Final Report for Franklin Creek State Natural Area
Botanical Inventory and Natural Community Mapping Project

Funded by Franklin Creek Conservation Association, Illinois Clean Energy Community Foundation, and The Nature Conservancy

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INTRODUCTION

Franklin Creek State Natural Area (FCSNA) is a 932-acre site located in Lee County, Illinois owned by the Illinois Department of Natural Resources (Figure 1.). It contains a north and south unit, separated by Old Mill Road, and most of the property is a dedicated nature preserve. It occurs entirely within the Oregon Section of the Rock River Hill Country Natural Division, which is notable for the exposure of New Richmond sandstone, the oldest exposed rock formation in the state. Exposures of St. Peter sandstone and Shakopee dolomite are also present within the preserve.

A portion of the current nature preserve was dedicated as the 24th Illinois Nature Preserve with final approval granted in 1970 (Bittner 1995). It is recognized as a significant natural area for its undisturbed bedrock exposures, glacial drift hill prairies, and high quality forests (Szafoni 1987). Many adjacent parcels were later acquired and added to the nature preserve.

This is an INAI site (#1068) evaluated by Fran Harty and Robin Moran in 1977. It qualified as a category III site (Illinois Nature Preserve) and a category IV site (outstanding geologic feature) for the exposure of New Richmond sandstone. The authors also noted the presence of exceptional features like a grade A sandstone cliff and grade C glacial drift hill prairie. Other natural communities documented during the 1977 survey include dry-mesic upland forest, mesic upland forest, dry upland forest, mesic bottomland forest, perennial stream, and successional field, although none have been delineated as high quality natural communities according to INAI survey standards and protocols.

Later it was added as a category II site for the presence of threatened or endangered species when a specimen of Cystopteris laurentiana collected from the site was annotated by Robin Moran (see Appendix). A 1987 report mentions the need for a complete inventory of heritage resources to document “additional natural values which may occur on the site” (Szafoni 1987). This report serves as that inventory and one new heritage record, an occurrence for Eurybia furcata, resulted from the 2018 survey.

METHODS

A comprehensive inventory of all the highest quality areas within the FCSNA, which is mostly the nature preserve within the southern unit of the FCSNA, was performed on five separate visits on the following 9 dates in 2018: May 6, 7, June 12, 13, July 17, 18, August 11, 12, and October 2. Not all areas within the FCSNA were surveyed, but in general the south unit was extensively investigated and all the highest quality areas were closely examined. These remnants yielded the most conservative plant species for the inventory.

Five species lists were created based on the highest quality natural communities at the site: one for the entire site, one for the steep slopes and cliffs, one for the seeps, one for the hill prairies, and one for the savannas by Twist Road and Franklin Creek.

The steep slopes and rock outcrops harbored the most conservative species, including some northern species at the southern edge of their range, and were grouped together. Many of the species on this list are located on the forested slope to the south and east of Mill Spring, but
many small and isolated cliff exposures occur throughout the southern unit. These areas host rich displays of spring ephemerals, ferns, and woodland sedges such as wild ginger (*Asarum canadense*), red and white baneberry (*Actaea spp.*), bishops cap (*Mitella diphyllos*), bellwort (*Uvularia grandiflora*), blue ash (*Fraxinus quadrangulata*), liverleaf (*Hepatica acutiloba*), shooting star (*Dodecatheon meadia*), leatherwood (*Dirca palustris*), American spikenard (*Aralia racemosa*), pagoda dogwood (*Cornus alternifolia*), Canada yew (*Taxus canadensis*), blue cohosh (*Caulophyllum thalictroides*), mayapple (*Podophyllum peltatum*), white bear sedge (*Carex albursina*), gray sedge (*Carex amphibola*), and curly-styled wood sedge (*Carex rosea*).

Another list was created for the seep communities within the southern unit. The main seep is located below HP1, but there are two other seep communities: one by Mill Spring and one north of Franklin Creek in a bend of the creek near the Husar barn. The seep communities are dominated by skunk cabbage (*Symplocarpus foetidus*), with scattered individuals of other wetland species like orange jewelweed (*Impatiens capensis*), water cress (*Nasturtium officinale*), fowl manna grass (*Glyceria striata*), and lake sedge (*Carex lacustris*).

Another list was generated based on the glacial drift hill prairie openings. The highest quality glacial drift hill prairie is located at the eastern end of the south unit, referred to as HP1. Another hill prairie occurs on the south side of the river in this area, as well as one by a clearing on the north side of the river off the Husar trail. The hill prairies are dominated by side oats grama (*Bouteloua curtipendula*), pale purple coneflower (*Echinacea pallida*), violet wood sorrel (*Oxalis violacea*), blue-eyed grass (*Sisyrinchium albidum*), common milkweed (*Asclepias syriaca*), mullein foxglove (*Dasistoma macrophylla*), hairy petunia (*Ruellia humilis*), tall anemone (*Anemone virginiana*), and various grass and sedge species.

Another list was generated for the cliffs north of Franklin Creek and west of Twist Road. This area is identified as Savanna because it has a few open grown oaks and is full of prairie grass in between the widely spaced trees. This degraded opening is much lower in natural quality than the other areas where lists were made, but it was unique and easy to access so a separate list was made.

All other species observed within the FCSNA were added to the comprehensive list along with the species observed in the forested slopes/cliffs, hill prairies, and seeps. All the tables list scientific names and Coefficient of Conservatism values (C-values) according to the nomenclature used in the Flora of the Chicago Region (*Wilhelm and Rericha, 2017*). Lists were generated using the FQA calculator (*Freyman et al., 2016*).

A GPS unit recorded tracks for some of the surveys and provides a general idea of the terrain covered during the inventory (Figure 4.). In addition to species lists, natural communities were delineated and graded in order to provide some guidance in restoration efforts. Aerial imagery used in the maps is from ESRI (Source imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.).

