

# Flora and natural communities of Bryant Creek State Park, Douglas County, Missouri

PAUL W. NELSON<sup>1</sup>

ABSTRACT. — An intensive field inventory of the 2,927-acre Bryant Creek State Park in Douglas County documented 940 taxa of vascular plants, including 801 native taxa, in 32 natural community types. Thirteen species of conservation concern and a new state record are reported. Detailed natural community descriptions, numerous images and graphs, and analysis of the data are presented, as well as a discussion of factors resulting in the exceptional level of floristic diversity.

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## SUMMARY

From February through October 2020, I conducted a botanical study of the 2,927-acre Bryant Creek State Park in Douglas County, making 12 trips for a total of 49 field days at the site. Thirty-two natural communities and distinctive geologic/physical variations within them were identified on field maps and became the blueprint for structuring successive field itineraries. As the project progressed through mid-summer, a major revelation emerged. The number of vascular species was trending toward a landmark high total. On September 22, nine experienced botanists embarked on a day-long float trip at the site, with a mission to help surpass the record 917 plant taxa that has stood for over 40 years at Johnson's Shut-Ins State Park (Nelson 1977 and subsequent field work). We achieved the goal, documenting 940 taxa.

The 940 taxa comprise 116 plant families representing 361 genera. Of the total number of species, 801 are native (85 percent) with 139 introduced. The flora includes 13 species of conservation concern, including *Micranthes palmeri*, a new state record. This report describes the flora associated with the park's natural communities, and variations in landscape features contributing to this high species diversity. In addition, the ratio of native species to the low number of introduced species is reflected in the quality of the natural communities across the landscape.

This paper is adapted from a report presented to Missouri Department of Natural Resources (DNR) (Nelson 2021); other products from the project include an electronic database with 940 documented plant taxa, 10 Element Occurrence Records (EOR) and EOR shapefile data for locations of select conservative, rare, and exotic plant species, 34 herbarium specimens deposited at the Missouri State Parks Herbarium (MODNR), and numerous digital images of natural communities, habitats, and plant species.

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<sup>1</sup> PAUL W. NELSON — 24 Tower Ridge Lane, Bonnots Mill, MO 65016. email: [pwnelson620@hotmail.com](mailto:pwnelson620@hotmail.com)

## STUDY OBJECTIVE

The primary objective of this study was to record at least 80 percent of the total vascular plant species occurring in Bryant Creek State Park during the 2020 growing season. For comparative purposes, I examined comprehensive floristic studies from other sites in Missouri. **Table 1** (modified from Yatskievych 1999) enumerates studies considered to be comprehensive given the intensity of collecting and the experience/persistence of the practitioners. These works are listed in descending order of total collected or observed plant taxa. Excluding this study and the Shepherd of the Hills report, note that the most diverse sites span study intervals from 5 years for Doug Ladd at Bennett Spring State Park, to over 40 years for both Bruce Schuette at Cuivre River State Park, and the author for Johnson's Shut-Ins State Park. Confidence is high that the data for these three sites captures >95 percent of the plant species occurring in the respective state park at the time of the study.

**Table 1.** Selected comparative and comprehensive Missouri floristic studies in relationship to the flora of Bryant Creek State Park, in descending order of total taxa per site.

Site	Acres	Investigator & Year	Taxa
Bryant Creek State Park, Douglas Co.	2,927	Nelson 2020***	940
Johnson's Shut-Ins State Park, Reynolds Co.	2,386	Nelson 1977*	917
Cuivre River State Park, Lincoln Co.	6,632	Schuette 2020**	823
Shepherd of the Hills State Park, Taney Co.	1,100	Nelson 2019***	741
Bennett Spring State Park, Dallas & Laclede cos.	1,221	Ladd 1985**	712
Roaring River State Park, Barry Co.	4,091	Hornberger 1980*	667
Hawn State Park, Ste. Genevieve Co.	3,271	Solecki 1981*	661
Montauk State Park, Dent Co.	2,141	Maupin 1975*	625
Piney Creek Wilderness, Barry & Stone cos.	8,178	Rebman 1989*	606
Jonca Creek, Ste. Genevieve co.	400	Taylor 1972*	534
Knob Noster State Park, Johnson Co.	3,661	Mullikin 1977*	517
Big Oak Tree State Park, Mississippi Co.	1,043	Doolen 1984*	230

\*Master's thesis. \*\*Personal observations by DNR naturalists, including Ladd's 720 collections from Bennett Spring State Park (MODNR; note that the park has since expanded to 3,217 acres), and Schuette's 930 collections from Cuivre River State Park (MODNR). \*\*\*Nelson completed the Flora of Shepherd of the Hills (formerly Ozark Mountain) State Park in 2019. Acres given reflect the area's size at the time of the study. Taxa refer to plant species, varieties, and hybrids.

## METHODS

All observed vascular taxa from Bryant Creek State Park were entered into a Microsoft Access database. The database includes separate fields for the natural communities, habitats, and cultural areas, as well as information on plant species abundance in natural communities. The Access database (also transferable to Microsoft Excel) lists all observed vascular plant species along with the following information:

- a. Scientific name and common name (based on DNR herbarium nomenclature)
- b. Plant family name

- c. Six letter acronyms from Ladd & Thomas (2015)
- d. Qualitative assessment of abundance and distribution (see Appendix)
- e. Natural community or human disturbance habitat
- f. C-value (From Ladd & Thomas 2015)
- g. S-Rank (Missouri Species of Conservation Concern, 2021)
- h. Wetness (From Ladd & Thomas 2015)
- i. Comments by the author

Taxonomy and nomenclature followed the 2017 master DNR herbarium plant database unless otherwise cited; this taxonomy is based on Yatskievych (1999, 2006, 2013) with some taxonomic changes following Ladd & Thomas (2015). As vascular plant nomenclature is a constantly changing target, the primary source for updates on Missouri plant taxonomy is the Flora of Missouri Project (<http://www.mobot.org/mobot/missouri/>) under the direction of Aaron Floden of the Missouri Botanical Garden.

I conducted twelve field trips between February 18 and October 11, 2020, spending a total of 49 field days botanizing Bryant Creek State Park. I systematically traversed the park's varied terrain, including most ridges, north and south-facing hillslopes, ravines, cliffs, and the entire lengths of the streams/drainages of Pike, Turkey Flat, Shiloh, West, and Central hollows. Tracing the routes over the sequence of field days permitted me to become familiar with the park's natural communities, habitat/niche variations within them, and anthropogenically disturbed areas. During the traversals I accrued locations for the full array of representative natural communities, and the range of distinctive floristic areas (especially higher quality locations). I subsequently designed a field inventory visitation/sampling schedule that best captures the full spectrum of flora associated with the park's distinctive natural communities. Sampling routes included repeat visits to target areas thought to harbor assemblages of distinctive plant communities. Adjustments were necessary as the season progressed. I spent significant time throughout the flowering season recording plant species for natural communities emphasized for restoration. I took all the images in this paper unless otherwise credited.

Notes were recorded on field sheets for plant taxa identified in various locations, along with distribution, abundance (see Appendix), and natural community notations. Concurrent with making field notations, I collected many plant specimens, placing them in bags, storing them in coolers on site for later identification. In addition to the keys found in Yatskievych, I employed the keys for *Dichantheium* and *Muhlenbergia* by Thomas (2003, 2015).

I accessed the Universal FQA Calculator website (<https://universalfqa.org/>) to examine the plant lists for the nine plots established by Justin Thomas. Chris Crabtree entered the plot data into the FQA database. I also accessed the Missouri Department of Conservation's Natural Heritage Program data to develop a local search list of possible locations for Element Occurrence Records.

Two float trips were made on Bryant Creek from an access point on Jack and Florice Pearce's property, downstream through the 1.7 miles of state park land bordering Bryant Creek,

ending 3.6 miles downstream at the N-345 County Road bridge. On the first trip in late July, Chris Crabtree and I recorded over 60 species along the stream corridor. On September 22, I accompanied nine others on a botanical foray float along the same route; we added 38 riparian plant species to the total park list.

## NATURAL COMMUNITIES AND HABITATS

This paper describes the flora associated with 30 distinct natural communities in Bryant Creek State Park. Natural communities follow the descriptions from my *Terrestrial Natural Communities of Missouri* (Nelson 2010). Distinct assemblages of native plants (along with animals and microorganisms) occur in repeatable patterns across the park landscape in response to patterns of environmental attributes including soil moisture, geology, hydrology, topography, natural disturbance processes, and vegetation structure. Ideally, high quality natural communities contain assemblages of plant species associations, relative abundance, and structural characteristics thought to occur prior to European settlement.

Missouri State Park natural resource experts are keenly aware of the differences between desired high-quality native plant assemblages, and the system impacted by threats that degrade and destabilize them. These differences should be self-evident when assessing vegetation quality and natural community character at Bryant Creek State Park. Fortunately, based on the observations on the abundance, distribution, and patterns of the flora recorded at Bryant Creek State Park, a high degree of natural integrity occurs within many natural communities. This should facilitate ecological restoration efforts moving plant populations toward their historic variety, numbers, and relative importance.

Four factors help to explain the high plant species diversity associated with the park's 32 natural communities. First, the park is dissected by three distinct geologic formations, producing a broad range of acidic and alkaline rock and soil conditions. Of special significance are the natural communities and geologic features associated with the park's premiere sandstone outcrops of the Roubidoux Formation. Second, these geologic units produce a variety of exposed rock formations and soils across a wide range of slopes, aspects, elevations, and hydrology. Third, the park's topography is dissected by numerous gaining and losing streams, and the larger river-like Bryant Creek. Unlike smaller streams and drainages, Bryant Creek brings to the park the characteristics of an entrenched and partially meandering riverine drainage system. Functioning more like a maturing river, Bryant Creek's floodplain and streambed vegetation is strongly influenced by frequent floods that shape and change the channel location, along with a wide range of variable riparian habitats. Frequent floods transport silt, sand, gravel, and debris creating open sand deposits in riverfront forests, sand and gravel bars, sloughs, abrupt forested streambanks, slack water mudflats, and small marshes.

Another fortunate contribution in achieving high plant species diversity is a result of the initial selection process for a new state park. Selection criteria including size, location, habitat quality, and landscape variation are critical for capturing high plant and animal species diversity.



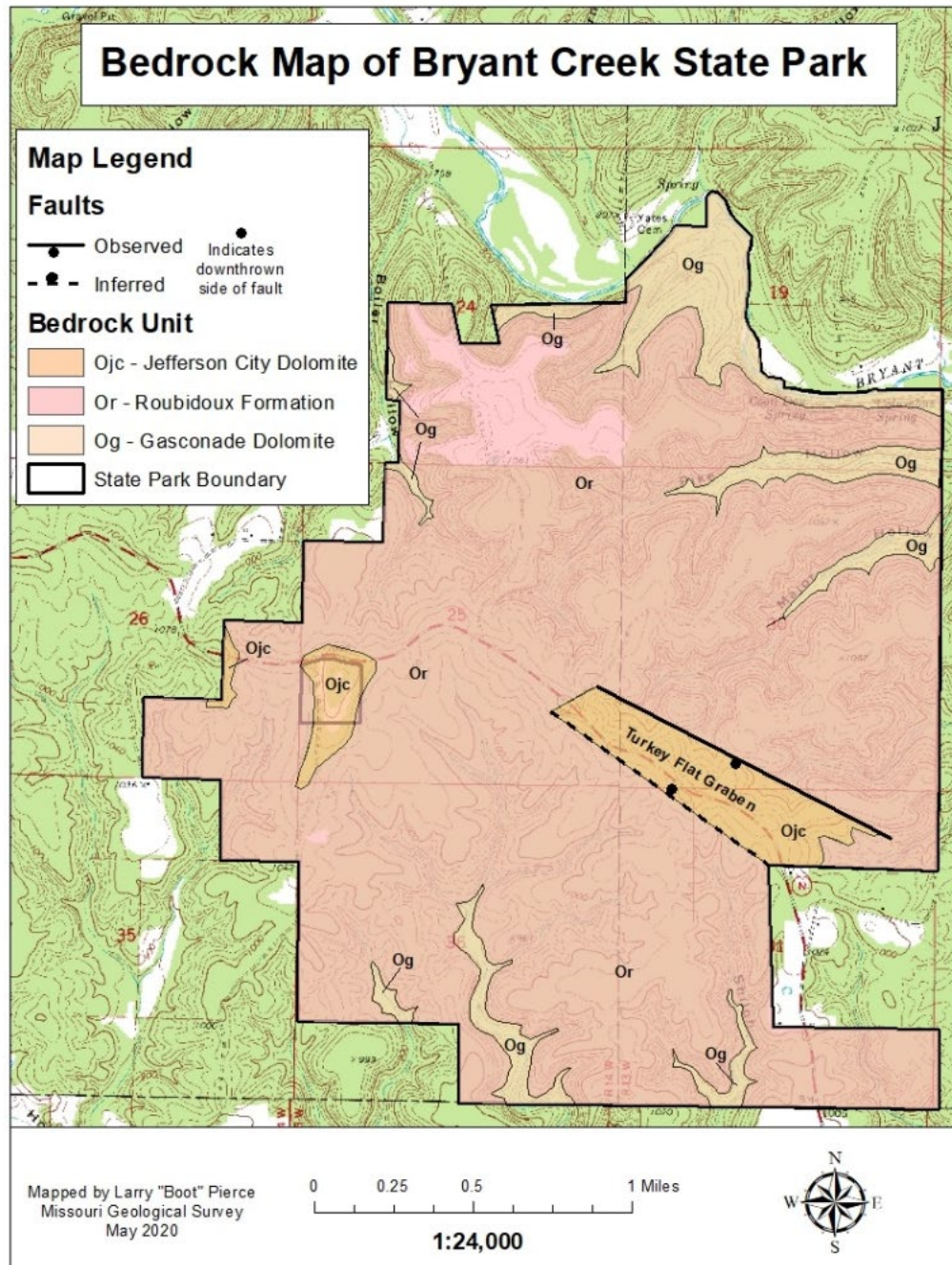
Additionally, the region’s landscape characteristics offer qualities unique and distinct to the state park system.

**Soils**

The USDA Natural Resources Conservation Service Missouri Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) provides information for soil maps and descriptions. Soil attributes including soil chemistry, profiles, permeability, moisture, acidity, and parent material are all the foundation for describing distinctive natural communities. **Table 2** lists the soils, their parent material residuum, and primary natural communities.

**Table 2.** Soils of Bryant Creek State Park

SOILS OF UPLAND RIDGES, FLATS, AND HIGH SHOULDERS		
Soil Unit(s)	Forms over	Primary natural community
Mano-Ocie	Weathered Dolomite	Dry chert woodlands
Gatewood-Moko	Weathered Dolomite	Dry dolomite woodland; some glade
Moko	Shallow dolomite	Dolomite glade
Ocie-Gatewood	Dolomite and chert	Dry and dry-mesic chert and dolomite woodland
Poyner, Tonti, Scholten	Deep chert over dolomite	Dry-mesic chert woodland
Fanchon	Fragipan and Loess	Dry woodland and flatwoods
SOILS OF SLOPES AND HOLLOWES		
Soil Unit(s)	Forms over	Primary natural community
Coulstone	Sandstone residuum/ gravelly slope alluvium	Dry and dry-mesic sandstone woodland; dry-mesic sandstone forest; dry-mesic chert forest, mesic sandstone forest
Bender	Sandstone residuum	Dry and dry-mesic sandstone woodland and forest
Topazmill-Coustone	Slope alluvium	Dry-mesic woodland
Bendavis	Slope alluvium over chert	Dry and dry-mesic chert woodland
Coulstone/Bender/ Gatewood	Bluffs and hillslopes of Bryant Creek	Dry-mesic sandstone forest, dry dolomite cliff, mesic dolomite forest, dolomite talus
SOILS OF BRYANT CREEK BOTTOMLANDS		
Soil Unit(s)	Forms over	Primary natural community
Relf and Sandbur complex	Sandy and gravelly alluvium	Dry-mesic and mesic bottomland forest; riverfront forest, sand and gravel bars



**Figure 1.** Bedrock geology superimposed over topography. The predominant Roubidoux Formation is critical to the location of the many mesic sandstone ravines harboring hanging sandstone waterfalls, moist and dry sandstone ledges, and spicebush seeps. Dolomite glades and dolomite woodlands occupy the Jefferson City Dolomite, and dry-moist dolomite cliffs of Coon Den and Pearce bluffs are associated with the Gasconade Dolomite.

