmodium bejariense*), purple lovegrass, round-headed bush clover and prairie sage bloom later in the sand prairie. In the wet meadow, marsh bellflower, marsh St. John's wort, great lobelia, sensitive fern and marsh fern can be seen. The more thinly vegetated areas of sand prairie and a blowout are home to velvet ants (actually a native species of wasp) as well as the ferocious big sand (*Cicindela formosa*) and Leconte's festive (*Cicindela scutellaris lecontei*) tiger beetles.

Field Trip #6 (Full Day, 50 People Max, 3.25 Hours Travel Round Trip)

Middle Raccoon River Valley Revival

Field trip leaders: Jon Judson, Diversity Farms, Carissa Shoemaker, Whiterock Conservancy and Beth Henning, Landowner

Plant specialist: Deb Lewis, Curator Ada Hayden Herbarium, Iowa State University



NorthAmericanPrairie.org

Physical challenges to expect: Low to moderate

Henning: A walk of less than 0.75 miles, mostly on level to gently sloping land with one short steep hill. Gators will be available to transport people up the hill if needed. Whiterock: Hayracks will transport people from Henning to Whiterock and then up to a hill top. Walking distance will be 0.5 to 0.75 miles mostly downhill and on level trails. Tuel Prairie: Hayracks will transport people from the road to the prairie. Walking in Tuel Prairie will require a short hike through standing grass.

Nedtwig-Henning Oak-Hickory Savanna

Host: Beth Henning, landowner for these 87 acres of conservation land adjacent to Whiterock Conservancy.

Field trip participants will have an opportunity to see oak-hickory savanna, a mix of remnant and reconstructed prairie, and a “baby oak nursery,” a small area intentionally unburned for five years in order to let new oaks get a good start. Several years into this experiment, the number of oak seedlings and young saplings has exploded! The soils indicate the native vegetation was likely oak savanna/tallgrass prairie (43%), oak savanna/midgrass prairie (12%), mesic tallgrass prairie (27%), wet/wet-mesic tallgrass prairie (12%) and oak forest (6%). Plants of special interest: Floristic surveys in 2004 and 2017 by Dr. Tom Rosburg documented 227 vascular plant species, including 43 high conservative species (CC \geq 7). Some of the higher conservative species include prairie dropseed, threadstem nutsedge (*Cyperus filiculmis*), dotted blazingstar, prairie parsley (*Polytaenia nuttallii*), Junegrass, prairie violet, hoary frostweed (*Helianthemum bicknellii*), slender leaf pinweed (*Lechea tenuifolia*), smooth blue aster and prairie coreopsis. This site provides a nice opportunity to discuss management challenges related to oak regeneration in savanna ecosystems. Beth can also provide insight on how putting a conservation easement on the property in 2018 has affected management.

Whiterock Conservancy

Host – Carissa Shoemaker, Whiterock Conservancy Land manager, Whiterock Conservancy staff

Whiterock Conservancy is a non-profit land trust that manages and shares 5,500 acres donated by the extended family and business partners of Stephen and Mary Garst. The land trust balances sustainable agriculture, natural resource protection and ecological restoration, and public recreation in one of the state’s best examples of a working landscape. Whiterock Conservancy is nestled into the Middle Raccoon River valley near Coon Rapids (northern Guthrie County) in west-central Iowa where agriculture dominates current land uses. The native landscape was a mosaic of tallgrass prairie, sandstone prairie, oak savanna and woodland, oak/hickory forest, marshes and wet seeps. A cursory and informal vascular plant species list contains over 425 species. Discussion will focus on the restoration efforts underway, the many challenges encountered and as well as some of the recent and ongoing research underway related to ecological restoration and protection. The tour will include a hayrack ride to a hilltop affording a wide view of the Middle Raccoon River valley and nearby savanna, native floodplain prairie, and reconstructed prairie on former cropland.

Lunch at the Whiterock River House with access to shade and restrooms

Situated along the banks of the Middle Raccoon River in the heart of the Whiterock Valley, the River House and Dance Barn provide an ideal location for weddings, reunions and parties in general. Liz Garst, a former landowner and cofounder of Whiterock, will tell the story of the origin, history, and guiding philosophy of Whiterock Conservancy.