* denotes non-native species
RESULTS

Plant Inventory

A total of 392 plant species were observed during the inventory of the FCSNA and 325 species (83.3%) are native to Illinois (Table 1.). There are two taxa not included in the FQA database for taxonomic reasons and are therefore not included in the metrics: *Oryzopsis racemosa* and *Trillium recurvatum f. luteum*. Species observed with a C value of 7-10 represent 24.9% of the species encountered and species with a C value of 10 include *Actaea rubra*, *Adiantum pedatum*, *Aralia racemosa*, *Asarum canadense*, *Asclepias exaltata*, *Asimina triloba*, *Asplenium rhizophyllum*, *Aureolaria grandiflora* var. *pulchra*, *Bromus pubescens*, *Carex amphibia*, *Carex careyana*, *Cornus alternifolia*, *Cystopteris bulbifera*, *Deparia acrostichoides*, *Dichanthelium linearifolium*, *Dirca palustris*, *Echinacea pallida*, *Endodeca serpentaria*, *Eurybia fuscata*, *Galium circaeans*, *Heuchera richardsonii*, *Leersia lenticularis*, *Mitella diphyllea*, *Morus rubra*, *Muhlenbergia sobolifera*, *Pellaea glabella*, *Polypodium virginianum*, *Scutellaria elliptica* var. *hirsuta*, *Selaginella rupestris*, *Taxus canadensis*, and *Woodsia obtusa*. Additionally, 21 species of sedges in the genus *Carex* were identified during the survey. The complete list of species and other conservation metrics are listed in Table 1.

A total of 162 plant species were observed in the slope and cliff communities in the southern portion of the FCSNA and 146 species (91.3%) are native to Illinois (Table 2.). Two taxa are not included in this database for taxonomic reasons and are therefore not included in the analyses: *Oryzopsis racemosa* and *Trillium recurvatum f. luteum*. Species observed with a C value of 7-10 represent 33.8% of the species encountered and species with a C value of 10 include *Actaea rubra*, *Adiantum pedatum*, *Aralia racemosa*, *Asarum canadense*, *Asclepias exaltata*, *Asplenium rhizophyllum*, *Carex amphibia*, *Cornus alternifolia*, *Cystopteris bulbifera*, *Dirca palustris*, *Endodeca serpentaria*, *Eurybia fuscata*, *Galium circaeans*, *Heuchera richardsonii*, *Leersia lenticularis*, *Mitella diphyllea*, *Muhlenbergia sobolifera*, *Pellaea glabella*, *Polypodium virginianum*, *Scutellaria elliptica* var. *hirsuta*, *Selaginella rupestris*, *Taxus canadensis*, and *Woodsia obtusa*. The complete list of species encountered in the slope and cliff communities in the southern portion of the FCSNA and other conservation metrics are listed in Table 2.

A total of 49 plant species were observed in the seep communities in the southern portion of the FCSNA and 41 species (83.7%) are native to Illinois (Table 3.). Species observed with a C value of 7-10 represent 16.3% of the species encountered and include *Angelica atropurpurea*, *Asarum canadense*, *Cardamine bulbosa*, *Carex sprengelii*, *Enemion biternatum*, *Equisetum fluviatile*, *Fraxinus nigra*, and *Symplocarpus foetidus*. The complete list of species encountered in the seep communities and other conservation metrics are listed in Table 3.

A total of 109 plant species were observed in the hill prairie communities in the southern portion of the FCSNA and 85 species (78%) are native to Illinois (Table 4.). Species observed with a C value of 7-10 represent 14.7% of the species encountered and include *Anemonella thalictroides*, *Arnoglossum atriplicifolium*, *Bouteloua curtipendula*, *Carex festucacea*, *Dasistoma macrophylla*, *Desmodium illinoense*, *Dichanthelium villosissimum*, *Echinacea pallida*, *Hesperostipa spartea*, *Lithospermum canescens*, *Oxalis violacea*, *Penstemon hirsutus*, *Pycnanthemum tenuifolium*, *Symphyotrichum oblongifolium*, *Vitis cinerea*, and *Woodsia obtusa*. 
The complete list of species encountered in the hill prairie communities in the southern portion of the FCSNA and other conservation metrics are listed in Table 4.

A total of 102 plant species were observed in the cliff communities along Twist Road in the northern portion of the FCSNA and 77 species (75.5%) are native to Illinois (Table 5). Species observed with a C value of 7-10 represent 11.8% of the species encountered and include Amelanchier arborea, Amelanchier laevis, Cirsium altissimum, Cystopteris protrusa, Dichanthelium lindheimeri, Heuchera richardsonii, Pellaea glabella, Penstemon hirsutus, Polypodium virginianum, Ruellia humilis, Selaginella rupestris, and Woodsia obtusa. The complete list of species encountered in the cliff communities along Twist Road in the northern portion of the FCSNA and other conservation metrics are listed in Table 5.

Previously 173 species had been recorded from various sources over the years (Table 6) and 143 of them were recorded in the 2018 survey. There are 30 species that were recorded in the 1978 survey, but not in the 2018 survey. These include Amorpha canescens, Anemone cylindrica, Aronia melanocarpa, Asclepias viridiflora, Caltha palustris, Chelone glabra, Cornus rugosa, Crataegus crus-galli, Dalea purpurea, Elodea sp., Goodyera pubescens, Hedeoma hispida, Hydrastis canadensis, Juglans cinerea, Liatris aspera, Lycopus americanus, Mimulus ringens, Nuphar advena, Panax quinquefolius, Pedicularis canadensis, Physocarpus opulifolius, Populus grandidentata, Ratibida pinnata, Rosa palustris, Sagittaria sp., Sanicula marilandica, Sporobolus asper, Trillium flexipes, and Woodsia ilvensis. An additional 249 species were added to what was recorded in 1978.

There is one endangered plant species previously known from this site and one threatened plant species that was discovered at the site during these surveys. Cystopteris laurentiana was discovered here in the 1970s by Dr. Robin Moran, a fern expert currently with the New York Botanical Garden. This is the only known occurrence for the species in Illinois. It is a fairly rare plant in the United States with stable populations only in Minnesota and Wisconsin (Figure 5, BONAP, Kartesz 2015). Unfortunately, this species was not observed during this survey and Dr. Moran was not able to provide specific location information. A letter written by Robin Moran to the Department of Natural Heritage at the Illinois Department of Natural Resources in 1989 was located at the Illinois Nature Preserves Commission and is included in the appendix. A previously undocumented population of forked aster (Eurybia furcata), was discovered on a small terrace below a steep slope near Franklin Creek. An EO form and map are attached and have been submitted to the IDNR natural heritage database (Figure 6 & 7, BONAP, Kartesz 2015, and see Appendix). This species is a rare plant of rich mesic woodlands.

Other observations: a northern watersnake (Nerodia sipedon) was encountered along the gravel road by the parking lot on the eastern side of the park.