**Organizing Natural Communities: The Flow of Water**

While the 32 natural communities identified at Bryant Creek State Park follow the classification/organization of Nelson (2010), different approaches were considered to explain relationships among flora, natural communities, and the processes responsible for their development. Of all the environmental factors affecting the characteristic flora of natural communities, it is the downward flow and infiltration of water that affect their distributions, patterns, and locations. Precipitation falls across a varied topography mantled in three primary geologic formations. Distinctive plant species sort themselves out across pH gradients — cherts and sandstones producing acidic soils, while calciphiles inhabit higher pH dolomites and karstic groundwaters. Elevation and soils affect infiltration and runoff rates, or lack thereof. Aspect (direction facing toward or away from the sun) determines selection for plants adapted to desiccating exposure of southwest slopes or sheltered in dense tree canopy shade on north-facing protected slopes.

The natural communities of Bryant Creek State Park are organized and sorted (**Table 3**) based on hydrological/elevation flow qualities. Excessively drained soils of glades, dry woodlands, and upland flatwoods occur on hilltops and steep south and west slopes exposed to the direct sun, with soils becoming progressively moister descending into valleys and northerly hillslopes. Excess runoff collects in ravines and stream basins or flows beneath the surface as losing streams. Rainwater penetrates porous substrates until encountering impervious rock, where it exits along hillslopes, bedrock ravines, and valley terraces as seeps, fens, and springs.

**Table 3.** Natural Communities of Bryant Creek State Park

Natural Community Name	Database Abbreviation	Relative Abundance
<b>UPLAND NATURAL COMMUNITIES</b>		
<b>Dolomite Glade</b>	DG	< 15 acres
<b>Sandstone Glade</b>	SG	< 1 acre
<b>Upland Flatwoods (Dry and Ponding)</b>	UF	Tens of acres
<b>Dry Chert Woodland</b>	DCW	Hundreds of acres
<b>Dry-Mesic Chert Woodland</b>	DMCW	Tens of acres
<b>Dry-Mesic Chert Forest</b>	DMCF	Tens of acres
<b>Dry Sandstone Woodland</b>	DSW	Hundreds of acres
<b>Dry Sandstone Cliff (ledges)</b>	DSC	Estimated total 1 mile
<b>Dry-Mesic Sandstone Woodland</b>	DMSW	Hundreds of acres
<b>Dry-Mesic Sandstone Forest</b>	DMSF	Hundreds of acres
<b>Mesic Sandstone Forest</b>	MSF	Tens of acres
<b>Moist Sandstone Cliff (ledges)</b>	MSC	Estimated total 1.5 miles
<b>Dry Dolomite Woodland</b>	DDW	< 20 acres
<b>Dry Dolomite Cliff</b>	DDC	¼ mile west-facing upper cliff
<b>Dry-Mesic Dolomite Woodland</b>	DMDW	Tens of acres
<b>Mesic Dolomite Forest</b>	MDF	Tens of acres
<b>Dolomite Talus</b>	DT	< 10 acres; ½ mile long
<b>Moist Dolomite Cliff</b>	MDC	¾ mile north-facing lower cliff

Natural Community Name	Database Abbreviation	Relative Abundance
<b>GROUNDWATER NATURAL COMMUNITIES</b>		
<b>Ozark Fen</b>	OF	3 fens
<b>Spicebush Terrace Seep</b>	STS	6-10 large occurrences
<b>Ravine Side slope Seep</b>	RSS	6-8 ravines
<b>Dolomite Spring</b>	DS	5 springs
<b>Sinkhole Pond</b>	SP	1 pond
<b>RIVERINE NATURAL COMMUNITIES</b>		
<b>Dry-Mesic Bottomland Forest</b>	DMBF	< 15 acres
<b>Mesic Bottomland Forest</b>	MBF	< 5 acres
<b>Dry-Mesic Bottomland Woodland</b>	DMBW	Tens of acres
<b>Riverfront Forest</b>	RF	< 20 acres
<b>Gravel Wash-Narrow valleys</b>	GW	> 15 total miles
<b>Gravel bar</b>	GB	< 5 acres
<b>Sandbar</b>	SB	< 2 acres
<b>Mudflat-Slough</b>	MF	> 15 occurrences in 2 miles
<b>Stream/Riverbank</b>	RB	3.5 miles along Bryant Creek

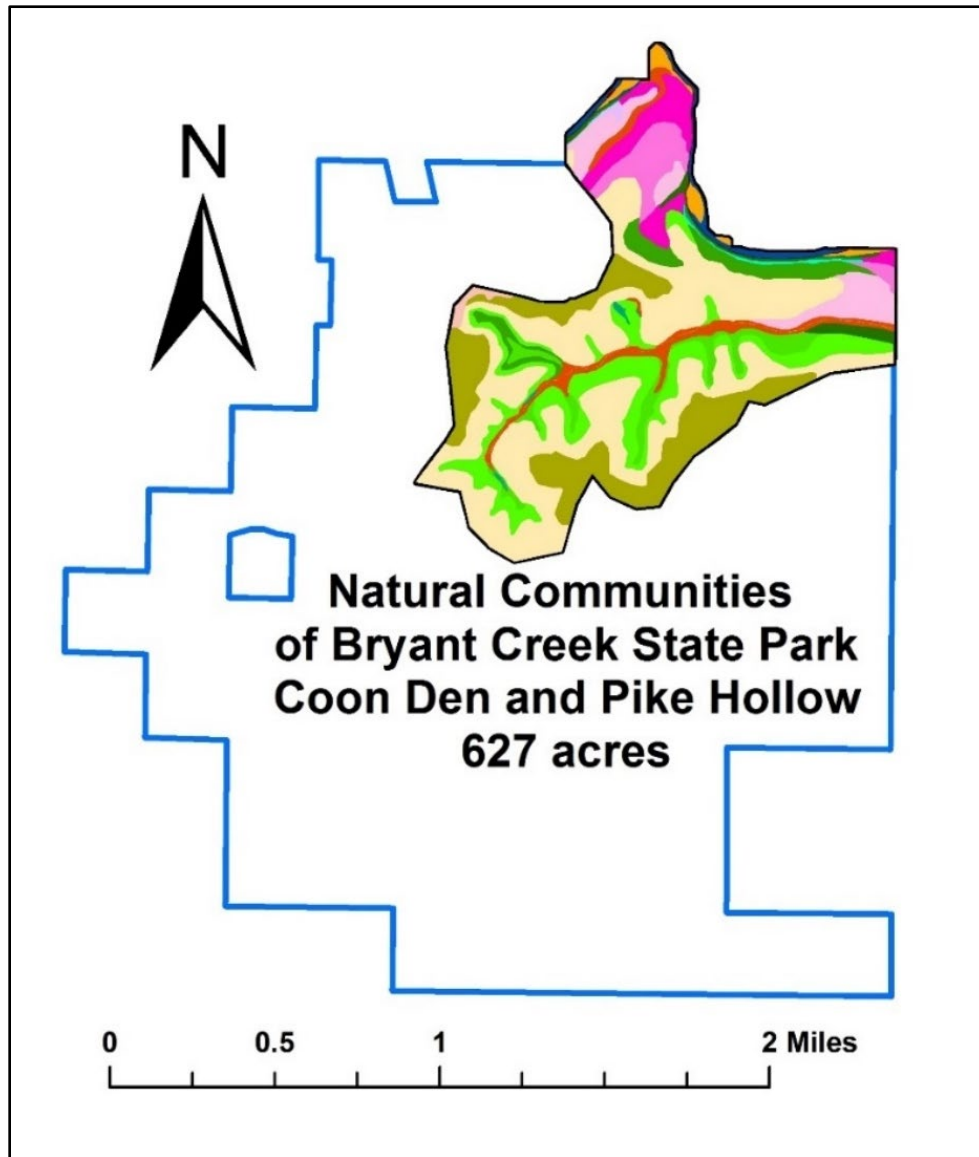
**Table 4.** Cultural Vegetative Habitats of Bryant Creek State Park

Cultural Habitat Name	Database Abbreviation	Relative Abundance
<b>Abandoned Upland Pasture</b>	AUP (Simpson)	53 acres
<b>Maintained Paved and Gravel Roads</b>	RG	3.5 miles
<b>Logging Roads; Log Landings-Gravel, dirt, mud.</b>	LR	> 6 miles
<b>Homesite, Yard, Stable</b>	HY	2 acres
<b>Artificial Pond</b>	AP	5 ponds

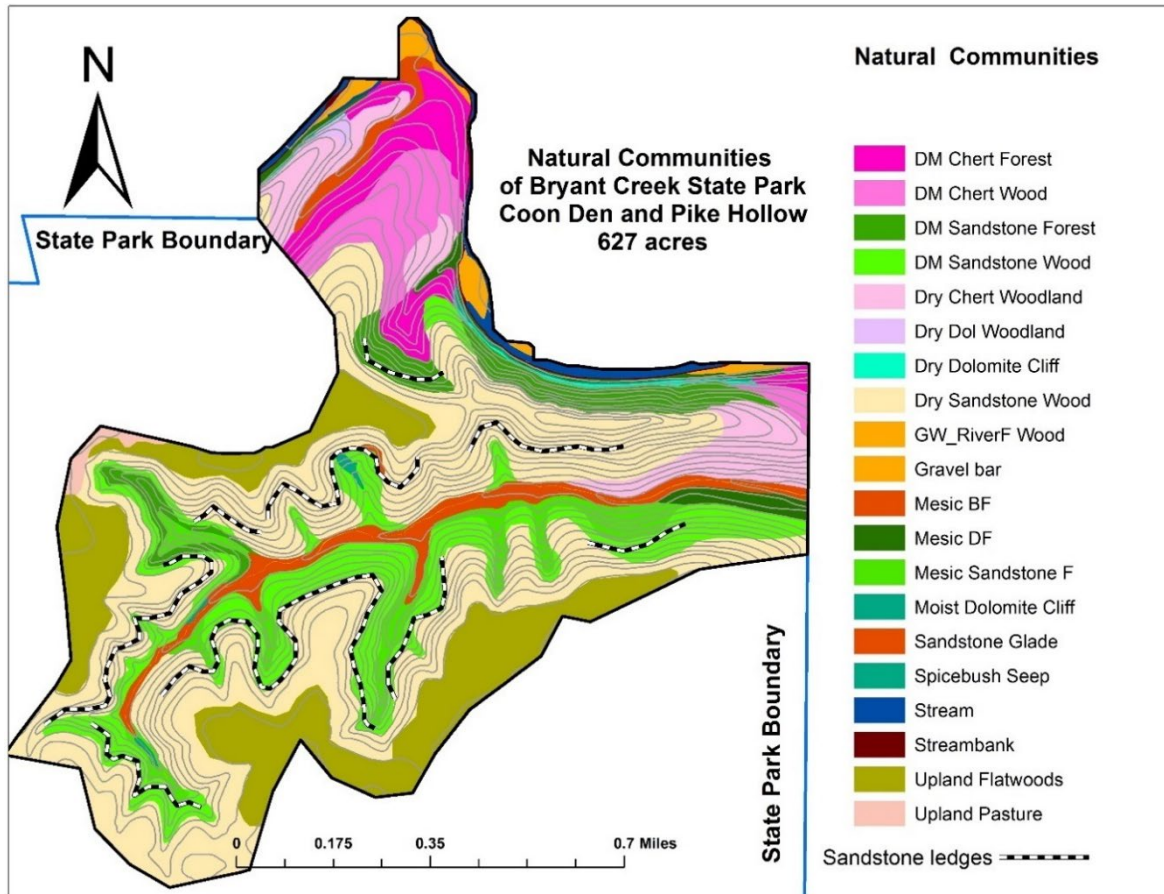
In upper headwaters, springs and rainwater encounter impervious sandstone bedrock and or the water table near the surface. These “gaining streams” collect water in increasing quantities until they encounter pervious deep deposits of gravel, boulders, and weathered bedrock along the stream channel. Surface flows gradually disappear below the stream channel as the water table lowers. These “losing streams” most often occur downstream from headwater valleys in the park. South of Highway N, losing streams are even more pronounced, especially along the main valleys of Dry and Shiloh hollows. Unless replenished by summer rains, nearly every secondary stream in the park becomes seasonally dry, except for a few spring-fed deep ravines. Bryant Creek, a nearly river-sized stream, flows all year, although volume can be very low during droughts; its watershed covers tens of thousands of acres. Floodwaters can submerge the Bryant Creek floodplain from bluff to bluff, often to a depth of 10-15 feet high. Unlike the smaller streams and drainages in the park, Bryant Creek’s meandering stream channel contains nearly all the classic riverine natural communities characteristic of a wide floodplain river system.



The generalized natural community map for a portion of the park (**Figures 2 & 3**) show how elevation, geology, and directional aspect affects the distribution, pattern, and relative relationship of natural communities.



**Figure 2.** Location of the 627-acre region of the park map including Coon Den Bluff and Pike Hollow in which natural communities were mapped in detail, as shown in **Figure 3**.



**Figure 3.** Twenty distinct natural communities were mapped in this 627-acre portion of Bryant Creek State Park. Contours reveal the relationship between dry, dry-mesic, and mesic woodlands and forests in the Pike Hollow Valley (lower portion of map), and for Coon Den Bluff to the northeast. Pink and purple hues capture chert and dolomite woodlands and forests. Similar natural communities would be expected in the adjacent deep valleys north of Highway N.

### Flora of Upland Natural Communities

#### ***Dolomite Glade***

Fourteen glades totaling 13 acres occur within the park. Thirteen glades are Jefferson City Dolomite (Quarry Ledge unit) while one small glade is Roubidoux sandstone. At 8 acres, the largest dolomite glade complex (consisting of 4 closely associated glade units) occurs on a high knob and continues onto a private inholding south along Highway N, totaling 18 acres in extent. Seven of the remaining 9 glades occur toward the east portion of the park where Highway N turns south toward County Road N-345. These glades line up along the north-south borders of a graben mapped by Larry “Boot” Pierce, Chief, Geological Resources Section of the Missouri Geological Survey, Missouri Department of Natural Resources. All glades, except two very small ones, coincided well with those mapped in the 2018 Missouri Natural Glades shapefile (<https://www.msdis.missouri.edu>).