Tuel Prairie at Diversity Farms

Host: Jon Judson

Tuel Prairie is a 12-acre native, mesic tallgrass prairie surrounded with carefully reconstructed prairie to create a full 40-acre prairie tract. Tuel Prairie is permanently protected through a conservation easement donated to the Iowa Natural Heritage Foundation. The prairie was utilized by Dr. Tom Rosburg in a study funded by the NRCS and the Ecological Site program to collect plant species composition and plant productivity data on the native ecosystems associated with specific soils. The prairie is associated with Clarion and Storden soils, both formed in glacial till. Plants of special interest: cream wild indigo, leadplant, New Jersey tea and redroot (*Ceanothus americanus* and *C. herbaceus*). Bicknell’s sedge, prairie gentian, prairie goldenrod, slimleaf scurfpea (*Psoralidium tenuiflorum*), prairie violet, porcupine grass, Illinois tick trefoil, prairie turnip, bastard toadflax, long-haired hawkweed (*Hieracium longipilum*) and Junegrass. Discussion topics will cover Jon’s story of finding and protecting the remnant and the management strategies he has in place, in particular the control strategies for smooth sumac which include chemical and mechanical methods. There will be an opportunity to view different age class prairie reconstructions ranging between 4 and 10 years with discussion of harvest equipment, site preparation, and timing of seeding.

Field Trip #7 (Full Day, 50 People Max, 1 Hour Travel Round Trip)

Neal Smith National Wildlife Refuge

Field trip leader: Karen Viste-Sparkman, Neal Smith NWR, Fish & Wildlife Service

Insect specialist: Dr. Karen Stiles, Polk County Conservation Volunteer Program



NorthAmericanPrairie.org

Physical challenges to expect: Low

Walking access to most of the sites is short and easy. There is one short hike uphill through mowed grass into tallgrass prairie which has uneven ground. The hike through the bur oak savanna is about a half-mile on a trail in rolling topography.

Neal Smith National Wildlife Refuge is a unique ecological restoration project featuring endangered tallgrass prairie and oak savanna ecosystems. It is one of the first large-scale prairie reconstruction projects ever attempted. Since its inception in 1990, over 4,000 acres of farmland have been planted to tallgrass prairie. Tallgrass prairie, oak savanna, and sedge meadow were the native ecosystems existing on the Refuge prior to Euro-American settlement. The 6,000-acre Refuge has once again become a home to hundreds of prairie plant species, re-introduced bison, elk, and regal fritillary butterflies, and rare grassland birds and bees. The refuge serves as a major environmental education, volunteer, and outdoor recreation hub for people of all ages and backgrounds to enjoy. Each year thousands of school children participate in the refuge's environmental education programs. Neal Smith also strives to provide assistance to local landowners as they improve their lands for wildlife habitat. Lastly, the refuge tries to increase scientific knowledge and understanding of the prairie and savanna through ongoing targeted and innovative research.

Reconstructed tallgrass prairie

The refuge includes more than 4,000 acres of former agricultural fields that have been planted to tallgrass prairie since 1992, including more than 200 species of local ecotype tallgrass prairie plants. We will visit one of our most successful reconstructions, and discuss land management challenges and solutions. Topics may include hydrologic alteration, erosion, invasive species, seed selection, planting prescriptions, constraints and benefits of working on federal land, and wildlife responses to management.

Bur oak savanna restoration

The refuge includes about 300 acres of degraded remnant bur oak savanna. Restoration work in the savannas has focused on removing fire-intolerant tree species in some of these remnants, managing invasive species, and limited seeding of natives. We will visit a remnant where restoration work has been concentrated and discuss some of the techniques that the refuge is using.

Science-based Trials of Rowcrops Integrated with Prairie Strips (STRIPS)

The STRIPS project began at Neal Smith NWR, where Iowa State University scientists began testing the effects of integrating restored prairie into crop fields. The scientists established four different treatments on 12 small watersheds at the refuge in 2007. Treatments include 1) 100% row-crop, 2) 90% row-crop with 10% prairie at the bottom of the watershed, 3) 90% row-crop with 10% prairie integrated along strips, and 4) 80% row-crop with 20% prairie integrated along strips. Scientists are studying how each treatment affects soil movement, nutrient retention, and biodiversity within the watersheds. They have found that by integrating a small percentage of prairie into row crops, they are able to disproportionately benefit soil and water quality and native plants, insects, and birds. As an added benefit, economic analysis shows that prairie conservation strips are one of the most affordable conservation practices available to farm landowners. The practice is now accepted in Farm Bill programs and is being implemented on private lands throughout the region. Discussion will address the science in this study and its implications for attaining sustainable agricultural practices.

Lunch on site in the visitor center dining area.