Natural Community Mapping

There are 8 different natural community types identified at Franklin Creek State Natural Area and they are listed in Table 7. They include Dry-mesic Woodland, Floodplain Forest, Glacial Drift Hill Prairie, Savanna, Seep, Slope/Cliffs, and Cultural. The individual natural community polygons are categorized in Table 8. The Slope/Cliffs areas are technically part of the Dry-mesic
Woodland community and do not represent an actual INAI natural community type, however, the vegetation in these areas is higher quality (more conservative) than the surrounding woodlands so these patches were delineated.

Boundary lines are approximations and were not precisely mapped with GPS and not all natural communities within the FCSNA were delineated. However, all the higher quality habitats and areas with restoration potential were delineated and graded.

Grades within the site are relative to one another and three levels of grade C categories are supplied in order to provide more detailed analysis. Grade C+ areas are the highest quality natural community types within the FCSNA, but in most cases these areas are still low in overall natural quality from an INAI perspective. Grade C- areas are generally dominated by invasive shrubs or weedy monocultures.

Maps displaying the current aerial imagery, historical aerial imagery, and the mapped natural communities for the entire site, and separately for the north and south units, are provided (Figures 1-3.). A map displaying the tracks some of the areas surveyed is included as well (Figure 4.).

Specific notes regarding many of the delineated natural community polygons are included in the following categories below.

**Dry-mesic Woodland**

PolyID 13: This large polygon is mostly Dry-mesic Woodland, but due to mapping constraints, some Floodplain Forest natural communities that occur along Franklin Creek are included. In most areas the steep woodland slopes continue to the creek edge, but in a few locations, like around the Husar barn and picnic area, impressive expanses of Virginia bluebells (*Mertensia virginica*) occur in the floodplain terraces along Franklin Creek. Some of these populations occur in association with Carey’s sedge (*Carex careyana*) and blue ash (*Fraxinus quadrangulata*) and generally the spring ephemeral flora is well represented. The woodlands are dominated by a variety of native upland trees like white oak (*Quercus alba*), red oak (*Quercus rubra*), basswood (*Tilia americana*), shagbark hickory (*Carya ovata*), elms (*Ulmus spp.*), black cherry (*Prunus serotina*), and sugar maple (*Acer saccharum*). On level soils south of Old Mill Road, sugar maple dominates the canopy and as a result very little light reaches the ground layer and it is mostly bare soil. Continued thinning of sugar maple and supplemental seeding of conservative forbs is recommended. The portion of polygon 13 north of Old Mill Road is in much worse condition than the portion of polygon 13 that is along Franklin Creek. The woods in the northern unit are an impenetrable understory of bush honeysuckle (*Lonicera maackii*). It should be considered grade C- and in need of a major restoration effort, although the priority of restoration work in this area is low compared to other areas of the FCSNA.

PolyID 24: This area was not investigated and is a woodland.

PolyID 28: This area is a woodland with some planted pine in it, but also has scattered large red oaks and topography that is different enough from the surrounding area to be notable.

PolyID 32: This area contains young hickories and oaks and lots of bush honeysuckle. There are many inclusions in this polygon of open prairie that were not mapped separately, but the
natural quality is low, although comprised of mostly native species.
PolyID 33: This area is rated higher than the surrounding woodland because of the scattered, large, open grown oaks.
PolyID 34, 35: These areas are small remnant woodlands that contains large, scattered, open grown oaks on the historical aerial imagery as well as on the current aerial imagery. Bush honeysuckle is still present, but it would be manageable to clear it from this small area and it should be prioritized.
PolyID 42: This area is a woodland with potential in some areas because of the remnant spring flora. Generally, the area is dominated by young sugar maples and an understory with bush honeysuckle.
PolyID 41, 43, 44, 45, 47, 51, 53: These areas contain degraded woodlands in need of restoration. Canopy trees are generally young and include basswood (Tilia americana), red oak (Quercus rubra), white oak (Quercus alba), bur oak (Quercus macrocarpa), shagbark hickory (Carya ovata), hackberry (Celtis occidentalis), elm (Ulmus spp.), and ash (Fraxinus spp.). Bush honeysuckle invasion is moderate to low. Restoration efforts to clear invasives, thin young native trees, and conduct prescribed burning is recommended. Seeding is likely necessary as common weedy woodland forbs like white snakeroot (Ageratina altissima) and stickseed (Hackelia virginiana) will likely dominate following thinning and burning.
PolyID 46: This area is degraded woodland that needs a massive effort to clear the invasive shrubs.
PolyID 48, 49: These areas contain mostly young trees and a lot of honeysuckle. Certain parts have a high density of young hickory trees and box elder is common as well. The structure and composition throughout these areas varies to some degree, but the lack of conservative plant species and presence of bush honeysuckle are the reasons for the low natural quality rating.

**Floodplain Forests**
PolyID 29, 54: These areas are in the floodplain along Franklin Creek and are dominated by reed canary grass (Phalaris arundinacea), box elder (Acer negundo), and other low quality vegetation.

**Glacial Drift Hill Prairies**
PolyID 8: This area is a small, rocky, and steep hill prairie with some interesting plant species like shooting star (Dodecatheon meadia), false toadflax (Comandra umbellata), hoary puccoon (Lithospermum canescens), and wild columbine (Aquilegia canadensis). The surrounding forest has been cleared in this area, which is favoring sun-loving perennials, but the easy access also makes the grassy opening vulnerable to trampling and litter.
PolyID 11: This is the main hill prairie in the southern unit called HP1. It has been managed periodically over the years with sumac clearing and prescribed fire. The quality is variable and collectively is given a generous grade C+ rating, but weedy species are common such as cinquefoil (Potentilla recta), clovers (Trifolium spp.), Canada goldenrod (Solidago canadensis), and smooth brome (Bromus inermis), while conservative species are few. The conservative species common on the hill prairie are mullein foxglove (Dasistoma macrophylla), pale purple coneflower (Echinacea pallida), hairy beards tongue (Penstemon hirsutus), early horse gentian (Triosteum aurantiacum), side-oats grama grass (Bouteloua curtipendula), violet wood sorrel
Oxalis violacea), and blue-eyed grass (Sisyrinchium albidum).

PolyID 12: This area is a hill prairie known as HP2. It is small and weedy, but it has seen some recent management. It was visited twice late in the season and was determined to be low in natural quality.

Recreated Prairie
PolyID 14, 17, 18, 19, 21, 26, 31, 36: These polygons contain recreated prairie. These areas are former farm fields that have been converted to native prairie grass. The dominant species are Indian grass (Sorghastrum nutans) and big bluestem (Andropogon gerardii).