**Figure 4.** Dolomite glade on knob south of Highway N.

At least 175 of the park's 940 plant taxa occur on dolomite glades, comprising 19 percent of the park's total flora. However, at least 30 of these plants are rare, with several random occurrences due to their isolation and small numbers. Glade plants with only 1-5 individuals noted include prairie acacia (*Acaciella angustissima* — 1 plant), Trelease's larkspur (*Delphinium treleasei* — 1 plant), glade adders tongue (*Ophioglossum engelmannii*), Missouri evening primrose (*Oenothera macrocarpa*), pink satin grass (*Muhlenbergia capillaris*), rigid goldenrod (*Solidago rigida*), silky aster (*Symphyotrichum sericeum*), slender ladies tresses (*Spiranthes lacera*), crested coral root (*Hexalectris spicata*), prairie parsley (*Polytaenia nuttallii*), shaggy evolvulus (*Evolvulus nuttallianus*), quillwort (*Isoetes butleri* — 2 plants), and Nuttalls prairie iris (*Nemastylis nuttallii* — 1 previous season seed pod). Most of these species (and others) should have higher relative importance values in intact glades, meaning they should be more evenly distributed either throughout the glade, or at least in larger populations/numbers in suitable glade niches. Further searches should result in additions of other characteristic glade species including Gattinger's goldenrod (*Solidago gattingeri*), pale umbrellawort (*Mirabilis albida*), and prairie turnip (*Pediomelum esculentum*).

A grove of American smoke tree (*Cotinus obovatus*) was confined to ledges and outcrops of a dry dolomite woodland. The impervious nature of the dolomite glades also likely contributes to the perched water of a bordering Ozark fen.



**Figure 5. A:** Bush's Skullcap (*Scutellaria bushii*) and **B:** Glade Purple Coneflower (*Echinacea simulata*) are endemic to dolomite glades.

### ***Sandstone Glade***

One small glade on Roubidoux sandstone (**Figure 7**) occurs with an acid seep along ledges below the glade. This glade is located 0.5 miles east of the residence along the upper slopes of a south-facing lateral valley of Pike Hollow. Plants restricted to the glade include beard grass (*Gymnopogon ambiguus*), nodding ladies tresses (*Spiranthes cernua*), woodland yellow flax (*Linum virginianum*), goats rue (*Tephrosia virginiana*), hairy mountain mint (*Pycnanthemum virginianum*), meadow sedge (*Carex granularis*), slender spike rush (*Eleocharis verrucosa*), and rough rush grass (*Sporobolus vaginiflorus*).

Other very small, dry, barren sandstone ledges with glade affinities occur sporadically along sandstone ledge tops, particularly along south and west-facing high slopes. Intermittent streams in high headwater valleys often scour open exposures of sandstone slab rock, resulting in glade-like qualities.





**Figure 6.** Dune ladies' tresses (*Spiranthes cernua*) is found only on one sandstone glade in the park.



**Figure 7.** The park's only known relatively small sandstone glade has produced several species not found elsewhere in the park.



**Figure 8.** Beard grass (*Gymnopogon ambiguus*) is scattered across the sandstone glade shown in **Figure 7**.

### ***Upland Flatwoods***

Upland flatwoods are seasonally dry woodlands that occupy broad, nearly level ridges and flats. Collectively, around 12-14 areas averaging 8-15 acres each of mapped flatwoods soils total approximately 150 acres across the park, occurring primarily on Tonti and Sholten soils characterized by an impervious claypan that impedes water movement. The clayey parent materials are derived from loess, pediments, and weathered residuum. The nearly impermeable subsurface clay layer forces precipitation to slowly drain away from the nearly level flats (1-3% slope). This clay layer dries rapidly during the summer, leading to slow root development and stunted tree growth. Where nearly level, seasonal ponding occurs, resulting in temporary wetland conditions and the presence of numerous facultative wetland species. Pounded water eventually evaporates as very little of the precipitation perched over the clay layer infiltrates through it.





**Figure 9.** Shortleaf pine and post oak dominate the fragipan soils of this recently burned upland flatwoods south of Highway N.

Flatwoods at the park are dominated by shortleaf pine (*Pinus echinata*) along with post oak (*Quercus stellata*). Black oak (*Q. velutina*), young shagbark hickories (*Carya ovata*), and black gum (*Nyssa sylvatica*) are scattered throughout. Sassafras (*Sassafras albidum*) and persimmon (*Diospyros virginiana*) are common in the understory.

Species highlighted in **bold** below occur only in wet depressions or old road ruts in flatwoods. Locally common herbaceous plants in flatwoods include Sampson's snakeroot (*Orbexilum pendunculatum*), oblong sunflower (*Helianthus hirsutus*), common cinquefoil (*Potentilla simplex*), yellow honeysuckle (*Lonicera flava*), coralberry (*Symphoricarpos orbiculatus*), knee grass (*Dichanthelium dichotomiflorum*), and early goldenrod (*Solidago juncea*). Common sedges are fuzzy wuzzy sedge (*Carex hirsutella*), reflexed sedge (*C. retroflexa*), blue sedge (*C. glaucoidea*), and black-edged sedge (*C. nigromarginata*). Slender ladies' tresses orchid (*Spiranthes lacera*) is widely scattered in little bluestem-dominated shortleaf pine flatwoods. One occurrence of two-flowered rush (***Juncus biflorus***) exists in a wet depression of mixed tall fescue and common sumac).



**Figure 10.** Seasonally wet depressions, especially in openings, form a dense mix of shrubs and herbs. Persimmon (*Diospyros virginiana*), late low blueberry (*Vaccinium pallidum*), poison ivy (*Toxicodendron radicans*), saw greenbriar (*Smilax bona-nox*), plains blackberry (*Rubus ablatus*), and summer grape (*Vitis aestivalis*) are common.

Plant species growing in temporary pools include willow aster (*Symphotrichum praealtum*), red bulrush (*Scirpus pendulus*), Carolina leaf-flower (*Phyllanthus caroliniensis*), rattlebox (*Ludwigia alternifolia*), weak St. John's wort (*Hypericum mutilum*), false nettle (*Boehmeria cylindrica*), fox sedge (*Carex vulpinoidea*), and short-pointed cyperus (*Cyperus acuminatus*). Two species of conservation concern found in an open wet depression are cliff fern (*Woodsia obtusa* subsp. *occidentalis*) and hairy lettuce (*Lactuca hirsuta*).

Easily rutted, temporary water-filled depressions in old logging roads provide clues to the former, more widespread occurrence of wetland species occupying wet depressions of former higher quality open flatwoods. Many of the species noted in water-filled road ruts have moderate to high C-values and represent the only observed occurrences in the entire park. Plants found only in upland flatwoods road ruts are creeping coyote thistle (*Eryngium prostratum*), common rush (*Juncus effusus* subsp. *solutus*), path rush (*Juncus tenuis* var. *anthelatus*), squarrose sedge (*Carex squarrosa*), and southern sedge (*C. austrina*). Other uncommon flora includes large-flowered water plantain (*Alisma trivale*), blunt spike rush (*Eleocharis obtusa*), clammy hedge



hyssop (*Gratiola neglecta*), false pimpnel (*Lindernia dubia* var. *anagallidea*), roundleaf mud plantain (*Heteranthera rotundifolia*), and marsh purslane (*Ludwigia palustris*). Gaping panic grass (*Steinchisma hians*) is an S3 species of conservation concern found in 4 sites exclusively in muddy road rut depressions in flatwoods.

Oddly, while created by vehicle disturbance, water-filled deep road ruts are the primary locations for several rare and conservative plant species cited above. Few of these species occur in other park wetland habitats, artificial or otherwise, suggesting that the seed propagules remain dormant in low flatwoods depressions for many years until some disturbance stimulates them to germinate.



**Figure 11. A:** Clayey soils of upland flatwoods were easily rutted during logging operations from 2002 to 2008. Winter and spring precipitation fill the rutted depressions, providing favorable growing conditions for several obligate (and rare) wetland species, perhaps relicts of former natural upland wet depressions. **B:** squarrose sedge (*Carex squarrosa*) found only in one rut.



**Figure 12.** This sterile, clayey barren area of Tonti fragipan soil occurs beneath a powerline right-of-way in the extreme southeast portion of the park along Highway N. Plants found only here include nits and lice (*Hypericum drummondii*) and thread-leaf sundrops (*Oenothera linifolia*).



**Figure 13.** The minute terrestrial starwort (*Callitriche terrestris*) occurs in barren clay depressions of flatwoods.

### ***Dry Chert Woodland***

Insoluble chert residuum comes from three often overlapping sources in the park. First, weathering of cherty Jefferson City dolomite results in layers of insoluble surface residuum. Second, dolomite is abundant in the Roubidoux formation along with several thick layers of sandstone. However, most of the chert-laden dolomite in this formation has weathered away, leaving areas of scattered chert residuum, along with exposed layers of sandstone outcrops, ledges, small cliffs, and residual boulders of various sizes. Chert originating from either or a mix of both rock formation sources is most prevalent near and around the Jefferson City Formation, and occasionally in areas of the Roubidoux formation.

To a lesser extent, larger cryptozoan chert boulders and rock ledges occupy the top layer of the Gasconade Formation, especially at the east end of the north high ridge of Pike Hollow. Accumulated deposits of chert are most prevalent on steeper slopes and narrow ridges, often resulting in plant composition characteristic of chert-dominated natural communities, especially near the higher elevation portions of the park where dolomites are still prevalent. However, the Roubidoux formation predominates throughout most of the park where cherty sandy loams and clays, along with one to three layers of sandstone, form the basis of upland sandstone natural communities.

A mapping challenge (and delineation of observed plant species) is whether sandstone, chert, or dolomite are the predominant soil and/or physical feature influencing plant species distribution. Roubidoux sandstone residuum (sandstone boulders, fragments, sandy loam, and ledges/outcrops) often accumulates immediately over dolomite material derived from the Gasconade or Jefferson City formations. Many acid-loving species occur in both sandstone and chert-derived soils. Regardless, I have attempted to choose locations that clearly fall into one or the other natural community as characterized by those species most faithful to the purest of one rock type or the other.





**Figure 14.** Extensive areas of shortleaf pine-dominated open grassy woodlands are scattered across high broad cherty ridges south of Highway N.

South of Highway N, extensive acreage of dry chert woodlands occupies Ocie-Gatewood and Bendavis-Poyner soils where chert residuum gravel and boulders are exposed along south- and west-facing slopes. Shortleaf pine (*Pinus echinata*), black oak (*Quercus vultina*), white oak (*Q. alba*) and post oak (*Q. stellata*) are characteristic. Past logging, wildfires, and recent prescribed burns have provided open sunlit conditions favorable for the increase in characteristic herbaceous groundcover flora. The south-trending valley in the west portion of section 36 (out of the prescribed burn unit) exhibits good quality open woodland with a diverse ground cover. Expansive patches of warm season grasses mixed with characteristic woodland forbs occur on south-facing gentle to moderately steep slopes. The most abundant and widespread species (especially on the highest broad ridges in old log landings) include plains blackberry (*Rubus ablatus*), smooth sumac (*Rhus glabra*), winged sumac (*Rhus copallinum*), late low blueberry (*Vaccinium pallidum*), and poverty grass (*Danthonia spicata*). Over 75 herbaceous plant species have a C-value of 6 or higher. A few noteworthy species include dittany (*Cunila origanoides*), oblong sunflower (*Helianthus hirsutus*), bracken fern (*Pteridium aquilinum*), goat's rue (*Tephrosia virginiana*), upland boneset (*Eupatorium sessilifolium*), wild crocus (*Tradescantia longipes*), round leaved tick trefoil (*Desmodium rotundifolium*), eastern poison oak (*Toxicodendron pubescens*), lead plant (*Amorpha*

*canescens*), velvety panic grass (*Dichanthelium scoparium*), and early branched panic grass (*D. praecocius*). Two species of conservation concern occur in dry chert woodland: hairy lettuce (*Lactuca hirsuta*) and crane fly orchid (*Tipularia discolor*).



**Figure 15.** This dry chert woodland occurs along the top of Pearce Bluff. The chert originates from a cryptozoan reef chert layer at the top of the Gasconade Formation.

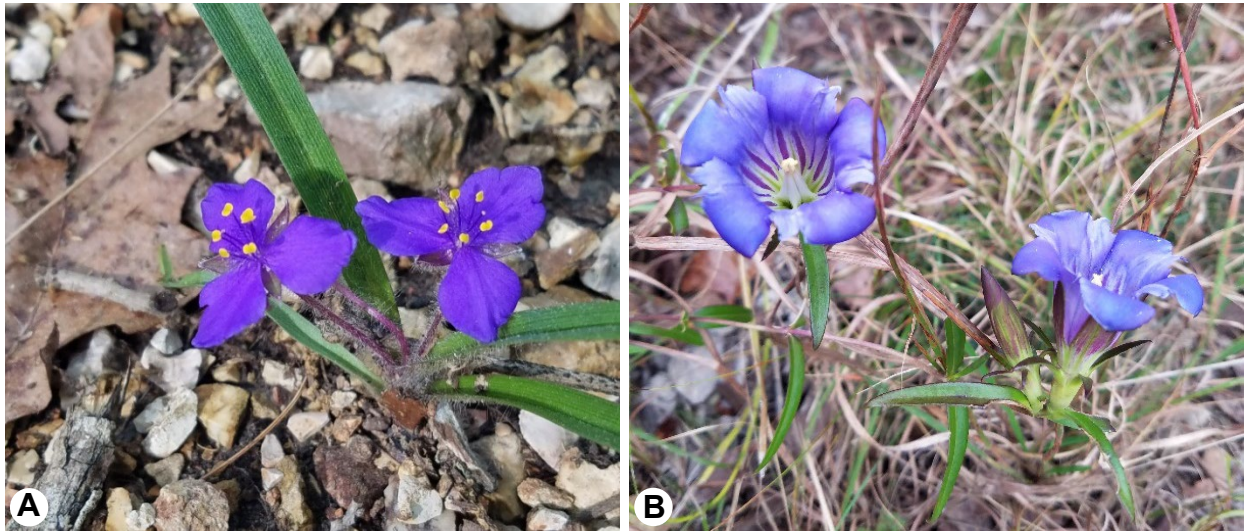
To the north, most dry chert woodland is confined to the steep slopes where the cryptozoan chert layer at the top of the Gasconade contacts the Roubidoux, especially along the south facing steep slopes of Pike Hollow along the east end, and mid slope of the valley and steep ridges west of Coon Den Bluff. Much of the narrow high ridge above Pearce Bluff occurs along the cryptozoan chert zone. Dominant trees include post oak (*Quercus stellata*), black oak (*Q. velutina*), blackjack oak (*Q. marilandica*), black hickory (*Carya texana*), red hickory (*C. ovalis*), and shortleaf pine (*Pinus echinata*). Understory trees, shrubs and vines include sassafras (*Sassafras albidum*), flowering dogwood (*Cornus florida*), Mexican plum (*Prunus mexicana*), shadbush (*Amelanchier arborea*), one-flowered hawthorn (*Crataegus uniflora*), late low blueberry (*Vaccinium pallidum*), deerberry (*V. stamineum*), saw greenbriar (*Smilax bona-nox*), and summer grape (*Vitis aestivalis*). Herbaceous species of increased importance on steep cherty slopes include little bluestem (*Schizachyrium scoparium*), tall nut rush (*Scleria triglomerata*), umbel-like sedge (*Carex*



*umbellata*), black-edged sedge (*C. nigromarginata*), Bellows-beaked sedge (*C. albicans*), butterfly pea (*Clitoria mariana*), Arkansas bedstraw (*Galium arkansanum*), hairy bush clover (*Lespedeza hirta*), common St. Andrews cross (*Hypericum strangulum*), forked panic grass (*Dichanthelium dichotomum* var. *barbulatum*), Bicknell's panic grass (*D. bicknellii*), four-leaved milkweed (*Asclepias quadrifolia*), small-leaved tick trefoil (*Desmodium marilandicum*), white goldenrod (*Solidago hispida*), azure aster (*Symphotrichum oolentangiensis*), starry rosinweed (*Siphium asteriscus*), and three-leaved violet (*Viola palmata*).