The Prairie Learning and Visitor Center

The visitor center houses an exhibit area, a movie theater, classrooms, and the Prairie Point Nature Store, operated by the Friends of Neal Smith NWR. Friends members will be present to greet visitors and provide refreshments. Refuge staff will discuss the refuge's environmental education and other visitor programs, and there will be time to view the excellent 15-minute movie about the refuge and look through the exhibits or go shopping. The refuge's greenhouse facilities are used to propagate native plants to increase diversity in its reconstructed prairie. In recent years, the refuge has grown tens of thousands of plants for distribution to the public to promote awareness about pollinators and the importance of native plants. Facilities include two greenhouses, a seed lab, and a variety of seed harvesting, cleaning, and planting equipment. Bison once numbered in the millions and roamed great distances across the prairie ecosystems. These large herds had enormous impacts on the prairie ecosystems. Elk were once common in the tallgrass prairie of Iowa. Neal Smith National Wildlife Refuge has small herds of bison and elk in an 800-acre enclosure that helps shape the tallgrass prairie reconstruction. Discussion will focus on management issues for the bison and elk and research on the impacts they have had on the prairie reconstruction.

Field Trip #8 (Full Day, 50 People Max, 2.75 Hours Travel Round Trip)

Prairie Pioneer Cemeteries in Central Iowa

Field trip leaders: Glenn Pollock, Iowa Prairie Network
and Karen Grimes, Iowa Department of Natural Resources

Transportation in a 15-passenger van and a car.



NorthAmericanPrairie.org

Physical challenges to expect: Low

Polk City Cemetery: Easy walking for short distances on a road surface and on gentle to moderate slopes. Greenwood Cemetery: Easy walking for short distances on a road surface and level land. Franklin Cemetery & Tipton Prairie: A 0.6-mile round trip hike, with a moderately steep uphill slope.

Polk City Cemetery

Polk City Cemetery is one of the oldest cemeteries in Polk County, apparently established in 1852 according to the date of a burial. It is an active cemetery, with 60% of its 9.5 acres managed as a cemetery. Two prairie remnants, totaling approximately 2.3 acres (25% of the cemetery), are located on areas with moderate slopes. The cemetery is near the southern terminus of the Des Moines Lobe and the edge of the Wisconsin ice sheet that melted and receded 12,000 years ago. A consequence of the melting ice was the deposition of coarse sands and gravels in glacial outwash features near the margin of the ice sheet. The cemetery sits on a such a deposit, an elongate mound of gravel and sand that is 20 to 30 feet deep, on the floodplain of Big Creek. The prairie is therefore a remnant of a xeric to very dry-mesic prairie community that supports a species composition unique to central Iowa. Most of the surrounding land is owned by the Army Corps of Engineers. For many years, management was sporadic at best and the remnants became very degraded. However, since 2019 the Drake Prairie Rescue and Restoration program has adopted the site and recent work has resulted in substantial improvement. Plant species observed include: Mead's sedge, porcupine grass, prairie dropseed, side-oats grama, little bluestem, lead plant, ground plum, pale purple coneflower, prairie larkspur, prairie violet and white and purple prairie clover, big root prickly pear, cut leaf primrose, rocky mountain bee plant. Species indicative of the xeric environment are hairy grama (*Bouteloua hirsuta*), western evening primrose, Patagonia plantain, Carolina anemone (*Anemone caroliniana*), and eastern prickly pear cactus (*Opuntia humifusa*). There are a few bur oak trees on the adjacent property. This site was surveyed by Ted Van Brugen in the 1950s; some recorded species have disappeared such as *Penstemon grandiflorus* and *Salix humilus*.

Greenwood Cemetery Host: Brad Halterman, Guthrie County Conservation Board

Native prairie occupies approximately two acres on loamy soil along the southern and eastern portions of this rural cemetery near Panora. Although there is some disturbance and exotic species invasion, most of the prairie contains a highly diverse flora, including native grasses big bluestem, little bluestem, prairie dropseed, and porcupine grass. Also present are prairie shrubs like leadplant, New Jersey tea, and redroot (*Ceanothus herbaceus*), as well as numerous forbs including butterfly milkweed, cream indigo, purple and white prairie-clovers, rattlesnake-master, and rough blazingstar. Discussion will address how Brad and the County Conservation staff have managed the prairie with brush control and prescribed fire.