Savannas
PolyID 30: This area is a small Savanna with scattered open grown white, red, and bur oaks (Quercus spp.), as well as scattered black cherry (Prunus serotina), hickories (Carya spp.), and juniper (Juniperus virginiana). The understory is notable in that it is open and not dominated by bush honeysuckle (Lonicera maackii) or other invasive species, but rather contains native grasses and forbs like big bluestem (Andropogon gerardii), Indian grass (Sorghastrum nutans), Canada goldenrod (Solidago canadensis), late boneset (Eupatorium altissimum), and common milkweed (Asclepias syriaca). However, the ground layer is weedy with Virginia knotweed (Antenoron virginianum), pokeweed (Phytolacca americana), stickseed (Hackelia virginiana), greenbriar (Smilax spp.), black snakeroot (Sanicula canadensis), and white snakeroot (Ageratina altissima).

PolyID 37: This area includes the cliffs on the west side of Twist Road just north of the crossing at Franklin Creek. This area has exposed rock and scattered, open grown trees allowing for herbaceous vegetation to thrive. Although somewhat weedy and worn down from trampling, some interesting lycophytes occur here such as cliffbrake fern (Pellaea glabella), rock polypody fern (Polypodium virginianum), rock spikemoss (Selaginella rupestris), and common woodsia (Woodsia obtusa).

Seeps
PolyID 1: This area is a degraded seep along a path near Mill Springs. It is dominated by skunk cabbage (Symplocarpus foetidus) and water cress (Nasturtium officinale). Plant diversity is low.
PolyID 3: This area is a seep community dominated by skunk cabbage (Symplocarpus foetidus). Very few other plant species were observed in this area.
PolyID 10: This area is a seep known as Seep1 and it is along Franklin Creek downslope from HP1. It is dominated by skunk cabbage (Symplocarpus foetidus) and orange jewelweed (Impatiens capensis). Plant diversity is low and the seep seems to have decreased in natural quality since 1978.

Slopes/Cliffs
PolyID 2: This area is a steep south-facing slope above a seep. It is dominated by large red oaks (Quercus rubra), although some are dying. There is a fence along the private property to the west, where the woodlands are more degraded from clearing and trash/debris accumulation. There is a lot of sugar maple seedlings and bush honeysuckle shrubs, but the spring visit exhibited robust populations of Virginia bluebells (Mertensia virginica), common oak sedge (Carex pennsylvanica), and liverleaf (Hepatica acutiloba).
PolyID 5: This is a north-facing steep slope woodland along Franklin Creek. Many uncommon
and conservative species occur here such as poke milkweed (*Asclepias exaltata*), leatherwood (*Dirca palustris*), liverleaf (*Hepatica acutiloba*), many fern species, and a variety of spring ephemerals and woodland sedges species. PolyId 4: This area is a steep slope with some small rock outcrops with access via trails and a wooden staircase. Bush honeysuckle is common in the understory. The spring flora was expressed to some degree, but a visit later in the year found mostly weedy species. PolyId 6, 7, 9: These areas are steep woodland and cliffs of dolomite or sandstone with uncommon plants like Canada yew (*Taxus canadensis*), black-seeded rice grass (*Oryzopsis racemosa*), American spikenard (*Aralia racemosa*), bulbet fern (*Cystopteris bulbifera*), walking fern (*Asplenium rhizophyllum*), bishops cap (*Mitella diphylla*), blue ash (*Fraxinus quadrangulata*), and liverleaf (*Hepatica acutiloba*). A small terrace along Franklin Creek next to polygon 7 is where the forke aster (*Eurybia furcata*) occurs.

**Cultural**

PolyId 16, 20, 22, 23, 25, 39, 40: These are agricultural fields still in production with either corn or soybeans.

PolyId 39: This area is developed with picnic areas and a fishing lake. Much of the area is mowed, but there are native trees present.

**Developed**

PolyId 23, 50, 52: These areas are picnic grounds, campground, maintenance sheds, and other state park buildings and mowed areas that are developed. These areas contain non-native weeds and grasses with the exception of native trees.

PolyId 27: This area is a buried gasline ROW.

**Unknown**

PolyId 15, 38: These areas were not investigated. Polygon 15 is a sliver of vegetation along a crop field and polygon 38 appears to be an old field and degraded woodland on the current aerial imagery.

**DISCUSSION**

Floristic quality assessment (FQA) is a useful tool for assessing the quality of the flora of a certain area, or in other words, it is a measure of the natural quality of a parcel of land based on the plant species present (Spyreas, 2019). FQA is achieved by using the coefficient of conservatism value or C-value. The concept is defined as follows, “native species most successful in badly damaged habitats are given values of 0. At the other end of the spectrum, species virtually restricted to natural areas in Illinois received C values of 10” (Taft et al., 1997).

A relatively high number of conservative species were encountered during the survey as 25% of the species observed had a C value between 7 and 10. A remarkable 31 species observed in the survey have a C value of 10. This speaks to the quality and diversity of the site and habitats that contain these species should be prioritized. From the Flora of the Chicago Region 2017, Gerould Wilhlem writes “Essentially, remnant landscapes with Mean C-values above 4.0 are unmitigable: Once destroyed their full biodiversity and system organization cannot be reconstructed”
Collectively a mean C of 4.2 was calculated for the entire site and a mean C of 5 was calculated for the slopes and cliffs, which are the highest quality areas.

Volunteers and staff at the FCSNA should consider continuing to look for the 30 species observed in 1978, but not in the 2018 survey and these include *Amorpha canescens*, *Anemone cylindrica*, *Aronia melanocarpa*, *Asclepias viridiflora*, *Caltha palustris*, *Chelone glabra*, *Cornus rugosa*, *Crataegus crus-galli*, *Dalea purpurea*, *Elodea sp.*, *Goodyera pubescens*, *Hedeoma hispida*, *Hydrastis canadensis*, *Juglans cinerea*, *Liatris aspera*, *Lycopus americanus*, *Mimulus ringens*, *Nuphar advena*, *Panax quinquefolius*, *Pedicularis canadensis*, *Phyla lanceolata*, *Physocarpus opulifolius*, *Populus grandidentata*, *Ratibida pinnata*, *Rosa palustris*, *Sagittaria sp.*, *Sanicula marilandica*, *Sporobolus asper*, *Trillium flexipes*, and *Woodsia ilvensis*. Some of these may still be extant, while others are likely extirpated from the site. Most concerning is that the quality of the seeps appears to be decreasing as *Caltha palustris*, *Chelone glabra*, *Lycopus americanus*, *Mimulus ringens*, and *Sagittaria* were not observed in any of the seep communities in the 2018 survey.