Species restricted to dry chert woodlands include firepink (*Silene virginica*), wild crocus (*Tradescantia longipes*), Elliott's brome sedge (*Andropogon gyrans*), clammy false foxglove (*Aureolaria pectinata*), upland boneset (*Eupatorium sessilifolium*), downy gentian (*Gentiana puberulenta*), and hop tree (*Ptelea trifoliata*). Future prescribed burning and thinning will increase the importance of warm season grasses, especially little bluestem, Indian grass, and panic grasses in these habitats, especially south of Highway N.

Extensive areas of thick oak and pine-dominated saplings, and sumac occur throughout the logged portion of the park. Prescribed burning, while beneficial, may not be enough to remove these thickets. Plains blackberry and sumac are present in high quantities, and if not kept in check will suppress the recovery of diverse woodland groundcover flora. Invasive species resulting from logging operations include sericea lespedeza (*Lespedeza cuneata*), spotted knapweed (*Centaurea stoebe* subsp. *micranthos*), sweet vernal grass (*Anthoxanthum odoratum*), and poison hemlock (*Conium maculatum*), particularly in disturbed soil from logging activity. Fortunately, the above invasives are currently confined to logging roads and log landings.



**Figure 16.** A: A small population of wild crocus (*Tradescantia longipes*) occurs only in dry chert woodland as does B: downy gentian (*Gentianella puberulenta*).



### **Dry-Mesic Chert Woodland**

Available soil moisture increases both on mid and lower backslopes, and where moderately steep hills face north and east in deep valleys, especially those occurring west of Coon Den Bluff north of Simpson Pasture. Trees in this environment increase in size and height along with the development of mid story and understory trees and shrubs. Fire effects still mediate tree structure and plant composition, although to a lesser extent than in dry woodlands. Dominant white oak, northern red oak, and shortleaf pine intermix with bitternut hickory, black gum, and sassafras. Scattered areas of flowering dogwood, red maple, late lowbush blueberry, and Carolina buckthorn often form a continuous understory. Scarlet oak occurs in a few isolated locations with white oak and shortleaf pine.

Groundcover herbaceous species include elm leaved goldenrod (*Solidago ulmifolia*), bare-stemmed tick trefoil (*Hylodesmum nudiflorum*), pointed tick trefoil (*H. glutinosum*), hog peanut (*Amphicarpaea breacteata*), woodland brome (*bromus pubescens*), Bosc's panic grass (*Dichanthelium boscii*), hirsute sunflower (*Helianthus hirsutus*), Whorled milkweed (*Asclepias quadrifolia*), firepink (*Silene virginica*), hispid buttercup (*Ranunculus hispidus*), rue anemone (*Thalictrum thalictroides*), wild petunia (*Ruellia pedunculata*), rock satin grass (*Muhlenbergia sobolifera*), spreading aster (*Symphotrichum patens*), wood angelica (*Angelica venenosa*), long awned wood grass (*Brachyelytrum erectum*). Christmas fern (*Polystichum acrostichoides*) appears especially along lower slopes.



**Figure 17.** Black cohosh (*Actaea racemosa*) is scattered throughout dry-mesic chert woodlands just above the cane-dominated riverfront forests along Bryant Creek.

### **Dry Sandstone Woodland**

Dry sandstone woodlands at Bryant Creek occur in a wide variety of natural community variations and subtypes ranging from broad upland gently sloping hills (south of Highway N) to very steep boulder and ledge strewn side slopes of the deep valleys north of Highway N along with Shiloh Valley. Dry sandstone woodland is the most widely distributed of the park's 32 natural community types.

South of Highway N, past logging has unveiled savanna-like groves of picturesque shortleaf pine prominent on the sandy, loamy Coulstone-Bender and Topazmill soils derived from sandstone, forming dry sandstone woodlands. Shortleaf pine, post oak, white oak, black oak, and black hickory are prominent along with inclusions of open, gnarly groupings of farkleberry (*Vaccinium arboreum*) and scattered shadbush (*Amelanchier arborea*). Widely distributed species include sassafras (*Sassafras albidum*), late lowbush blueberry (*Vaccinium pallidum*), and black-edged sedge (*Carex nigromarginata*). A variety of panic grasses (15 species), asters (6 species), goldenrods (7 species), carices (9 species), and scattered little bluestem are prominent along with many typical dry woodland forbs (**Figure 18**).



**Figure 18.** This upland open canopy dry sandstone woodland occurs on Topazmill soils where logging and a prescribed burn have restored a moderate diversity of fire-mediated forbs. Species occurring in this image include several panic grasses (*Dichanthelium* spp.), rattlesnake master (*Eryngium yuccifolium*), cream wild indigo (*Baptisia bracteata*), sensitive briar (*Mimosa quadrivalis nuttallii*), bracken fern (*Pteridium aquilinum*), hispid sunflower (*Helianthus hirsutus*), early goldenrod (*Solidago juncea*), dittany (*Cunilla origanoides*), goats rue (*Tephrosia virginiana*), Bradbury bee balm (*Monarda bradburiana*), one flowered dewberry (*Rubus enslenii*), black-eyed susan (*Rudbeckia hirta*), and lyre-leaved sage (*Salvia lyrata*).



North of Highway N, dry sandstone woodlands prevail along south- and west-facing steep hillslopes above the deeper, narrow valleys. Farkleberry (*Vaccinium arboreum*) forms small gnarly thickets on the steepest, driest upper slopes especially above the upper sandstone ledges and outcrops of south- and west-facing hills. Yellow honeysuckle (*Lonicera flava*) is widespread in spring but disappears in late summer as deer favor browsing this species. Grasses include poverty grass (*Danthonia spicata*), white haired panic grass (*Dichanthelium villosissimum*), silver plumegrass (*Erianthus alopecuroides*), little bluestem (*Schizachyrium scoparium*), and beard grass (*Gymnopogon ambiguus*). Some of the many characteristic groundcover herbs include butterfly pea (*Clitoria mariana*), goat's rue (*Tephrosia virginiana*), Nuttall's tick trefoil (*Desmodium nuttallii*), toadflax (*Comandra umbellata*), dittany (*Cunila origanoides*), reflexed sedge (*Carex retroflexa*), rattlebox (*Crotalaria sagittalis*), hairy hawkweed (*Hieracium gronovii*), hairy pinweed (*Lechea mucronata*), hog peanut (*Amphicarpaea bracteata*), and hairy bush clover (*Lespedeza hirta*).



**Figure 19. A:** Yellow crownbeard (*Verbesina helianthoides*) flowers in abundance following a prescribed burn in this dry sandstone woodland on gently sloping hills south of Highway N. **B:** In contrast, scattered groves of farkleberry (*Vaccinium arboreum*) are common on steep southwest-facing slopes of hills north of Highway N.

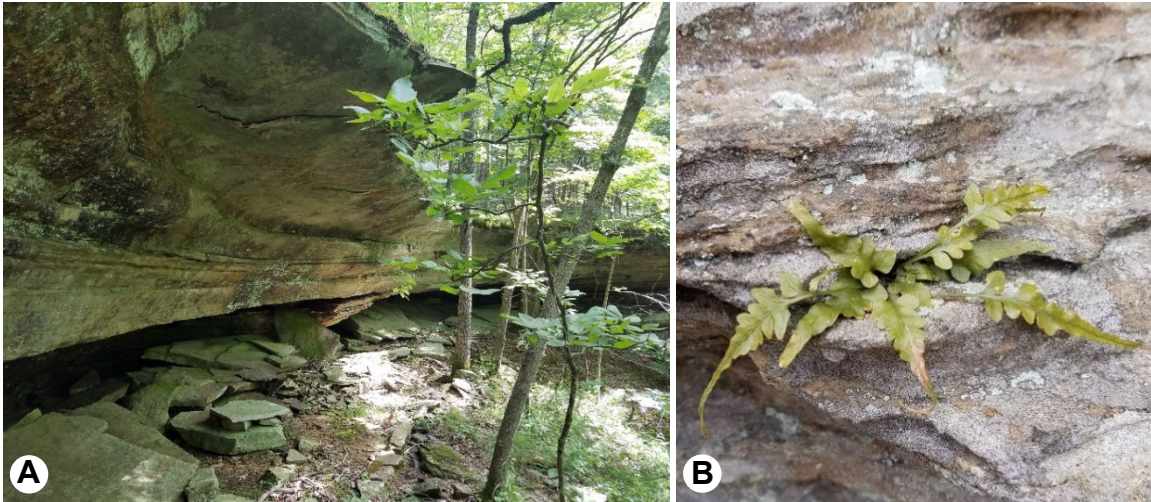




**Figure 20.** Many natural community variations (as depicted on pp. 194-197 of Nelson 2010) occur where the predominant sandstone of the Roubidoux Formation intersects the varied upland topography of the park. **A:** Shortleaf pine (*Pinus echinata*) forms dominant groves on upper south-facing slopes while **B:** oak hardwoods dominate areas of sandstone outcrops.

### ***Dry Sandstone Cliff***

This natural community is directly associated with dry sandstone woodland, both of which are derived from the Roubidoux Formation. Cliffs are 10 feet or higher vertical rock faces (Nelson 2010), often including rock shelters and overhangs. Hundreds of linear feet of sandstone ledges, outcrops, and boulders <10 feet high form parallel benches extending horizontally along elevation contours on mid and upper slopes of ridges and valleys throughout the park. Sandstone cliffs in the park are relatively small, ranging from 10-20 feet high. However, the difference between this height and the lesser, more abundant ledges of 3 to 10 feet do not seem to make any difference in the occurrence of plant species associated with cliff features. Vascular plants confined to dry sandstone cliffs and ledges include the hairy lip fern (*Cheilanthes lanosa*), prairie alum root (*Heuchera richardsonii*), six weeks fescue (*Vulpia octoflora*), Harvey’s buttercup (*Ranunculus harveyi*), and marginal shield fern (*Dryopteris marginalis*). One species of potential conservation concern is found on dry sandstone cliff and/or ledges: the “status undetermined” lobed spleenwort (*Asplenium pinnatifidum*).



**Figure 21. A:** Collectively, numerous ledges interspersed with taller cliffs total several miles following mid-slope contours along steep hills and valleys, especially north of Highway N. **B:** Lobed spleenwort (*Asplenium pinnatifidum*) is a species of conservation concern restricted to crevices of dry sandstone cliffs and ledges.

### ***Dry-Mesic Sandstone Woodland***

As with dry-mesic chert woodland, deeper soils on north and east aspects of moderately steep to steep hillslopes increase both the density and height of the tree canopy, along with a somewhat developed understory of smaller canopy trees and shrubs. The line separating dry and dry-mesic sandstone woodland is often the sandstone ledge running the upper slope along the same contour. Below this high ledge, soils deepen. Shortleaf pine (*Pinus echinata*) and post oak (*Quercus stellata*) give way rapidly to white oak (*Q. alba*), northern red oak (*Q. rubra*), red maple (*Acer rubrum*), mockernut hickory (*Carya tomentosa*), and shagbark hickory (*C. ovata*). Flowering dogwood (*Cornus florida*), ironwood (*Ostrya virginiana*), and Carolina buckthorn (*Rhamnus caroliniana*) increase in the understory. Characteristic groundcover species include Christmas fern (*Polystichum acrostichoides*), pointed tick trefoil (*Hylodesmum glutinosum*), bare-stemmed tick trefoil (*H. nudiflorum*), hog peanut (*Amphicarpaea bracteata*), and several sedges including narrow-leaved wood sedge (*Carex digitalis*), few-fruited sedge (*C. oligocarpa*), and bellows-beaked sedge (*C. albicans*). Wood rush (*Trichophorum planifolium*) is confined to dry-mesic sandstone woodland. Common grasses include long-awned wood grass (*Brachyelytrum erectum*), Bosc's Panic Grass (*Dichanthelium boscii*), and rock satin grass (*Muhlenbergia sobolifera*).





**Figure 22.** White oak and northern red oak dominate the dry-mesic sandstone woodland below this sandstone ledge, which is situated high above a north-facing cove.

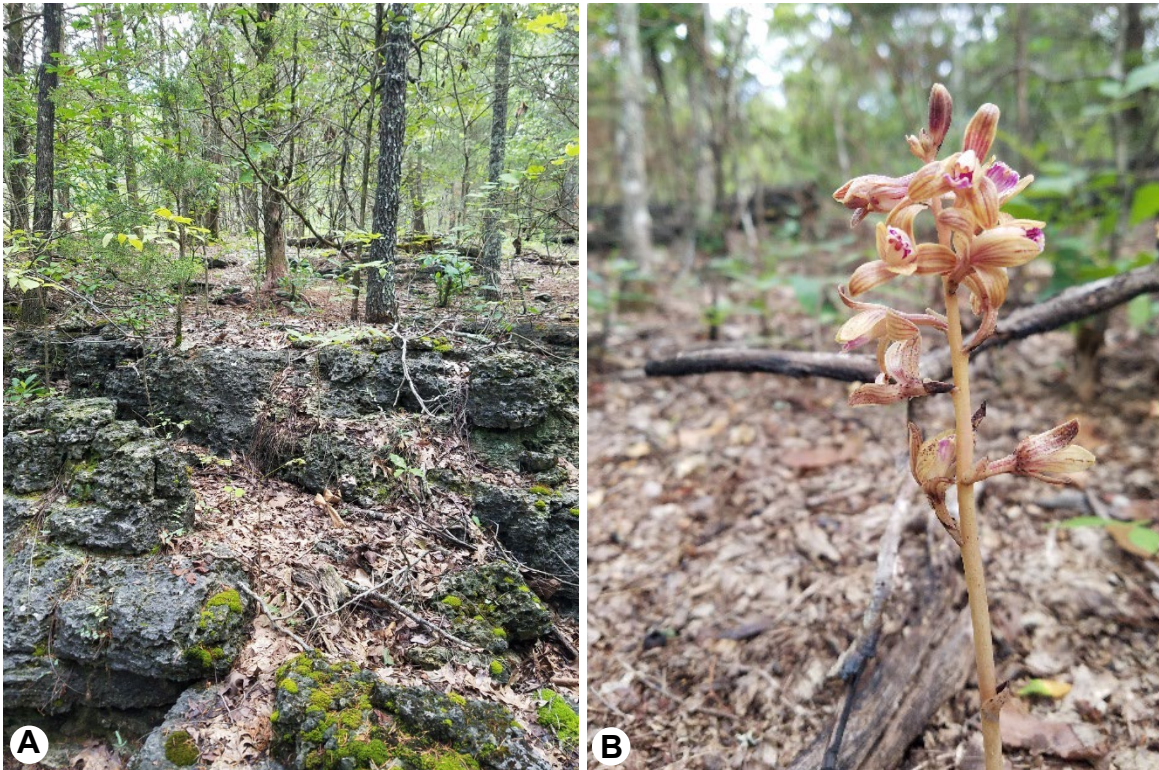
### ***Dry Dolomite Woodland***

Larry “Boot” Pierce has provided a detailed geology map compiled from numerous field trips during summer 2020. The map focuses specifically on the delineation of Jefferson City and Gasconade formations, both of which define dolomite-based natural communities. Dolomitic outcrops at or near the land surface, coupled with calciphile plant species faithful to dolomite, help to delineate dolomite natural communities. Dry dolomite woodlands occur in small pockets around the dolomite glade-bald near the private inholding south of Highway N. A second dry dolomite woodland complex occurs along the north boundary of the graben mapped immediately north of Highway N. These woodlands occur in and around a series of small dolomite glades along the north graben boundary. Dry dolomite woodlands also occur halfway down the steep narrow ridge located immediately above Pearce Bluff.