Lunch at the Guthrie County Historical Center in Panora

The Guthrie County Historical Village and Museum has been exhibiting historical treasures, including an 1851 log cabin, and providing educational resources since 1968. The Village, located on a 4-acre complex on the southwest side of Panora, Iowa, features twelve buildings, numerous exhibits, and thousands of artifacts that explore the history of Guthrie County from 1850 to the early-20th Century.

Old Franklin Cemetery & Tipton Prairie

The Old Franklin Cemetery was established in 1865 in southeastern Greene County. It is designated a Pioneer cemetery by the Greene County Pioneer Cemetery Commission. The cemetery is located on a hill top in a semi-wooded pasture about 400 feet south of Tipton Prairie, a Greene County Conservation site. A hike to Old Franklin Cemetery passes through the Tipton Prairie, a 2.6-acre remnant of very nice mesic and dry-mesic tallgrass prairie. A floristic study completed by Dr. Tom Rosburg from 2020 to 2021 found 192 vascular plant species of which 89.6% are native. Prairie quality is especially high; there are 57 high conservative species present (33% of the native species). Most of the site is mesic tallgrass prairie, but on the highest part of the prairie, where the soil is especially gravelly, there are species present that characterize dry mid-grass prairie. Some of these include dotted blazingstar (*Liatris punctata*), hairy grama, Junegrass, western muhly, fringed puccoon, bird's-foot violet and hairy four o'clock. Other interesting species you could see are rattlesnake master, Missouri goldenrod, ground plum, prairie turnip, silver leaf scurf pea, western evening primrose (*Calylophus serrulatus*), prairie phlox, Culver's root and prairie larkspur. Five species of *Dichanthelium* and three listed plant species are present.

Field Trip #9 (Full Day, 50 People Max, 1.5 Hours Travel Round Trip)

Remnants and Research in Jasper County

Field trip leader: Elizabeth Hill, Environmental Consulting & Technology, Inc.

Plant specialist: Dr. Michaeleen Golay, Wartburg College

Insect specialist: Steve Hummel, Iowa Odonata Survey



NorthAmericanPrairie.org

Physical challenges to expect: Moderate

Conard: Moderate hiking on flat to gently sloping roads or trails for 1.0 to 1.5 miles. Reichelt: Moderate off-trail hiking on steep slopes for 1.0 mile

Conard Environmental Research Area

Host: Emily Klein, CERA Manager/Center for Prairie Studies Outreach Coordinator

The Conard Environmental Research Area (CERA) is a 365-acre field station owned by Grinnell College, and is used for class field trips, student and faculty research, and is open to the public for hiking and exploration.

In the early 20th century, Grinnell College biology professors and students started visiting the area now known as CERA to explore the oak forests overlooking the North Skunk River, taking the train to Kellogg and then walking to the property. In 1968, the College purchased 365 acres of land and named it to honor Henry S. Conard, a professor of botany at the College from 1906–1944 and authority on Iowa's flora and natural history. In the years of college ownership, Perry Pond was constructed (1972), Graham Lab was built (1983), Prairie Cairn was installed (2001), and the modern Environmental Education Center (EEC) opened (2005).

Intensive management and restoration of the property began after former professor Ben Graham attended the North American Prairie Conference in 1972. By 1988, all former cropland had been planted to native prairie, and oak savanna and woodland restoration had begun. More recently, management goals have been to increase species diversity, restore prairie and oak savanna remnants, control exotic species, and reintroduce fire to all habitats.

The hike will take participants through white oak woodlands, bur oak savanna, a small prairie remnant, 20+ year old fire/mowing experimental plots, and some of the oldest reconstructed prairie in the state of Iowa. Participants will stop for lunch at the EEC, and view the Prairie Cairn, a stone cairn built by British artist Andy Goldsworthy, made from Iowa limestone. Prairie Cairn was photographed over a period of 18 months to document the sculpture in varied conditions, including during a prairie burn in 2002. The resulting suite of panoramic images is now in the collection of the Des Moines Art Center.

Lunch at CERA

Reichelt Unit, Rock Creek State Park

The Reichelt Unit of Rock Creek State Park is located 1.0 mile north of CERA, and harbors one of the best prairie remnants in the area. In 1986, area farmer Sherman Reichelt donated 444 acres to the Iowa Department of Natural Resources with the mandate that it be converted to forest. Along with native tree species, the invasive species autumn olive and Tartarian honeysuckle were planted on previously farmed areas of the property. Twenty acres of native prairie remnant still remain on the western slopes of the Reichelt Unit, and this area is managed infrequently with fire. The hike will take participants off-trail, along the prairie-remnant covered slopes.