Franklin Creek State Natural Area has seen many changes to the landscape since 1938, the year of the historical aerial imagery. The FCSNA is more forested now than historically. In particular, the north unit historically was likely open savanna habitat with scattered trees and a diverse herbaceous layer, but in the historical imagery the area is mostly cleared of trees with the fields or pastures divided into parcels. This area has grown up dense with mesophytic tree species like box elder, ash, elm, sugar maple, hackberry, as well as some oak and hickory. The vegetation in the south unit is likely very similar to historical conditions, although the forests there have been extensively logged and grazed at some point in the past, and since becoming a state property have been infested with invasive species and a drastic increase in native mesophytic tree species, both of which plague most of the forests in Illinois. However, small areas of high quality vegetation do occur throughout the south unit on small rock outcrops, openings, steep slopes, and wetlands.

There are a few threats worth mentioning. Bush honeysuckle is a major problem throughout the FCSNA. While some of it is being controlled with prescribed fire, many areas are completely impenetrable and not much for ground vegetation can occur in such infestations. The recommendation is to focus on clearing invasive shrubs from the slopes/cliffs communities, although care must be taken in these dangerous areas to be safe and to minimally impact the soil.

Another threat comes from visitor use. Trails that are poorly maintained are eroding and getting wider as users try to go around the obstacle. IDNR staff should do more to mitigate the pressures from irresponsible trail use. Another issue is the spider-webbing of trails. Official trails should be designated and spur trails closed off. Lastly, extreme weather events and flooding are also impacting plants along Franklin Creek and on the steep hillsides. Other climate change effects are expected as well and may have a detrimental effect on the northern plants at the southern edge of their range like Canada yew (*Taxus canadensis*) and others.
LITERATURE CITED


http://bonap.net/MapGallery/County/Cystopteris%20laurentiana.png
http://bonap.net/MapGallery/County/Eurybia%20furcata.png


### Table 1. Total Species List for Franklin Creek State Natural Area

**Conservatism-Based Metrics:**

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**Species Richness:**

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</tr>
<tr>
<td>% Native Species</td>
<td>83.30%</td>
</tr>
<tr>
<td>% Non-native Species</td>
<td>16.70%</td>
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**Species Wetness:**

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<tr>
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<td>Native Mean Wetness</td>
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**Physiognomy Metrics:**

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<td>Tree</td>
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<tr>
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<tr>
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**Duration Metrics:**

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<td>Symphyotrichum ontarionis</td>
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<tr>
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</tr>
<tr>
<td>Symphyotrichum shortii</td>
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</tbody>
</table>

- **Caryophyllaceae**: native, annual, sleepycatchfly
- **Caryophyllaceae**: non-native, white campion
- **Caryophyllaceae**: native, starry campion
- **Asteraceae**: native, rosinweed
- **Asteraceae**: perennial, cup plant
- **Asteraceae**: perennial, prairie dock
- **Iridaceae**: perennial, common blue-eyed grass
- **Iridaceae**: perennial, feathery false solomons seal
- **Iridaceae**: perennial, starry false solomons seal
- **Iridaceae**: perennial, upright carrion flower
- **Iridaceae**: perennial, bristly cat brier
- **Iridaceae**: perennial, four-angled cat brier
- **Solanaceae**: non-native, deadly nightshade
- **Asteraceae**: perennial, canada goldenrod
- **Asteraceae**: perennial, zig-zag goldenrod
- **Asteraceae**: perennial, elm-leaved goldenrod
- **Poaceae**: perennial, indian grass
- **Poaceae**: perennial, slender wedge grass
- **Poaceae**: perennial, prairie wedge grass
- **Staphyleaceae**: perennial, bladdernut
- **Caprifoliaceae**: non-native, coralberry
- **Asteraceae**: perennial, heart-leaved aster
- **Asteraceae**: perennial, drummonds aster
- **Asteraceae**: perennial, heath aster
- **Asteraceae**: perennial, paniced aster
- **Asteraceae**: perennial, calico aster
- **Asteraceae**: perennial, new england aster
- **Asteraceae**: perennial, aromatic aster
- **Asteraceae**: perennial, ontario aster
- **Asteraceae**: perennial, hairy aster
- **Asteraceae**: perennial, shorts aster
<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Family</th>
<th>Native/Non-native</th>
<th>Life Cycle</th>
<th>Life Form</th>
<th>Common Name</th>
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<td><em>Symphyotrichum urophyllum</em></td>
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<td>Perennial</td>
<td>Forb</td>
<td>Arrow-leaved aster</td>
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<td>Forb</td>
<td>Skunk cabbage</td>
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<td>Perennial</td>
<td>Forb</td>
<td>Common dandelion</td>
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<td>Perennial</td>
<td>Shrub</td>
<td>Canadian yew</td>
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<td><em>Teucrium canadense</em></td>
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<td>Native</td>
<td>Perennial</td>
<td>Forb</td>
<td>Canadian germander</td>
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<td>Perennial</td>
<td>Forb</td>
<td>Waxy meadow rue</td>
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<tr>
<td><em>Thlaspi arvense</em></td>
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<td>Non-native</td>
<td>Annual</td>
<td>Forb</td>
<td>Large-fruited penny cress</td>
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<tr>
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<td>American linden</td>
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<td>Perennial</td>
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<td>Poison ivy</td>
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<td>Perennial</td>
<td>Forb</td>
<td>Common spiderwort</td>
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<td>Forb</td>
<td>Common goats beard</td>
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<td>Forb</td>
<td>White clover</td>
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<td>Perennial</td>
<td>Forb</td>
<td>Prairie trillium</td>
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<tr>
<td><em>Triodanis perfoliata</em></td>
<td>Campanulaceae</td>
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<td>Annual</td>
<td>Forb</td>
<td>Common venus looking glass</td>
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<td><em>Triosteum aurantiacum</em></td>
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<td>Perennial</td>
<td>Forb</td>
<td>Early horse gentian</td>
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<td>Forb</td>
<td>Late horse gentian</td>
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<td>Perennial</td>
<td>Tree</td>
<td>Slippery elm</td>
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<td><em>Urtica gracilis</em></td>
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<td>Perennial</td>
<td>Forb</td>
<td>Tall nettle</td>
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<td>Forb</td>
<td>Bellwort</td>
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<td><em>Vaccinium pallidum</em></td>
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<td>Native</td>
<td>Perennial</td>
<td>Shrub</td>
<td>Late low blueberry</td>
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<td><em>Verbascum thapsus</em></td>
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<td>Biennial</td>
<td>Forb</td>
<td>Common mullein</td>
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<tr>
<td><em>Verbena stricta</em></td>
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<td>Perennial</td>
<td>Forb</td>
<td>Hoary vervain</td>
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<tr>
<td><em>Verbena urticifolia</em></td>
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<td>Perennial</td>
<td>Forb</td>
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<td>Native</td>
<td>Perennial</td>
<td>Forb</td>
<td>Wingstem</td>
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<tr>
<td><em>Veronica anagallis-aquatica</em></td>
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<td>Perennial</td>
<td>Forb</td>
<td>Water pimpernel</td>
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<tr>
<td><em>Viburnum dentatum</em></td>
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<td>Non-native</td>
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<td>Southern arrowwood</td>
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<tr>
<td><em>Viburnum lentago</em></td>
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<td>Perennial</td>
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<td>Family</td>
<td>Status</td>
<td>Life Cycle</td>
<td>Life Form</td>
<td>Common Name</td>
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<td>------------</td>
<td>------------</td>
<td>-------------------------------</td>
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<tr>
<td><em>Viburnum rafinesquianum</em></td>
<td>Adoxaceae</td>
<td>native</td>
<td>perennial</td>
<td>shrub</td>
<td>downy arrowwood</td>
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<tr>
<td><em>Viola priceana</em></td>
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<td>native</td>
<td>perennial</td>
<td>forb</td>
<td>confederate violet</td>
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<td><em>Viola pubescens</em></td>
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<td>perennial</td>
<td>forb</td>
<td>downy yellow violet</td>
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<td><em>Viola sororia</em></td>
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<td>forb</td>
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<tr>
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<td>perennial</td>
<td>vine</td>
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<td><em>Vitis cinerea</em></td>
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<td>native</td>
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<td>vine</td>
<td>winter grape</td>
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<td><em>Woodsia obtusa</em></td>
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<td>native</td>
<td>perennial</td>
<td>fern</td>
<td>cliff fern</td>
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<td><em>Zanthoxylum americanum</em></td>
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<td>native</td>
<td>perennial</td>
<td>shrub</td>
<td>prickly ash</td>
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<td><em>Oryzopsis racemosa</em></td>
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<td>native</td>
<td>perennial</td>
<td>grass</td>
<td>black-seeded rice grass</td>
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<td>native</td>
<td>perennial</td>
<td>forb</td>
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Table 2. Total Species List for Franklin Creek State Natural Area – Slopes and Cliffs