The most extensive, well developed dry dolomite woodlands are confined to the small dolomite glade immediately north and west of the logging road access to the sinkhole pond. Dolomite bedrock is exposed along 6-8-foot ledges forming small ephemeral waterfalls. Dolomite bedrock ledges and rock pavement occur immediately above these ledges. Four tree-shrub species clearly define the boundaries of this dry dolomite woodland: red cedar (*Juniperus virginiana*), chinquapin oak (*Quercus muehlenbergii*), Schneck oak (*Quercus schumardii* var. *acerifolia*), and smoke tree (*Cotinus obovatus*). Other characteristic species include redbud (*Cercis canadensis*), white ash (*Fraxinus americana*), supplejack (*Berchemia scandens*), Carolina rose (*Rosa carolina*), elm-leaved goldenrod (*Solidago ulmifolia*), Ozark false boneset (*Brickellia eupatorioides*), sweet scented bedstraw (*Galium triflorum*), yellow pimpernel (*Taenidia integerrima*), orange puccoon



(*Lithospermum canescens*), and climbing milkweed (*Matelea decipiens*). Melica (*Melica nitens*) and purple cliffbrake (*Pellaea atropurpurea*) often grow on dolomite ledges and boulders. Heart-leaved skullcap (*Scutellaria ovata*), round-leaved ragwort (*Packera obovata*), and elm-leaved goldenrod (*Solidago ulmifolia*) are scattered beneath the dense grove of tall red cedars along the steep ridge mid-way downslope from Pearce Bluff.



**Figure 23.** **A:** Dry dolomite woodland occurs in patches around dolomite glades. **B:** Coral root orchid (*Hexalectris spicata*) was discovered beneath cedars in this location only.





**Figure 24.** Several hundred small trees and shrubs of American smoke tree (*Cotinus obovatus*) occur in only one location in dry dolomite woodlands in the park.

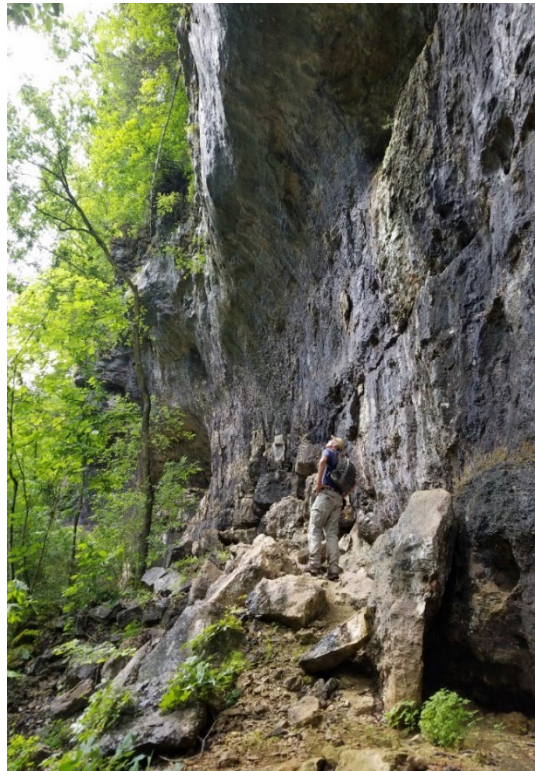


**Figure 25.** In the dry dolomite woodlands scattered around the dolomite glade bald, I located two rare species: **A:** prairie acacia (*Acaciella angustissima*) and **B:** Treleasei's larkspur (*Delphinium treleasei*).

### ***Dry Dolomite Cliff***

Nearly all of the ca. 4,600 linear feet of two separate cliffs in the park face northward along Bryant Creek. The dolomite cliff along Bryant Creek at Coon Den Bluff is approximately 3,400 feet long and 110 feet at its highest point, while to the west, Pearce Bluff is 1,200 feet long and 80 feet high. Combined, both are calculated using ArcMap to contain 5.4 surface acres of sheer vertical cliff pavement. Only scattered dolomite ledges barely 8 feet high occur elsewhere in the park, primarily where the lowest portions of the drainages in Pike, Dry, and Major hollows cut into the underlying Gasconade Formation.

Although facing northward, the cliffs at Coon Den and Pearce bluffs are a mix of both dry and moist dolomite cliff. The 100-foot-high cliffs reach far above the mesic dolomite forests below, exposing them to sunlight, wind, and excessive drainage.



**Figure 26.** Natural Resource Steward Chris Crabtree gazes upward at the dramatic 110-foot-high dolomite cliffs of Coon Den Bluff.

Pearce Bluff is capped with a small zone of dry chert and dolomite woodland. Unlike Coon Den Bluff to the east, the chert residuum on the narrow ridge band is too shallow to allow for groundwater seepage to occur along the cliff ledge, leaving it excessively dry. Numerous ancient gnarled red cedar trees (*Juniperus virginiana*), many likely exceeding 600 years old, hang along the top edge of the sheer cliff accompanied by chinquapin oak (*Quercus muehlenbergii*). Drummond's goldenrod (*Solidago drummondii*) is nearly endemic to dolomite cliffs. Other characteristic plants



include slender lip fern (*Cheilanthes feei*), smooth cliff brake (*Pellaea glabella*), purple cliff brake (*P. atropurpurea*), narrow-leaved bluet (*Hedyotis nigricans*), columbine (*Aquilegia canadensis*), bristle-leaved sedge (*Carex eburnea*), aromatic aster (*Symphyotrichum oblongifolium*), and yellow false foxglove (*Aureolaria grandiflora*).

Along Coon Den Bluff, the higher and longer dry dolomite cliff face is interrupted by expanses of groundwater seepage where marly calcite deposits are prevalent. Unlike Pearce Bluff, Coon Den Bluff is capped by an expansive and steep dry-mesic to mesic sandstone forest extending upward to a dry ridge approximately 200 feet in relief. The shading effect of the mesic forest conditions increases the importance of mesic species along the high cliff top. Common trees shading the upper cliff edge include chinquapin oak (*Quercus muehlenbergii*), blue ash (*Fraxinus quadrangulata*), northern red oak (*Quercus rubra*), ironwood (*Ostrya virginiana*), ninebark (*Physocarpus opulifolius*), and elderberry (*Sambucus canadensis*). Characteristic vines are trumpet creeper (*Campsis radicans*) and Virginia creeper (*Parthenocissus quinquefolia*). Some dozen fringe trees (*Chionanthus virginicus*) hang from the top edge of the cliff, the only location in the park. Other common plants along the edge and cliff face include Drummond's goldenrod (*Solidago drummondii*), Buckley's goldenrod (*S. buckleyi*), arrow-leaved aster (*Symphyotrichum cordifolium*), and seneca snakeroot (*Polygala seneca*).



**Figure 27.** The draping white flowers of fringe tree (*Chionanthus virginicus*) hang pendulous precariously from the top edge of a 100-foot-high dolomite cliff. A sandbar sprawls below along the edge of Bryant Creek. Below, slender lip fern (*Cheilanthes feei*) occurs only along the driest exposures of dolomite just below the top edge of the highest cliffs.

### ***Dry-Mesic Dolomite Woodland***

This natural community is limited to north- and east-facing mid to lower slopes in valleys where dolomite bedrock is at or near the surface, especially on the Ocie-Gateweed soils associated with the graben feature immediately north of Highway N. Dry-mesic chert residuum forming dry-mesic chert woodland is intermingled with dolomite woodland where deep chert residuum occurs. The presence of dolomite bedrock at the surface aids in separating the two natural community types, along with increasing chinquapin oak (*Quercus muhlenbergii*), sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), white oak (*Q. alba*), northern red oak (*Q. rubra*), ironwood (*Ostrya virginiana*), spike grass (*Chasmanthium latifolium*), wingstem (*Verbesina alternifolia*), woodland brome (*Bromus pubescens*), soft agrimony (*Agrimonia pubescens*), green violet (*Hybanthus concolor*), and (**Figure 28**) round-leaved ragwort (*Packera obovata*).



**Figure 28.** Round-leaved ragwort (*Packera obovata*) is abundant in dry-mesic dolomite woodlands.

### ***Mesic Dolomite Forest***

Mesic dolomite forest occupies two topographic positions in the park. The first occurs along relatively steep north-facing dolomitic slopes associated with the Gasconade Formation, primarily within the lower concave valleys and relatively steep lower slopes situated above the cliff edge of Coon Den Bluff, and several valleys immediately west of Pearce Bluff one mile upstream from Coon Den Bluff. The second forms the steep mixed colluvial soil, exposed dolomite ledges, and boulders intermixed with areas of dolomite talus in the zone bound by the cliffs of Coon Den Bluff and the streambank edge of Bryant Creek. This mesic dolomite forest/talus zone

is 100-200 feet wide, stretching at least 0.5 miles along the base of Coon Den Bluff. When combined with the moist and dry dolomite cliff face features, associated sandstone boulders and ledges, and mesic and dry-mesic forest above the cliff edge, the entire length of Coon Den Bluff is worthy of consideration as a Missouri Natural Area. The assessment of flora strongly supports the area's distinction as a high-quality natural community as listed in the Missouri Natural Heritage Program database.

Northern red oak (*Quercus rubra*), white oak (*Q. alba*), sugar maple (*Acer saccharum*), American basswood (*Tilia americana*), slippery elm (*Ulmus rubra*), bitternut hickory (*Carya cordiformis*), white ash (*Fraxinus americana*), and walnut (*Juglans nigra*) are characteristic trees found in mesic dolomite forest on steep north- and east-facing cove valleys along Bryant Creek. Understory trees and shrubs include pawpaw (*Asimina triloba*), bladderpod (*Staphylea trifolia*), spicebush (*Lindera benzoin*), flowering dogwood (*Cornus florida*), and blue beech (*Carpinus carolinianus*). Many ferns, sedges, vines, grasses, and various wildflowers cover the organically rich mesic forest soil. Ferns include Christmas fern (*Polystichum acrostichoides*), broad-beech fern (*Phegopteris hexagonopteris*), maidenhair fern (*Adiantum pedatum*), and fragile fern (*Cystopteris protrusa*). Distinguished by its wine-colored basal stems, an expansive colony of Carey's sedge (*Carex careyana* — C-value 9) covers the lower steep slopes in the deep valleys along Bryant Creek. This is also where the rare (S2) Ozark spiderwort (*Tradescantia ozarkana*) occurs.

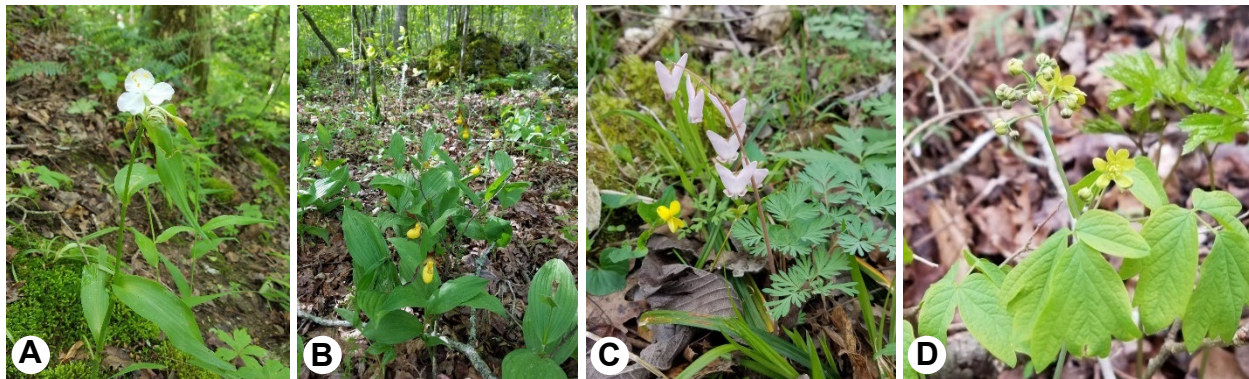


**Figure 29.** Bryant Creek's highest quality mesic dolomite forest occurs in a deep cove west of Pearce Bluff.



The park's highest density of spring ephemeral species carpets the mesic forest floor. A few of the many species include Harbinger of Spring (*Erigenia bulbosa*), false rue anemone (*Isopyrum biternatum*), wild geranium (*Geranium maculatum*), feathery false solomon's seal (*Maianthemum racemosum*), toad trillium (*Trillium sessile*), yellow bellwort (*Uvularia grandiflora*), wild ginger (*Asarum canadense*), pale corydalis (*Corydalis flavula*), bloodroot (*Sanguinaria canadensis*), goldenseal (*Hydrastis canadensis*), and hairy wood violet (*Viola sororia*). Early summer species include small yellow lady slipper (*Cypripedium calceolus* var. *parviflora*), blue cohosh (*Caulophyllum thalictroides*), black cohosh (*Actaea racemosa*), Canadian snakeroot (*Sanicula canadensis*), smooth sweet cicely (*Osmorhiza longistylis*), and ginseng (*Panax quinquefolius*). Late summer and fall flowering species include blue stemmed goldenrod (*Solidago caesia*), tall bellflower (*Campanula americana*), and blue lettuce (*Lactuca floridana*).

The mesic dolomite forest immediately below Coon Den Bluff and Pearce Bluff upstream occupies a mix of colluvial soil, decayed vegetation, decomposed talus, and massive boulders that calved from the 110-foot-high cliff. Vegetation here has a strong affinity to the previously described mesic dolomite forest of deep valleys situated in between the high cliffs or steep cove valleys along Bryant Creek. However, a much higher occurrence of dolomite ledges, scattered talus, and boulders occurs along this zone with an inclusion of plant species strongly associated with talus slopes.



**Figure 30.** Plants of mesic dolomite forests include **A:** Ozark spiderwort (*Tradescantia ozarkana*); **B:** small-flowered yellow lady slipper (*Cypripedium calceolus* var. *parviflorum*); **C:** Dutchman's breeches (*Dicentra cucullaria*); and **D:** blue cohosh (*Caulophyllum thalictroides*).



**Figure 31.** This dolomite talus slope situated at the base of the high dolomite cliffs of Coon Den Bluff stretches over 0.5 mile along the banks of Bryant Creek. Trees and understory seen here include sycamore (*Platanus occidentalis*), northern red oak (*Quercus rubra*), chinquapin oak (*Q. muehlenbergii*), slippery elm (*Ulmus rubra*), pawpaw (*Asimina triloba*), and bladdernut (*Staphylea trifolia*). Emerging rosettes of false hellebore (*Veratrum woodii*) are prominent along with emerging sedges, ferns, and many spring ephemerals.



**Figure 32.** Narrow-leaved spleenwort (*Diplazium pycnocarpon*) is known only from the dolomite talus slopes of Coon Den Bluff.