Field Trip #10 (Full Day, 50 People Max, 3 Hours Travel Round Trip)

Timberhill Savanna and Woodland

Field trip leader: Pauline Drobney, retired U.S. Fish and Wildlife Service

Plant specialist: Pauline Drobney

Fungi & plant specialist: Sibylla Brown, Landowner



NorthAmericanPrairie.org

Physical challenges to expect: Moderate

A hike of about 1.5 to 2 miles, half of it on a farm lane and half of it off trail on areas with gentle to moderate slopes. A walk to and from the bus on a long uphill driveway is included.

Timberhill Savanna is among the best examples of high-quality savanna and woodland in the Midwest. Located near the town of Leon, it is situated among rolling hills of the Southern Iowa Drift Plain landform that historically supported a mosaic of prairie, savanna, and sedge meadow. Abundant woodland and forests on the landscape are testimony to a savanna heritage, though most are highly degraded and overgrown with trees.

Timberhill Savanna is a 200-acre tract with ridgetop prairie openings, steeply timbered slopes and ravines and was purchased more than 25 years ago by Sibylla and Bill Brown. During a walk with a botanist, plant species found among the oaks clearly indicated that this was a degraded savanna with good restoration potential. Following guidance from experts, the Browns thinned many non-oak trees and in 1995, began burning annually in the dormant season in a manner reminiscent of former fire traditions of Native People.

The results have been impressive! With abundant light penetrating to the understory, herbaceous plant species diversity flourished. By 2005, 397 species were documented with a native FQI of 85.2 and the number of plant species documented continues to increase. Studies, including some done by Sibylla, indicate presence of many highly conservative plant, invertebrate and fungus species.

Restoration of Timberhill Savanna is especially important as temperate-zone oak savannas are one of the world's most endangered ecosystems, classified G-1, globally endangered with a scant 0.02% remaining. Restoration at Timberhill Savanna is a clear indication of the significant contributions that private landowners can make in conserving native ecosystems. Sibylla has documented their 20-year savanna and prairie restoration journey in a book: *Timberhill: Chronicle of A Restoration*.

Lunch on site at the residence of Sibylla Brown

Plants of special interest:

Among plant species of interest are wild hyacinth (*Camassia scilloides*), yellow ladies slipper orchid (*Cypripedium calceolus* var. *pubescens*), purple coneflower (*Echinacea purpurea*), Wolf's bluegrass (*Poa wolfii*), and bellwort (*Uvularia grandiflora*). An intensive inventory of the vascular plants and ants of the Timberhill Oak Savanna is found in the report "Timberhill Savanna Assessment of Landscape Management" by Gerould Wilhelm, Laura Rericha and Iowa Valley Resource Conservation and Development.

Field Trip #11 (Full Day, 50 People Max, 2 Hours Travel Round Trip)

A Walkabout on the Southern Iowa Drift Plain

Field trip leader: Andy Asell, Iowa Department of Natural Resources

Plant specialist: Justin Meissen, Tallgrass Prairie Center

Insect specialist: Sarah Nizzi, Xerces Society and Natural Resources and Conservation Service



NorthAmericanPrairie.org

Physical challenges to expect: Moderate

Rolling Thunder: A hike through tallgrass prairie to make about a 1-mile long loop on gentle to moderately steep slopes. The 1-mile loop will involve crossing a ravine. Martha's Prairie: An easy walk on a level B dirt road for 0.6 miles (round trip) to access remnants along the road. Medora Prairie: An easy hike on a loop of about 0.5 miles through mesic tallgrass prairie on level to gently sloping terrain.

Rolling Thunder Prairie and State Preserve

Host: Warren County Conservation Staff

Rolling Thunder Prairie is located on the Southern Iowa Drift Plain landform region, which is characterized by a mantle of loess 5 to 30 feet thick that was deposited 27,000 to 17,000 years ago over glacial till that is over 500,000 years old. A common feature on eroded slopes is the exposure of a paleosol and the formation of wet seeps. The long absence of glacial deposits has created a highly, stream-dissected landscape. The native vegetation on the Southern Iowa Drift Plain was a mosaic of tallgrass prairie, savanna, woodland and forest, along a gradient from more frequent to less frequent fire. There are 362 acres of public land at the site, including the 123 acre Rolling Thunder State Preserve. Plant species of interest: The mesic tallgrass prairie plant community includes spring-flowering hoary puccoon, golden alexanders, and prairie phlox, bird's-foot violet, violet wood sorrel, blue-eyed grass, indigo bush, yellow stargrass, wild indigo, and false gromwell. Summer-flowering species include prairie cinquefoil, leadplant, pale purple coneflower, pale spiked lobelia, spiderwort, purple prairie clover, and rattlesnake master. Fall-blooming species include heath aster, New England aster, prairie gentian and Jerusalem artichoke. Several milkweeds likely to be evident during our July visit are butterfly, whorled, purple, green (*Asclepias viridiflora*), and prairie (*Asclepias hirtella*). Song sparrows, bobolinks, grasshopper sparrows, and western meadowlarks are frequently seen here. Recorded butterfly species include dusted skippers, regal fritillaries, coral hairstreaks, and common wood nymphs. Discussion topics may include invasive species control, such as blackberry, raspberry and Osage orange (*Maclura pomifera*), which are common problems in local prairies.