Conservatism-Based Metrics:

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<th>Value</th>
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<td>Total Mean C</td>
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<tr>
<td>Native Mean C</td>
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<tr>
<td>Total FQI</td>
<td>63.2</td>
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<tr>
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<tr>
<td>Adjusted FQI</td>
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<tr>
<td>% C value 1-3</td>
<td>14.4</td>
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<tr>
<td>% C value 4-6</td>
<td>36.9</td>
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<tr>
<td>% C value 7-10</td>
<td>33.8</td>
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<tr>
<td>Native Tree Mean C</td>
<td>5.3</td>
</tr>
<tr>
<td>Native Shrub Mean C</td>
<td>5.1</td>
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<tr>
<td>Native Herbaceous Mean C</td>
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Species Richness:

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<tr>
<td>Total Species</td>
<td>160</td>
</tr>
<tr>
<td>Native Species</td>
<td>146</td>
</tr>
<tr>
<td>Non-native Species</td>
<td>14</td>
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<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Species</td>
<td>160</td>
</tr>
<tr>
<td>Native Species</td>
<td>146</td>
</tr>
<tr>
<td>Non-native Species</td>
<td>14</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Native Tree Mean C</td>
<td>5.3</td>
</tr>
<tr>
<td>Native Shrub Mean C</td>
<td>5.1</td>
</tr>
<tr>
<td>Native Herbaceous Mean C</td>
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Species Wetness:

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Physiognomy Metrics:

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<td>16</td>
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<tr>
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<tr>
<td>Vine</td>
<td>5</td>
<td>3.10%</td>
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<tr>
<td>Forb</td>
<td>93</td>
<td>58.10%</td>
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<tr>
<td>Grass</td>
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<td>6.30%</td>
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<tr>
<td>Sedge</td>
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<td>6.90%</td>
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<tr>
<td>Rush</td>
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<tr>
<td>Fern</td>
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<tr>
<td>Bryophyte</td>
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Duration Metrics:

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<tr>
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<tr>
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</tr>
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<td>2.50%</td>
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<td>Scientific Name</td>
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</tr>
<tr>
<td>Acer saccharum</td>
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### Table 3. Total Species List for Franklin Creek State Natural Area – Seeps

**Conservatism-Based Metrics:**

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**Species Richness:**

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**Species Wetness:**

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**Physiognomy Metrics:**

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<td>Shrub:</td>
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<tr>
<td>Vine:</td>
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<tr>
<td>Forb:</td>
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<td>61.20%</td>
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<tr>
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<td>Sedge:</td>
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<tr>
<td>Rush:</td>
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<td>0%</td>
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<tr>
<td>Fern:</td>
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<td>2%</td>
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<tr>
<td>Bryophyte:</td>
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**Duration Metrics:**

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<td>Scientific Name</td>
<td>Family</td>
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<td>Carex sprengelii</td>
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<td>Cicuta maculata</td>
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<td>Cinna arundinacea</td>
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<tr>
<td>Fraxinus pennsylvanica</td>
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<tr>
<td>Galium aparine</td>
<td>Rubiaceae</td>
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<tr>
<td>Galium triflorum</td>
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<tr>
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<td>Lamiaceae</td>
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<td>Myrsinaceae</td>
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<td><strong>Ranunculus sceleratus</strong></td>
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<td><strong>Rosa multiflora</strong></td>
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<td><strong>Sicyos angulatus</strong></td>
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<td><strong>Solanum dulcamara</strong></td>
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<tr>
<td><strong>Symphyotrichum lanceolatum</strong></td>
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<td><strong>Urtica gracilis</strong></td>
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<td><strong>Viola priceana</strong></td>
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Table 4. Total Species List for Franklin Creek State Natural Area – Hill Prairies