### Dolomite Talus

In addition to the trees found in mesic dolomite forests of steep lower valleys, the talus slope at the base of Coon Den Bluff also has chinquapin oak (*Quercus muehlenbergii*), bur oak (*Quercus macrocarpa*), hackberry (*Celtis occidentalis*), and green ash (*Fraxinus pennsylvanica*). While bladdernut (*Staphylea trifolia*) and pawpaw (*Asimina triloba*) are dominant, other understory shrubs and small trees found only along the talus slope and lower dolomite ledges include pagoda dogwood (*Cornus alternifolia*), black haw (*Viburnum prunifolium*), ninebark (*Physocarpus opulifolius*), and wild hydrangea (*Hydrangea arborescens*).

A host of more restricted but dominant herbaceous species occupy the talus zone below Coon Den Bluff. These include the spring dominants white bear sedge (*Carex albursina*), Carey's sedge (*C. careyana*), James sedge (*C. jamesii*), false hellebore (*Veratrum woodii*), Jack-in-the-pulpit (*Arisaema triphyllum*), blue cohosh (*Caulophyllum thalictroides*), white baneberry (*Actaea pachypoda*), black cohosh (*A. racemosa*), and running strawberry (*Euonymus obovatus*). This site is the only known location in the park for narrow-leaved spleenwort (*Diplazium pycnocarpon*), forming dense colonies along the mid to lower slopes of the talus zone along with fragile fern (*Cystopteris protrusa*), Tennessee fern (*C. tennesseensis*), maidenhair fern (*Adiantum pedatum*), walking fern (*Asplenium rhizophyllum*), and Christmas fern (*Polystichum acrostichoides*). Prominent summer-flowering species include purple Joe-Pye weed (*Eupatorium purpureum*), blue-stemmed goldenrod (*Solidago caesia*), and mad-dog skullcap (*Scutellaria lateriflora*).



**Figure 33.** A: Carey's sedge (*Carex careyana*) sends up culms with bright yellow stamens contrasting with deep crimson scales of flowering spikes in the early spring. B: Deep purple wine-colored bases of culms are diagnostic.

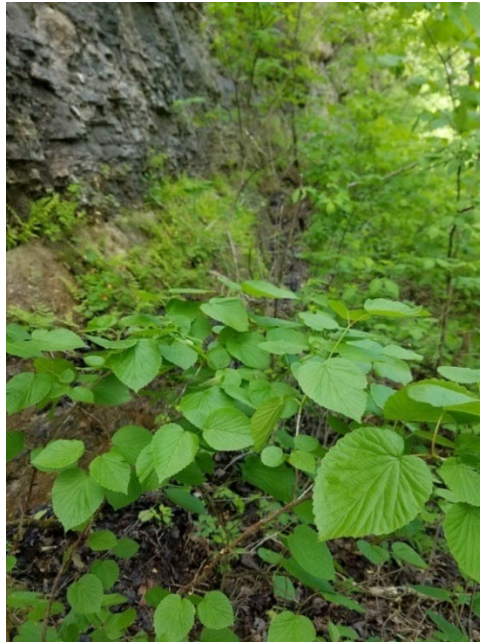


Where dolomite rocks of various sizes form talus debris, the following characteristic species become prominent: Virginia waterleaf (*Hydrophyllum virginianum*), Canada waterleaf (*H. canadense*), leafcup (*Polymnia canadense*), goosefoot (*Chenopodium standleyanum*), and Enchanter's nightshade (*Circaea canadense*).

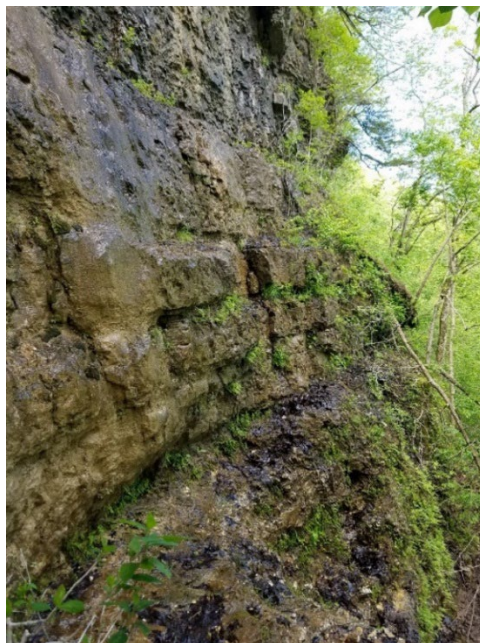
### **Moist Dolomite Cliff**

A careful hike along the unstable base pediment of the high cliffs of Coon Den Bluff will reveal flora associated with shaded, north-facing, often seepy ledges, overhangs, dripping falls, and moist or wet portions of the cliff face. Hiking from along the cliff base, one will hug moist dolomite cliff while being careful not to stumble down rugged rocky dolomite talus downhill. This linear natural community stretches nearly 3,000 feet, among the longest (along with moist dolomite talus and cliff face) in the southern Ozarks. Looking upward, the uninterrupted drier cliff face along the way is broken occasionally by cascades of small dripping falls and sheets of seepy calcite coating the cliff face above, often a hundred feet to its origin along the impervious high cliff edge (permanent seeps are described under groundwater natural communities).

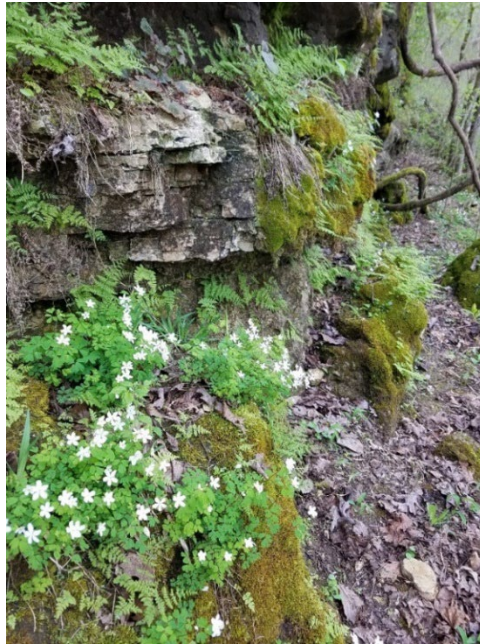
Characteristic shrubs include wild hydrangea (*Hydrangea arborescens*), ninebark (*Physocarpus opulifolius*), elderberry (*Sambucus canadensis*), arrow-wood (*Viburnum molle*), and bladdernut (*Staphylea trifolia*). Characteristic herbs and ferns of moss-covered moist ledges and cracks include shooting star (*Primula meadia*), columbine (*Aquilegia canadensis*), goats' beard (*Aruncus dioicus*), false hellebore (*Veratrum woodii*), bristle-leaved sedge (*Carex eburnea*), white bear sedge (*C. albursina*), Tennessee bladder fern (*Cystopteris tennesseensis*), walking fern (*Asplenium rhizophyllum*), clearweed (*Pilea pumila*), rue anemone (*Thalictrum thalictroides*), smooth solomon's seal (*Polygonatum biflorum*), and blue-stemmed goldenrod (*Solidago caesia*). The fine clayey wind-blown damp to wet soil of overhang recesses often harbor pellitory (*Parietaria pensylvanica*), bristle-leaved sedge (*Carex eburnea*), maple-leaved goosefoot (*Chenopodium simplex*), and cowbane (*Oxypolis rigidior*).



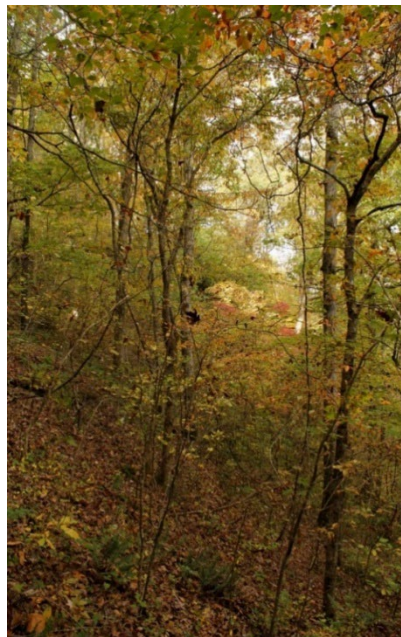
**Figure 34.** Arrow-Wood (*Viburnum molle*) with its heart-shaped leaves (above) is often mistaken for wild hydrangea (*Hydrangea arborescens*). Arrow-wood occurs along moist dolomite ledges at the base of the dolomite cliffs along Coon Den Bluff. It is listed in the Species of Conservation Concern checklist (MDC 2022) as Status Undetermined.



**Figure 35.** Madicolous species (growing on a film or thin sheet of water on rock) are abundant along water-covered rock surfaces; these include liverworts, mosses, algae, fungi, and cyanobacteria. Vascular plants here include hidden spikemoss (*Selaginella eclipses*), water pimpnel (*Samolus parviflorus*), small-flowered alumroot (*Heuchera parviflora* var. *puberula*), and bulblet fern (*Cystopteris bulbifera*).



**Figure 36.** Rue anemone (*Thalictrum thalictroides*) forms white-flowered bouquets among the pendulous fronds of bublet fern (*Cystopteris bulbifera*).



**Figure 37.** At over 0.5 miles long and 1,000 feet wide, old growth dry-mesic forest is perched precariously on this near 45° north-facing slope where two small landslides have occurred.

### ***Dry-Mesic Sandstone Forest***

This natural community is common, especially along moderately steep mid to lower slopes of north- and east-facing hills and breaks, notably in the deeper valleys north of Highway N.



Moderately deep soils are derived from gravelly sandstone residuum or slope alluviums. Especially dramatic is the very steep hillslope above the dolomite cliffs of Coon Den Bluff where Coulstone and Bender sandstone soils are exclusive to the development of dry-mesic sandstone forests.

As **Figure 37** shows, a dense closed canopy of tall oaks and other hardwoods overtops a well-developed understory of flowering dogwood. White oak (*Quercus alba*), northern red oak (*Q. rubra*), and sugar maple (*Acer saccharum*) dominate along with a scattering of black gum (*Nyssa sylvatica*), mockernut hickory (*Carya tomentosa*), and red maple (*Acer rubrum*). Eastern hop hornbeam (*Ostrya virginiana*), Carolina buckthorn (*Rhamnus caroliniana*), and sassafras (*Sassafras albidum*) mix with flowering dogwood (*Cornus florida*) in the understory.

Ferns are prominent in the groundcover, including marginal shield fern (*Dryopteris marginalis*) and Christmas fern (*Polystichum acrostichoides*). Common sedges include few-fruited sedge (*Carex oligocarpa*), hairy sedge (*C. hirtifolia*), and Bellow's beaked sedge (*C. albicans*). Shining bedstraw (*Galium concinnum*), Buckley's goldenrod (*Solidago buckleyi*), spring beauty (*Claytonia virginiana*), elm-leaved goldenrod (*Solidago ulmifolia*), bare-stemmed tick trefoil (*Hylodesmum nudiflorum*), and blue lettuce (*Lactuca floridana*) are characteristic species. Three orchid species occur in the rich deep organic leaf litter of the dry-mesic forest floor: small yellow lady's slipper (*Cypripedium parviflorum*) is most abundant here, and the rare rattlesnake plantain (*Goodyera pubescens*) is isolated in sandy soil above the cliff ledge; only one occurrence (**Figure 38**) of late coral root (*Corallorhiza odontorhiza*) was found growing in deep leaf litter below large sandstone boulders.



**Figure 38.** Late coral root (*Corallorhiza odontorhiza*) emerges in late September from deep leaf litter on a steep north slope along Coon Den Bluff.

### **Mesic Sandstone Forest**

The thickest sandstone layer associated with the Roubidoux Formation forms the basement layer in the deepest, lowest upper valleys north of Highway N. These deep valleys are most prevalent in the upper reaches of Pike, Major, and West hollows. The sound of cascading waterfalls signifies that mesic sandstone forest is near. The waters originate from groundwater seepage along perched sandstone ledges and base rock along the stream. Groundwater and occasional rains feed these streams most of the growing season until late summer drought conditions slowly dry them out.

Mesic sandstone forests are relatively easy to identify. Descending into the deepest of headwater valley coves that parallel the longer hollows, a thicker, denser zone of mixed hardwoods and understory trees and shrubs forms narrow linear margins along the ephemeral streams (some with permanent pools). This zone often begins at lower elevations where sandstone boulders and rubble of steep draws intersect the lowest sandstone layer of the Roubidoux Formation. From this point to the main valley, a dense shrub layer of spicebush (*Lindera benzoin*) and American hazelnut (*Corylus americana*) marks the narrow zone.

Among the mixed hardwoods are white oak (*Quercus alba*), bitternut hickory (*Carya cordiformis*), sugar maple (*Acer saccharum*), black walnut (*Juglans nigra*), slippery elm (*Ulmus rubra*), and white ash (*Fraxinus americana*). Pawpaw (*Asimina triloba*), blue beech (*Carpinus caroliniana*), and red mulberry (*Morus rubra*) are scattered among the spicebush.

Another prominent floristic element is the dominance of fern species. These include maidenhair fern (*Adiantum pedatum*), broad beech fern (*Phegopteris hexagonoptera*), Christmas fern (*Polystichum acrostichoides*), and rattlesnake fern (*Botrychium virginianum*). Herbaceous plants include grass sedge (*Carex jamesi*), narrow-leaved wood sedge (*C. digitalis*), smooth solomon's seal (*Polygonatum biflorum*), bellwort (*Uvularia grandiflora*), small-flowered tick trefoil (*Hylodesmum pauciflorum*), wild geranium (*Geranium maculatum*), and blue-stemmed goldenrod (*Solidago caesia*). Rattlesnake plantain (*Goodyera pubescens*) and crane-fly orchid (*Tipularia discolor*) are two rare orchids found most often in the upper deep sandstone ravines. Spicebush terrace seeps and ravine side slope seeps are always directly associated with this natural community.





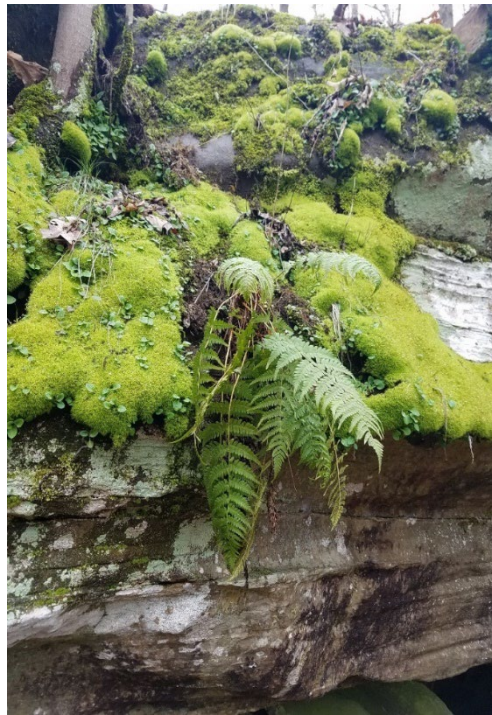
**Figure 39.** Rattlesnake plantain (*Goodyera pubescens*) is rare in mesic sandstone ravines.



**Figure 40.** **A:** Groundwater seepage collecting on impervious sandstone bedrock in a ravine creating moist soil conditions for the development of a fern-dominated mesic sandstone forest. The fern shown along the edge of the drainage is silvery spleenwort (*Diplazium acrostichoides*). **B:** Maidenhair fern (*Adiantum pedatum*) and Christmas fern (*Polystichum acrostichoides*) are widespread throughout all mesic sandstone forests. **C:** Crane-fly orchid (*Tipularia discolor*) is a species of conservation concern (status undetermined) growing in the rotting debris of a log in a deep mesic sandstone ravine.