Lunch at Hickory Hills County Park

Hickory Hills Park is 160 acres of rolling landscape with a mosaic of forest and open fields located 13 miles south of Indianola. The park features a primitive camping area, a small pond, trails, a large shelter with a raised deck, and an old homestead site that includes the original storm cellar, a farm house foundation and a barn. A network of Indian mounds is also protected by the park.

Martha's Prairie

Host: Andy Asell (land manager), Indianola, IA

Martha Skillman, affectionately known to prairie enthusiasts as "Iowa's Grandmother of Prairie" purchased this prairie in 2006 from Cindy Hildebrand and Roger Maddux, who acquired and protected it in 2001 with a TNC conservation easement. It was the first site that the Drake Prairie Rescue Program, which was established in 2003 by Tom Rosburg, worked on with Drake students. Since that first workday, Drake Prairie Rescue has done 17 prescribed burns or brush/tree clearing projects on the prairie. More recently, over the last 5 years, Andy Asell has adopted the site and assumed management responsibilities for the prairie. Martha's Prairie is unlike the other two sites on this field trip in that it occurs on the lower slopes of a valley, rather than on ridges. The site is small in size, 20 acres total with 10 acres of remnant prairie. The site visit will focus on two small, yet nice mesic tallgrass prairie remnants of 1.0 and 0.5 acres. Species composition at Martha's is similar to Rolling Thunder and Medora Prairies with significant populations of prairie blazing star, porcupine grass, and prairie willow (*Salix humilus*). Discussion topics will focus on the channelization of nearby Squaw Creek in the early 1900s and its continuing effect on neighboring uplands today.

Medora Prairie

Host: Warren County Conservation Staff

Medora Prairie is a 100-acre site recently transferred to the Warren County Conservation Board from the Iowa Chapter of The Nature Conservancy, who initially protected it in September 1996. It occurs on a landscape typical of the Southern Iowa Drift Plain landform – mesic tallgrass prairie on the broad ridges and forest in the intervening ravines. The soils include, from the ravines to the highest ridges, Colo-Ely (formed in alluvium/colluvium under tallgrass prairie), Gara (formed in glacial till under savanna), Adair (formed in thin loess or an underlying paleosol under tallgrass prairie), and Sharpsburg (formed in loess under tallgrass prairie). Plant species of interest: Medora Prairie was a study site used by Dr. Tom Rosburg in a study funded by the NRCS and the Ecological Site program to collect data on the plant species composition and productivity for the native ecosystems associated with specific soils. His data identify many of the more common species as tall coreopsis (*Coreopsis tripteris*), little bluestem, Indiangrass, tall dropseed, big bluestem, prairie phlox, Bush's sedge (*Carex bushii*), round-headed bush clover, whorled milkwort (*Polygala verticillata*), white wild indigo, butterfly milkweed and rough blazingstar. Discussion topics will focus on the local soils and how they correlate to patterns in the plant communities observed at the 3 sites.

Field Trip #12 (Half Day, 20 People Max, 1 Hour Travel Round Trip)

Prairie Tours and Native Landscaping I

Field trip leader: Inger Lamb, Prairie Landscapes of Iowa



Physical challenges to expect: None

This is a walking tour on paved trails over flat to very gentle topography. One section will require walking $\frac{3}{4}$ mile at a slow pace. Total walking distance for both sites is about 1 mile.

The first stop in Johnston will feature the Green Meadows subdivision, a collection of reconstructed prairie sites ranging in age from 3 to over 20 years in age. In all they cover about 20 acres with a wide range of slopes, soil environments, and moisture. A walk on the paved trails through this area will provide good access to explore and view the prairie communities. Discussion will review the challenges encountered in urban reconstructions: 1) plant establishment and vegetation maintenance, 2) integration of native landscapes with traditional landscaping, and 3) educating and interfacing with residents and the HOA board.