Conservatism-Based Metrics:

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<th>Metric</th>
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<tr>
<td>Native Mean C:</td>
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<tr>
<td>Total FQI:</td>
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<tr>
<td>Native FQI:</td>
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<td>% C value 1-3:</td>
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<td>% C value 4-6:</td>
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<td>% C value 7-10:</td>
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<tr>
<td>Native Tree Mean C:</td>
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</tr>
<tr>
<td>Native Shrub Mean C:</td>
<td>1.8</td>
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<tr>
<td>Native Herbaceous Mean C:</td>
<td>4.4</td>
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Species Richness:

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<th>Value</th>
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<tbody>
<tr>
<td>Total Species:</td>
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</tr>
<tr>
<td>Native Species:</td>
<td>85    78%</td>
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<tr>
<td>Non-native Species:</td>
<td>24 22%</td>
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Species Wetness:

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<th>Value</th>
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<tr>
<td>Native Mean Wetness:</td>
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Physiognomy Metrics:

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<th>Value</th>
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<tr>
<td>Tree:</td>
<td>9     8.30%</td>
</tr>
<tr>
<td>Shrub:</td>
<td>9     8.30%</td>
</tr>
<tr>
<td>Vine:</td>
<td>6     5.50%</td>
</tr>
<tr>
<td>Forb:</td>
<td>66    60.60%</td>
</tr>
<tr>
<td>Grass:</td>
<td>13    11.90%</td>
</tr>
<tr>
<td>Sedge:</td>
<td>5     4.60%</td>
</tr>
<tr>
<td>Rush:</td>
<td>0     0%</td>
</tr>
<tr>
<td>Fern:</td>
<td>1     0.90%</td>
</tr>
<tr>
<td>Bryophyte:</td>
<td>0 0%</td>
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Duration Metrics:

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<tbody>
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<tr>
<td>Perennial:</td>
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<td>Biennial:</td>
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<td>78 71.60%</td>
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<td>Family</td>
</tr>
<tr>
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<td>--------------------</td>
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<td><em>Antennaria neglecta</em></td>
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<td><em>Verbena stricta</em></td>
<td>Nyboer</td>
<td>1978</td>
<td>HP1</td>
</tr>
<tr>
<td><em>Viburnum lentago</em></td>
<td>Nyboer</td>
<td>1978</td>
<td>Daniel's Tract</td>
</tr>
<tr>
<td><em>Viburnum prunifolium</em></td>
<td>Harty and Paulson</td>
<td>1977</td>
<td>Franklin Creek Nature Preserve</td>
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<tr>
<td><em>Viburnum rafinesquianum</em></td>
<td>Harty and Paulson</td>
<td>1977</td>
<td>Sandstone Cliff - Franklin Creek Nature Preserve</td>
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<tr>
<td><em>Woodsia ilvensis</em></td>
<td>Harty and Paulson</td>
<td>1977</td>
<td>Sandstone Cliff</td>
</tr>
<tr>
<td><em>Woodsia obtusa</em></td>
<td>Harty and Paulson</td>
<td>1977</td>
<td>Sandstone Cliff</td>
</tr>
<tr>
<td><em>Zanthoxylum americanum</em></td>
<td>Nyboer</td>
<td>1978</td>
<td>Daniel's Tract</td>
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Table 7. List of Natural Community types, acreages, and grades at Franklin Creek Nature Preserve and State Natural Area

<table>
<thead>
<tr>
<th>Natural Community Type</th>
<th>Acreage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Dry-mesic Woodland</td>
<td>595.43</td>
<td>C+, C, C-</td>
</tr>
<tr>
<td>Floodplain Forest</td>
<td>17.81</td>
<td>C, C-</td>
</tr>
<tr>
<td>Glacial Drift Hill Prairie</td>
<td>1.02</td>
<td>C+, C</td>
</tr>
<tr>
<td>Recreated Prairie</td>
<td>107.58</td>
<td>C</td>
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<tr>
<td>Savanna</td>
<td>0.86</td>
<td>C+, C</td>
</tr>
<tr>
<td>Seep</td>
<td>4.73</td>
<td>C+, C</td>
</tr>
<tr>
<td>Slope/Cliffs</td>
<td>18.33</td>
<td>C+, C</td>
</tr>
<tr>
<td>Cultural</td>
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Table 8. List of Natural Community polygons at Franklin Creek FCSNA.

<table>
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<th>PolyID</th>
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<td>1</td>
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<td>3</td>
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<td>Slope/Cliffs</td>
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<td>3.24</td>
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<tr>
<td>5</td>
<td>Slope/Cliffs</td>
<td>C+</td>
<td>5.55</td>
</tr>
<tr>
<td>6</td>
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<td>C</td>
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<td>8</td>
<td>Hill Prairie</td>
<td>C+</td>
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<td>9</td>
<td>Slope/Cliffs</td>
<td>C</td>
<td>3.05</td>
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<td>10</td>
<td>Seep</td>
<td>C+</td>
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<td>Hill Prairie</td>
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<td>C+</td>
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<td>Savanna</td>
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<tr>
<td>54</td>
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</table>
Figure 1a. Current aerial imagery of Franklin Creek Nature Preserve and State Natural Area
Figure 1b. Historical aerial imagery of Franklin Creek Nature Preserve and State Natural Area
Figure 1c. Current aerial imagery of the Natural Communities of Franklin Creek Nature Preserve and State Natural Area
Figure 1d. Topographical imagery of the Natural Communities of Franklin Creek Nature Preserve and State Natural Area
Figure 2a. Current aerial imagery of Franklin Creek Nature Preserve and State Natural Area – North Unit
Figure 2b. Historical aerial imagery of Franklin Creek Nature Preserve and State Natural Area – North Unit
Figure 2c. Natural Communities of Franklin Creek Nature Preserve and State Natural Area – North Unit
Figure 3a. Current aerial imagery of Franklin Creek Nature Preserve and State Natural Area – South Unit
Figure 3b. Historical aerial imagery of Franklin Creek Nature Preserve and State Natural Area – South Unit
Figure 3c. Natural Communities of Franklin Creek Nature Preserve and State Natural Area – South Unit
Figure 4. Map including some of the tracks covered by the survey.
Figure 5. Distribution of *Cystopteris laurentiana* in the contiguous United States.
Figure 6. Distribution of *Eurybia furcata* in the contiguous United States.
Figure 7. Map indicating location of *Eurybia furcata*.