### **Moist Sandstone Cliff**

Moist sandstone cliffs resemble dry sandstone cliffs except for the degree of exposure. Sandstone cliffs become moist generally when facing north or eastward, when protected in deep coves and ravines, and due to canopy shading. At the park, the linear feet of moist sandstone cliff may exceed that of dry sandstone cliff. Cliffs are 10 feet or higher vertical rock faces, often including rock shelters and overhangs. Hundreds of feet of sandstone ledges, outcrops, and boulders less than 10 feet in height form parallel benches extending many feet horizontally along elevation contours on mid and upper slopes of ridges and valleys throughout the park. Sandstone cliffs in the park are relatively small, ranging from 10-20 feet high. However, the difference between this height and the lesser, more abundant ledges of 3 to 10 feet do not seem to make any difference in the occurrence of plant species associated with cliff features.

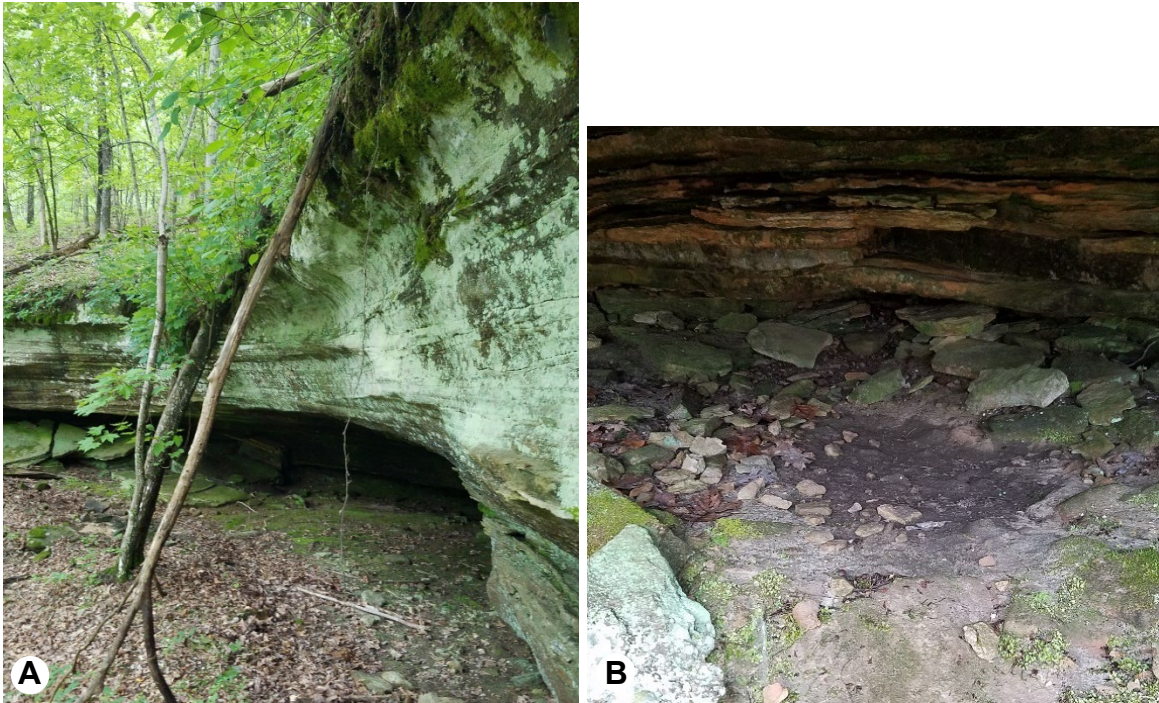


**Figure 41.** Marginal shield fern (*Dryopteris marginalis*) is anchored in dense mats of moss and lichen cushions along this moist sandstone ledge.

Lichens, liverworts, and mosses form a dense cover on moist sandstone cliffs, ledges, and boulders. The quantity and diversity of cryptogams (lichens, fungi, liverworts, mosses) is higher than other natural communities, and warrants further study.

Characteristic vascular species include wild hydrangea (*Hydrangea arborescens*), resurrection fern (*Polypodium polypodioides*), marginal shield fern (*Dryopteris marginalis*), black spleenwort (*Asplenium resiliens*), bulbous cress (*Cardamine bulbosa*), Pennsylvania bitter cress (*Cardamine pennsylvanica*), tall white lettuce (*Nabalus latissimus*), blue-stemmed goldenrod (*Solidago caesia*), and sharp-leaved goldenrod (*Solidago arguta*).





**Figure 42.** **A:** This 20-foot-high moist sandstone cliff of the Roubidoux Formation is one of two sandstone ledge outcrops occurring just below the crest of flat ridges above. **B:** Bear beds occur in several ledge recesses like the one shown here.



**Figure 43.** Palmer's saxifrage (*Micranthes palmeri*) grows only on moist sandstone ledges, particularly around waterfalls and shaded ledges in deep ravines.



**Figure 44.** Early fall flora confined to moist sandstone ledges here include blue-stemmed goldenrod (*Solidago caesia*), marginal shield fern (*Dryopteris marginalis*), and wild hydrangea (*Hydrangea arborescens*). This moist sandstone cliff/ledge extends ¼ mile along the upper slopes of Coon Den Bluff.

#### Flora of Groundwater Natural Communities

Groundwater natural communities in the park include Ozark fens, dolomite spring runs, seeping calcitic deposits on cliff faces, and neutral to acidic seeps. The juxtaposition of the park's three primary geologic units is key to the manifestation, distribution, hydrology, and chemistry of the park's fens, marly seeps, and neutral/acid seeps. Groundwater seepage in the proximity of Jefferson City dolomite tends toward higher alkalinity and the presence of marly deposits. The park's largest Ozark fen occurs directly above a contact zone of exposed Jefferson City dolomite and bordering dolomite glade. Alkalinity and calcitic minerals result in a suite of plants not found in the neutral to slightly acidic "spicebush seeps" found elsewhere and more directly associated with Roubidoux sandstone bedrock layers in upper headwater valleys and narrow ravines. Spicebush terrace seeps often occur where groundwater contacts a perched Roubidoux sandstone layer on the lower steep side slopes of ravines or valleys.

A small but floristically significant acid seep occurs at the base of the park's only known sandstone glade. Water exits from the base of gravel deposits extending along the base of a 30-foot-long sandstone ledge, home to a population of prickly bog sedge (*Carex atlantica* subsp. *atlantica*). Other associates include umbrella grass (*Fuirena simplex*), stout rush (*Juncus nodatus*), slender spike rush (*Eleocharis verrucosa*), orange coneflower (*Rudbeckia fulgida* var. *palustris*), and marsh spikemoss (*Selaginella apoda*).

Along both Coon Den Bluff and Pearce Bluff, water percolating through the Roubidoux formation meets an impervious dolomite layer atop the Gasconade Formation at the highest cliff ledge. Many of these seeps form dripping curtains across several hundred feet of 100-foot-tall vertical cliff face, with a few cascading or seeping the entire 100 foot drop down the cliff face.



This constant calcareous seepage leads to thick deposits of calcite coating many bluff faces and ledges. Permanent drip zones abound.



**Figure 45.** Emerging from the ledge above, a wet weather spring deposits sheets of calcite on the dolomite below.

### ***Ozark Fen***

Several small fens occur in the park associated with the contact between the Jefferson City and Roubidoux Formation. The largest fen (**Figure 46**) is located along the north border of the graben along the mapped fault. Known in the park only from this Ozark fen are prairie blazing star (*Liatris pycnostachya*), common water horehound (*Lycopus americanus*), prairie Indian plantain (*Arnoglossum plantagineum*), sneezeweed (*Helenium autumnale*), stiff aster (*Oligoneuron album*), and yellow-flowered horse gentian (*Triosteum angustifolium*).

Grass-of-Parnassus (*Parnassia grandifolia*), orange coneflower (*Rudbeckia fulgida* var. *palustris*), common golden ragwort (*Packera aurea*), common mountain mint (*Pycnanthemum virginianum*), and prairie straw sedge (*Carex suberecta*) occur in a small fen in the southwest portion of the park.

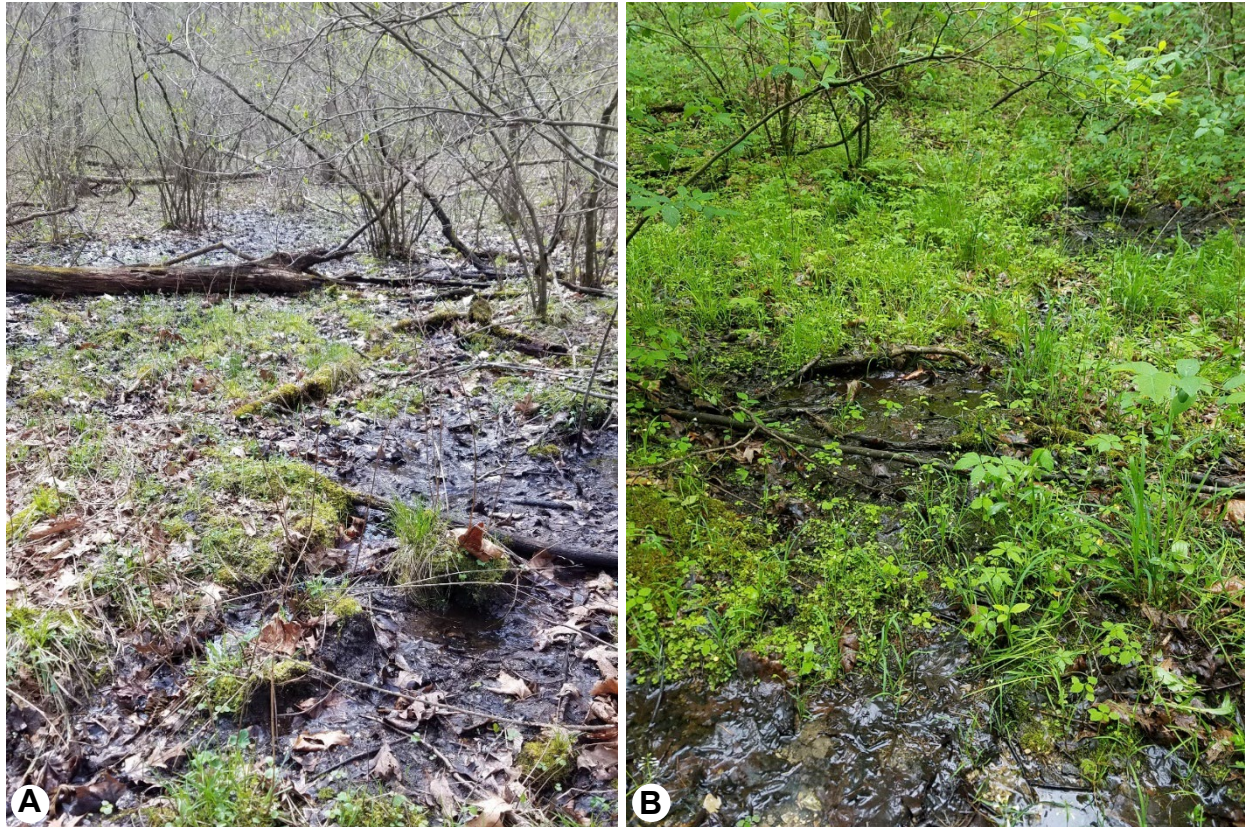


**Figure 46. A:** The park’s largest Ozark fen occurs along the edge of a graben. Prairie blazing star (*Liatis pycnostachya*), narrow-leaved loosestrife (*Lysimachia quadriflora*), and prairie dogbane (*Apocynum cannabinum*) are visible in this image. **B:** Identifiable Ozark fen species include Grass-of-Parnassus (*Parnassia grandifolia*), common golden ragwort (*Packera aurea*), groundnut (*Apios americana*), and rough-leaved goldenrod (*Solidago rugosa* var. *rugosa*).

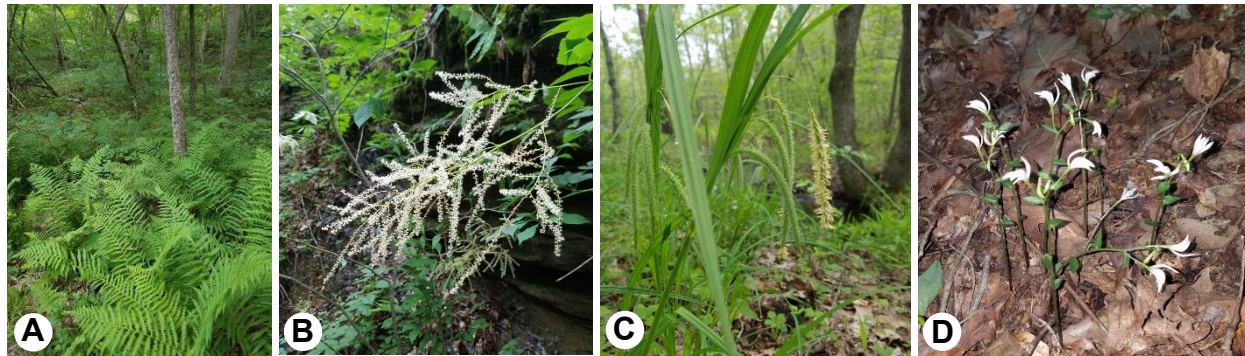
### ***Spicebush Terrace/Ledge Seeps***

Spicebush (*Lindera benzoin*) dominates the mucky, slightly acidic seeps scattered along impervious sandstone bedrock of deep ravines and valley terraces. These seeps occur along a perched water table that exits the contact between the lowermost thick sandstone layer of the Roubidoux Formation and the porous weathered dolomites above it. Where the impervious sandstone base rock lies just beneath a narrow valley, mucky seepage blankets the valley floor. Dense shrub thickets of spicebush (*Lindera benzoin*) cover these valley terraces.





**Figure 47.** **A:** The late winter drab organic deep muck of this spicebush-dominated terrace seep will soon transform into a lush variety of ferns, sedges, and wildflowers. **B:** Sedges and herbs emerge as spring progresses.



**Figure 48.** **A:** Silvery spleenwort (*Diplazium acrostichoides*); **B:** Goat's beard (*Aruncus dioicus*); **C:** nodding pogonia (*Triphora trianthophora*); and **D:** fringed sedge (*Carex crinita*) found in spicebush terrace seeps.

Characteristic herbaceous species of the seeps are water hemlock (*Cicuta maculata*), water parsnip (*Sium suave*), orange jewelweed (*Impatiens capensis*), fowl manna grass (*Glyceria striata*), and bulbous cress (*Cardamine bulbosa*). Several plants are confined only to spicebush



seeps including fringed sedge (*Carex crinita*), bottlebrush sedge (*C. hystericina*), slender satin grass (*Muhlenbergia tenuiflora*), and lady fern (*Athyrium filix-femina*).



**Figure 49. A:** Precipitation percolates through the pervious fragmented dolomite and sandstone parent material of a dry sandstone woodland (seen in top of the image). This groundwater runs along the impervious sandstone bedrock layer and exits where eroded and exposed along ravines. Emerging leaves of the common golden ragwort (*Packera aurea*) dominate this slope along with sedges. **B:** A spicebush seep appears on top of an impervious sandstone ledge. This seep is the park’s only known location for lady fern (*Thelypteris filix-femina*). Other species shown include orange jewelweed (*Impatiens capensis*), fowl manna grass (*Glyceria striata*), sweet-scented bedstraw (*Galium triflorum*), and wood nettle (*Laportea canadensis*).