The second site is a Des Moines office building on Hickman Avenue with an acre of reconstructed prairie. In addition, there are several parking lot islands and building edge areas with established native landscaping. Management goals and environmental conditions differ significantly from the first stop on this tour.

Field Trip #13 (Half Day, 20 People Max, 1 Hour Travel Round Trip)

Prairie Tours and Native Landscaping II

Field trip leader: Inger Lamb, Prairie Landscapes of Iowa



Physical challenges to expect: None

This is a walking tour on paved trails over flat to very gentle topography. One section will require walking $\frac{3}{4}$ mile at a slow pace. Total walking distance for both sites is about 1 mile.

The Des Moines Beavertdale Neighborhood is recognized locally for the distinctive appearance of its brick homes, tree-lined streets, and its closeness to shopping, work, and parks. This tour will cover two adjacent private residences with yards that have over 20 flowerbeds ranging from 3 to 8 years since establishment. A wide range of species will be on show due to variation in sun and moisture regimes. We will review challenges encountered during planning, establishment and maintenance phases.

If there is time, and depending on the group, a second site may be visited.

Field Trip #14 (Half Day, 50 People Max, 1.5 Hours Travel Round Trip)

Urban Sustainable Landscapes

Field trip leader: Caitlin Schultes, Diversity Farms, Inc.



Physical challenges to expect: None

This is a walking tour on level ground.

Ames: Workiva's Corporate Colors – the native approach

A commitment to the environment starts at Workiva's headquarters in Ames, Iowa by placing importance on protecting and promoting biodiversity and reducing their overall impact on local habitats. A three-acre prairie created from a diverse seed mix with over 50 locally native species maintains a habitat for birds, butterflies, insects, and small mammals to flourish. The headquarters campus also has designed beds that were created with nearly 10,000 native prairie plugs. In addition to the prairie and landscaped beds, bioswales in the parking lot help filter out pollutants and other debris that would otherwise flow directly into the storm water system. During this tour we will discuss site preparation, species selection, short term and long-term management goals including urban fire and management of nonnative weeds and woodies.

Des Moines: Krause's Prairie in the Sky

In the heart of downtown Des Moines, we will visit the "Prairie in the Sky." A prairie six stories high on the roof of the Krause Gateway Center, designed by the world-renowned architect Renzo Piano. The rooftop prairie promotes sustainability by helping lessen the impact of water runoff and reduces energy usage. In addition to the rooftop prairie, there are several native prairie beds on the ground level. Over 60+ locally native species were used in the design pallet to create the unique native landscape. The rooftop prairie was created with nearly 17,000 plants and the ground beds were created with nearly 13,000 plants. During this tour we will discuss soil medium, soil depth, irrigation, maintenance, plant selection, and design.

Field Trip #15 (Half Day, 50 People Max, 1.75 Hours Travel Round Trip)

Allendan Seed Company

Field trip leader: Teresa Frome or Kelly Hayes

Host: Allendan Staff



NorthAmericanPrairie.org

Physical challenges to expect: None

This is a walking tour on level ground both indoors and outdoors.

Dan Allen, founder of Allendan Seed Company, recognized the demand for such indigenous species in 1980 and set out to fulfill this need for prairie. Currently, Allendan Seed is one of the largest producers of native prairie grass and wildflower seed. Thousands of pounds wholesale and retail, are shipped all across the United States. Allendan Seed produces over 250 species of native grass and wildflowers.

The business began and remains family operated. Dan and Sonia Allen began farming conventional row crops in 1976 after graduating from Northwest Missouri State with degrees in Agronomy and Education respectively. Throughout the 90's, their four children migrated home to farm upon graduating from Iowa State University. Chad Allen manages and runs the native grass and wildflower production fields. Angela (Allen) Barker is responsible for purchasing, sales, as well as warehouse and inventory control. Scott Allen operates the sod farm sector. Finally, Kelly (Allen) Hayes manages the green houses and irrigated production fields. When a guest touring the farm commented, "You must have won the lottery," Dan responded, "No, I was just fortunate that all my kids came back to help run the business. To be successful you have to have people who are truly dedicated and love what they do."

The tour at Allendan Seed Company will provide the opportunity to learn about every stage of the native seed and plug production process. The guided tour will start at the main facility, giving you an inside look at the seed drying and cleaning process. You will be able to observe how the seed is separated from inert material all the way to our final product of clean seed ready to package.