This map locator is redacted so we can share this on the internet. Ask the Heritage Biologist if you need the location.
violet wood sorrel (*Oxalis violacea*) at HP1 (polygon 11)

Seep 1 (polygon 10) with skunk cabbage (*Symplocarpus foetidus*)

bellwort (*Uvularia grandiflora*) and mayapple (*Podophyllum peltatum*) in steep Dry mesic Woodland (polygon 5)

blue ash (*Fraxinus quadrangulata*)
blue cohosh (Caulophyllum thalictroides) in Dry-mesic Woodland

shooting star (Dodecatheon meadia) in Dry-mesic Woodland
leatherwood (*Dirca palustris*) in Dry-mesic Woodland

bishops cap (*Mitella diphylla*) in Dry-mesic Woodland
hoary puccoon (*Lithospermum canescens*) in Hill Prairie

false toadflax (*Comandra umbellata*) in Hill Prairie
Virginia bluebells (*Mertensia virginica*) in Floodplain Forest

High quality Dry-mesic Woodland in polygon 9

Franklin Creek
tall anemone (*Anemone virginiana*)

pale purple coneflower (*Echinacea pallida*)
rock spikemoss (*Selaginella rupestris*)

cliffbrake fern (*Pellaea glabella*)
Canada yew (*Taxus canadensis*)

bulblet fern (*Cystopteris bulbifera*)
forked aster (*Eurybia furcata*)

red baneberry (*Actaea rubra*)
forked aster (*Eurybia furcata*)

American spikenard (*Aralia racemosa*)

poke milkweed (*Asclepias exaltata*)

walking fern (*Asplenium rhizophyllum*)
Mill Springs

Dry-mesic Woodland

Cliffs and Savanna west of Twist Road at Franklin Creek

Cliffs and Savanna west of Twist Road at Franklin Creek
Trail damage by Franklin Creek

Trail damage on steep slopes
Missouri Botanical Garden

Jean Karas
Dept. of Natural Heritage
Illinois Dept. of Conservation
Lincoln Tower Plaza
524 South Second Street
Springfield, IL 62701-1787

14 June 1989

Dear Jean,

It's been so long since I found the plants of Cystopteris laurentiana in Lee County that I cannot remember where the preserve is or on your map! Even if I know where the preserve boundaries were, I am not sure how well my memory would serve as to where the plants occurred in the preserve. Thus, I have not annotated your map.

The species grows on rocks and I clearly remember collecting it from a rock outcrop along Franklin creek. There are few (one?) rock outcrops along the creek in the preserve, so that should narrow the possible places where the plant came from. Perhaps you can pinpoint the location from this fact or someone who is more familiar with the preserve can do so.

The species was first collected in the preserve by Wade & Wade. Their specimen is at ISM, annotated by me. When I first found these plants I thought they were fertile hexaploids of the sterile triploid C. illinoensis R. C. Moran. But isozyme studies by Dr. Christopher Haufler at Lawrence, Kansas, clearly showed that the plants are C. laurentiana.

As you probably know, this species is a fertile allohexaploid of hybrid origin from a cross involving C. bulbifera and C. fragilis (4X).

Previously, C. laurentiana was known from the St. Lawrence region in Canada, Pennsylvania, northern Wisconsin, and northern Minnesota. Field work by myself, Jim Pack (Little Rock, ARK), and Carl Taylor (Milwaukee Public Museum) showed that the species was widespread in the Driftless Area. The species, however, is certainly rare in Illinois.

Please call or write if I can be of further help.

Sincerely,

Robbin

Dr. Robbin C. Moran

P.O. Box 299
St. Louis, Missouri 63166-0299
Telephone: 314-577-5100
Telex: 466224 MOBOT CI
Cable: MOBOTSTL
Fax: (314) 577-9521
Illinois Natural Heritage Database  
Endangered /Threatened Species Occurrence and Sighting Report Form

<table>
<thead>
<tr>
<th>Name of Species:</th>
<th>Eurybia furcata</th>
<th>Date Last Observed:</th>
<th>10/2/2018</th>
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</thead>
<tbody>
<tr>
<td>New Sighting</td>
<td>X</td>
<td>or Update</td>
<td>______</td>
</tr>
<tr>
<td>Naturally Occurring</td>
<td>X</td>
<td>or Introduced</td>
<td>______</td>
</tr>
</tbody>
</table>

<table>
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<th>Entire extent of occurrence is:</th>
<th>known</th>
<th>OR/</th>
<th>not known</th>
</tr>
</thead>
<tbody>
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<td>Location</td>
<td>_____</td>
<td></td>
<td>______</td>
</tr>
<tr>
<td>When?</td>
<td>_____</td>
<td></td>
<td>______</td>
</tr>
<tr>
<td>From Where?</td>
<td>_____</td>
<td></td>
<td>______</td>
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</table>

Location: (For more accurate mapping, please provide a map showing the exact location, or if available, provide GIS data) GPS coordinates, photos, and a map are enclosed.

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<thead>
<tr>
<th>County:</th>
<th>Lee</th>
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<tbody>
<tr>
<td>Latitude</td>
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</tr>
<tr>
<td>Longitude</td>
<td>redacted</td>
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Direction from Nearest Landmark: From the Mill Springs parking area follow ....

<table>
<thead>
<tr>
<th>Legal Description:</th>
<th>Township 22N  Range 10E  Section 34  Quad name  Franklin Grove</th>
</tr>
</thead>
<tbody>
<tr>
<td>INAI Site Name:</td>
<td>Franklin Creek State Natural Area  Survey Site Name (alias)</td>
</tr>
</tbody>
</table>

Observations: (evidence of breeding or # of %, & juvenile animals or # fruiting/flowering/seedling plants, etc.): fruiting/flowering/seedling plants
Approximately 100 individuals were seen in various stages of growth, but most were flowering.

<table>
<thead>
<tr>
<th>Description of Area:</th>
<th>The plants grow in a clump on a small terrace next to the creek with cliffs nearby.</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Name of Observer:</th>
<th>Chris Benda</th>
</tr>
</thead>
</table>

Observer’s Phone Number: (217) 417 - 4145

Return to:  
Illinois Natural Heritage Database Program Manager  
Illinois Department of Natural Resources  
ORC – Division of Natural Heritage  
One Natural Resources Way  
Springfield IL 62702-1271