At our greenhouse facility you will witness the seeding and transplanting process. Our tour guide(s) will explain the growing process and what it takes to create healthy plants for the fields. In addition, you will be able to see the nursery and the farm fields at our home base of operations.

Toward the end of your visit, you will have the chance to stroll through some of the production fields at one of our farms observing many of our species at various stages of growth. You will be able to experience an array of scents and witness bees in their daily commutes collecting nectar and pollen.

Please wear comfortable closed toed shoes as this will be a walking tour. Bottled water will be available along with the opportunity to purchase seed and a variety of pollinator plugs.

For more information about Allendan: <https://www.allendanseed.com/>

Field Trip #16 (Half Day, 50 People Max, 1 Hours Travel Round Trip)

Des Moines Parks and Recreation

Field trip leader: Paul Strome, Des Moines Parks and Recreation

Host: Des Moines Parks and Recreation



NorthAmericanPrairie.org

Physical challenges to expect: None

This is a walking tour on level to gently sloping ground.

Des Moines Parks and Recreation was established in 1892 and is responsible for the management of over 4,000 acres of land and 76 parks across Des Moines. The staff oversees land management of prairie, savanna, forest and wetland ecosystems, and offers numerous programs in the areas of sports, urban conservation, environmental education, sport instruction, volunteerism, rentals and special events. Three sites will be visited during this tour.

Greater Des Moines Softball Park

A tallgrass prairie reconstruction occupying about 16 acres is featured here. Many of the planted species are high conservative species. There are 7 species with a coefficient of conservatism equal to 7 or higher. These include prairie cinquefoil, rattlesnake master, panicked tick-trefoil, pale purple coneflower, white wild indigo, compass plant and golden alexanders. Other prairie species you can find here include, narrow leaf mountain mint, showy tick trefoil, and sneezeweed.

MacRae Park

MacRae Park is 51 acres, much of it supporting an upland oak forest. Woodland and savanna restoration has resulted in areas with more open structure and higher light levels in the herbaceous layer. The native landscape was probably a mosaic of prairie, savanna and open woodland, with some small pockets of forest. Plant species present here include mullein foxglove (*Dasistoma macrophylla*) panicked tick-trefoil, American vetch, curly-styled wood sedge, dutchman's breeches, white rattlesnakeroot (*Prenanthes alba*), late horse gentian, rock cress (*Arabis shortii*), pale Indian plantain and blue-eyed grass.

Ewing Park

Ewing Park covers 355 acres and provides many recreational opportunities. Dr. Thomas Rosburg completed a natural resource inventory of over 3,000 acres of park land in 2012. He mapped and identified 107 plant communities at Ewing Park. One of these, identified as a mixed grass and forb community, supported a few remnant populations of prairie species such as Illinois tick trefoil, flowering spurge, big bluestem and switchgrass. The last stop will be at this site to see and discuss the restoration work underway.

Field Trip #17 (Half Day, 50 People Max, 1 Hours Travel Round Trip)

Neal Smith Wildlife Refuge

Field trip leader: Anna DeLaFuente, Neal Smith NWR, Fish & Wildlife Service

Host: Neal Smith National Wildlife Refuge Staff



NorthAmericanPrairie.org

Physical challenges to expect: None

Participants will be inside. There is an optional outdoor walking tour on paved trails over flat to very gentle topography.

Neal Smith National Wildlife Refuge is a unique ecological restoration project featuring endangered tallgrass prairie and oak savanna ecosystems. It is one of the first large-scale prairie reconstruction projects ever attempted. Since its inception in 1990, over 4,000 acres of farmland have been planted to tallgrass prairie. Tallgrass prairie, oak savanna, and sedge meadow were the native ecosystems existing on the Refuge prior to Euro-American settlement. The 6,000-acre Refuge has once again become a home to hundreds of prairie plant species, re-introduced bison, elk, and regal fritillary butterflies, and rare grassland birds and bees.

The refuge serves as a major environmental education, volunteer, and outdoor recreation hub for people of all ages and backgrounds to enjoy. Each year thousands of school children participate in the refuge's environmental education programs. Neal Smith also strives to provide assistance to local landowners as they improve their lands for wildlife habitat. Lastly, the refuge tries to increase scientific knowledge and understanding of the prairie and savanna through ongoing targeted and innovative research.

This tour will be centered around the Prairie Learning and Visitor Center, viewing the exhibits and hiking on the nearby trails.