### ***Dolomite Spring***

The Ozark Highlands is one of the country’s most significant karst landscape, having the highest concentration of springs in the United States. Springs, sinkholes, solution pockets, caves, and losing streams are solution features of carbonate rock. The primary karst area of Bryant Creek State Park is located where the Gasconade and Jefferson City formations occur. The park’s named springs include Coon Den and Columbus, both located along the base of the cliffs along Coon Den Bluff, and Pike Spring in Pike Hollow.

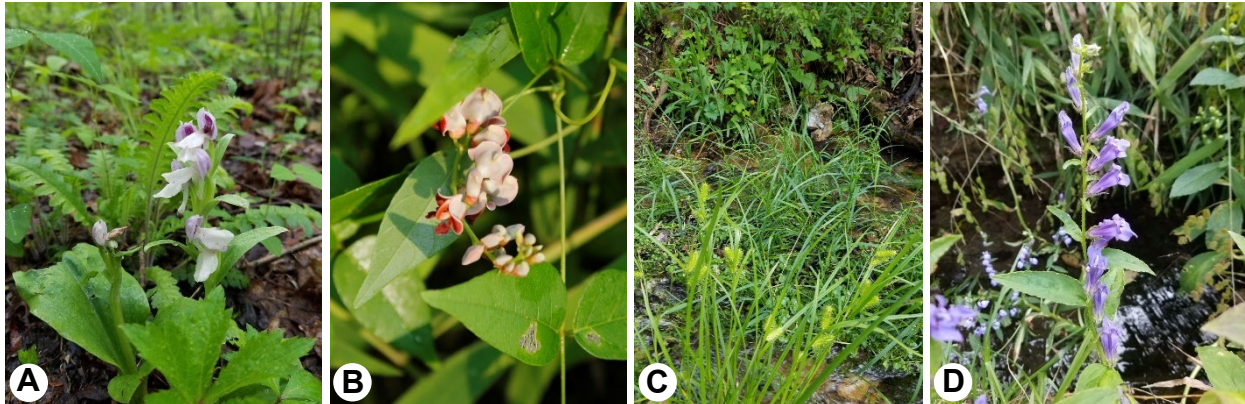


**Figure 50.** The author located another unnamed significant spring at the base of Pearce Bluff.

Early settlers built a homestead (now gone) near a rock-lined spring that emerges along the base of a dolomite ledge east of the main dolomite glade knob. This spring flows most of the year, crossing under a road culvert of the main logging road east of the glade.

Plant species noted along dolomite spring runs include fowl manna grass (*Glyceria striata*), great blue lobelia (*Lobelia siphilitica*), bulbous cress (*Cardamine bulbosa*), Dudley's rush (*Juncus dudleyi*), water cress (*Nasturtium officinale*), winged monkey flower (*Mimulus alatus*), ground nut (*Apios americana*), and sallow sedge (*Carex lurida*).





**Figure 51.** **A:** The only known location for showy orchids (*Galearis spectabilis*) is at Pike Spring. **B:** Ground nut (*Apios americana*) growing along a spring branch at a culvert crossing. **C:** Sallow sedge (*Carex lurida*) frequents dolomite springs. **D:** Very common great blue lobelia (*Lobelia siphilitica*) along dolomite spring run.

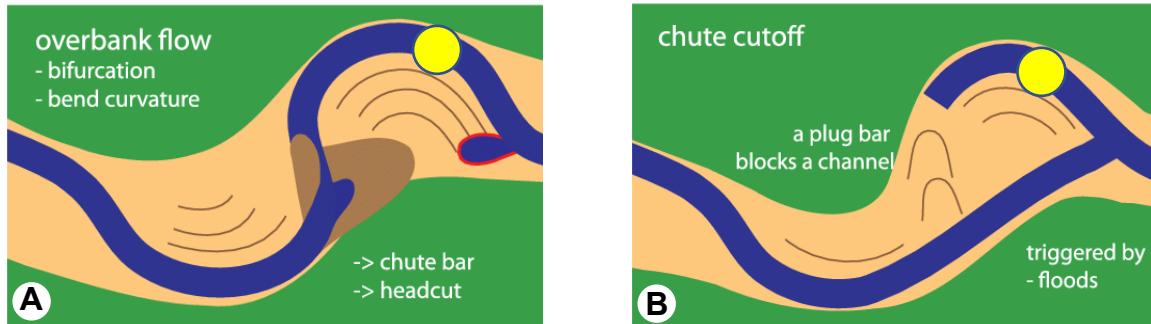
### Riparian Natural Communities Along Bryant Creek

Originating in Cedar Gap Conservation Area 25 miles to the northwest, Bryant Creek flows nearly 40 miles before entering the park. Additionally, its watershed includes dozens of small streams and valley tributaries including Rippee, Hunter, Whites, Macks, and Puncheon Camp creeks — collectively totaling more than 80 miles of permanent stream flow. Floodwaters above the park transport the propagules and seeds of many plant species, which at any time can occur along the stream corridor through the park. Seed dispersal by water (hydrochory) is an important mechanism for dispersal of riparian species (Nilsson et al. 2010), and is a primary contributor to the plant species diversity at the park. Likewise, cultural development in the watershed above the park also contributes to the water-born dispersal of adventive species.

Sand is a major component of accreted sediment within the floodplain of Bryant Creek. This sandy substrate is prominent in riverfront forests and sandbars. While the park boundary intersects only small portions of riverfront and sandbar natural communities, the periodic flooding of Bryant Creek transports characteristic sand-loving or sand tolerant flora throughout the river system, where they find suitable conditions for successful establishment. Thus, plant species found in proximity to the park boundary along Bryant Creek are included here. Hydrochorous dispersal also contributes to the dispersal of non-typical riparian species in riparian zones.

Bryant Creek is subject to violent, moderate gradient flash flooding. These flash floods transport high volumes of sand, pebbles, gravel, and large stones, often deposited in deep shifting amounts. Flood events create unstable, dynamic boundary transitions among natural communities associated with riparian systems. Gravel wash, gravel bar, mudflat, streambank, and riverfront natural communities are subject to constant shifting boundaries. Figures 50-53 below demonstrate the rapidity in which the stream course can shift in the span of 2-3 years and be rapidly colonized by characteristic flora. Streambanks along the most entrenched portions (cliffs, talus slopes,

boulders, rock ledges, forested edges) of the river border are more stable while gravel bars, sloughs, and riverfront forests are subject to constant change.



**Figure 52.** Follow the yellow dot in this and the next three figures. This conceptual model shows the process of the chute cutoff development (van Dijk et al. 2012) for the stream bend of Bryant Creek across from Coon Den Bluff shown in **Figures 53-55**. **A:** Shows rapid bend development where a chute bar develops over the downstream point bar causing further excavation of a chute through the chute bar. A downstream edge backcuts upward, eventually connecting to the upstream chute. **B:** Shows that the old meander bend now has an unfavorable entrance curvature leading to the rapid capture of bed sediment and formation of a plug bar. The result is the formation of a stagnant slough (**Figure 53**) that during just two seasons rapidly accrues wetland plant species available as transported seed in floodwaters.



**Figure 53.** Image taken at the yellow dot shown in **Figure 52**. This location was the main stream channel two years earlier. Nearly all the herbaceous plants shown in this image originated from transported seeds in two years. Most of the species listed under mudflat-slough below were documented at this location, having rapidly sorted out into vegetative zones.





**Figure 54.** Aerial image taken April of 2015, note the course of the stream bend (middle of image) creating an accreted gravel bar. The upstream channel is cutting to the right thus increasing the angle with the steep bluff in the bend forcing water to form a chute. This stream meander formation matches **Figure 52. A.** Refer to **Figure 55** for the same location in 2018. Source: Google Earth 2015.



**Figure 55.** Three years after **Figure 54**, in 2018, the stream has abandoned the channel north of the sandbar, leaving a low water and silt-filled slough. Yellow symbol denotes image point. Source: NAIP 2018.

### **Mesic Bottomland Forest: Bryant Creek**

The following list includes just a few of the many characteristic species occupying the narrow zone of mesic bottomland forest that immediately borders the cane-dominated (*Arundinaria gigantea*) riverfront forest along the northernmost bend of the park. Of interest is the collection of narrow-leaved woodsedge (*Carex digitalis* var. *macropoda*), which occurs further south of Missouri. Yatskievych (1999) does not include the above variety arguing that intermediate characteristics occur between this and *C. digitalis* var. *digitalis*. In contrast, Mohlenbrock (2011) recognizes this element as a distinct species in Illinois, *C. melanopoda*. From his field experience with the taxon, Justin Thomas (pers. comm.) also considers it a distinct entity.

The introduced ivy-leaved speedwell (*Veronica hederifolia*) is widespread throughout the Bryant Creek floodplain in mesic bottomland forests, and riverfront forests. It can form dense mats (Yatskievych 2013) and its future impacts on native flora are not yet known.

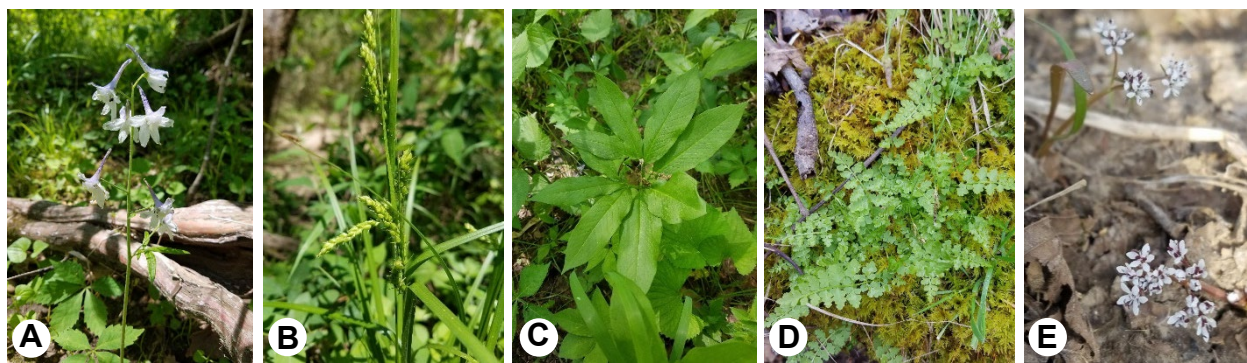
#### Characteristic plants:

Northern red oak	<i>Quercus rubra</i>
American elm	<i>Ulmus americana</i>
White oak	<i>Quercus alba</i>
White ash	<i>Fraxinus americana</i>
Hackberry	<i>Celtis occidentalis</i>
Black haw	<i>Viburnum prunifolium</i>
Pawpaw	<i>Asimina triloba</i>
Sugar maple	<i>Acer saccharum</i>
Slippery elm	<i>Ulmus rubra</i>
Carolina buckthorn	<i>Rhamnus caroliniana</i>
Hairy sedge	<i>Carex hirtifolia</i>
Grass sedge	<i>Carex jamesii</i>
Davis' Sedge	<i>Carex davisii</i>
Dwarf larkspur	<i>Delphinium tricornis</i>
Virginia wild rye	<i>Elymus virginicus</i>
Harbinger of spring	<i>Erigenia bulbosa</i>
Blue phlox	<i>Phlox divaricata</i>
Ivy-leaved speedwell	<i>Veronica hederifolia</i>
Cream violet	<i>Viola striata</i>
Green dragon	<i>Arisaema dracontium</i>
Smooth Yellow Violet	<i>Viola pubescens</i>





**Figure 56.** A narrow strip of mesic bottomland forest along the floodplain of Bryant Creek where leaf cover is scoured away by late winter floods, exposing many emerging ephemeral herbaceous plants, including those in **Figure 57**.



**Figure 57.** **A:** Dwarf larkspur (*Delphinium tricorne*); **B:** Davids' sedge (*Carex davisii*); **C:** green dragon (*Arisaema dracontium*); **D:** southern fern (*Cystopteris protrusa*); **E:** Harbinger of spring (*Erigynia bulbosa*).

### Narrow Stream Terraces: Pike and Major Hollows

Mesic bottomland forest also occurs in narrow bands primarily in the deepest valleys of the park where alluvium is deposited as the stream gradient levels out. Only Pike Hollow, Major Hollow, and a small portion of Turkey Flat Hollow contain alluvial deposits favorable for the development of mesic soil characteristics, contrasting with the dry-mesic alluvium found in Central Hollow valley (discussed under Dry-Mesic Bottomland Woodland).

#### Characteristic plants:

Northern red oak	<i>Quercus rubra</i>
White oak	<i>Quercus alba</i>
Black walnut	<i>Juglans nigra</i>
Bitternut hickory	<i>Carya cordiformis</i>
Red mulberry	<i>Morus rubra</i>
Pawpaw	<i>Asimina triloba</i>
Spicebush	<i>Lindera benzoin</i>
May apple	<i>Podophyllum peltatum</i>
Grass sedge	<i>Carex jamesii</i>
Pale indian plantain	<i>Arnoglossum atriplicifolium</i>
Broad beech fern	<i>Phegopteris hexagonopteria</i>
White avens	<i>Geum canadense</i>
Putty root orchid	<i>Aplectrum hyemale</i>
Wild geranium	<i>Geranium maculatum</i>
Nodding pogonia	<i>Triphora trianthophora</i>



**Figure 58. A:** Mesic bottomland forest in stream terrace location in Pike Hollow. **B:** Mesic bottomland forest in stream terrace location in Pike Hollow; note dominance of spicebush (*Lindera benzoin*).



### **Riverfront Forest**

At approximately 8 acres, this natural community occurs in the northernmost point of the park where Bryant Creek bends abruptly south toward Coon Den Bluff. Flood overflows scour the floodplain, transporting, removing, and depositing gravel, sand, silt and organic debris. Sycamore (*Platanus occidentalis*), box elder (*Acer negundo*), slippery elm (*Ulmus rubra*), and bur oak (*Quercus macrocarpa*) clearly define the overstory, while cane (*Arundinaria gigantea*) forms a dense thicket. Extensive riverfront forests occur upstream from the park, transporting abundant propagules for many plant species confined to this natural community type in the park, including:

#### Characteristic plants:

Bur oak	<i>Quercus macrocarpa</i>
Schneck oak	<i>Quercus schumardii</i>
Box elder	<i>Acer negundo</i>
Sycamore	<i>Platanus occidentalis</i>
Slippery elm	<i>Ulmus rubra</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Wild golden glow	<i>Rudbeckia laciniata</i>
White crownbeard	<i>Verbesina virginica</i>
Common wood reed	<i>Cinna arundinacea</i>
Gravel bar rye	<i>Elymus riparius</i>
Virginia wild rye	<i>Elymus virginicus</i>
Bristly greenbriar	<i>Smilax hispida</i>
Sweet wormweed	<i>Artemisia annua</i>
Beefsteak plant	<i>Perilla frutescens</i>
Davis' sedge	<i>Carex davisii</i>
Wood nettle	<i>Laportea canadensis</i>
Rough hedge nettle	<i>Stachys tenuifolia</i>
Bloodleaf	<i>Iresine rhizomatosa</i>
Figwort	<i>Scrophularia marilandica</i>



**Figure 59.** Annual flooding transports and deposits deep layers of sand, at the same time carrying seeds of numerous plant species as seen in this riverfront forest.



**Figure 60. A:** A giant cane (*Arundinaria gigantea*) thicket forms a canebrake in riverfront forest in the northernmost portion of the park. **B:** Bloodleaf (*Iresine tomentosa*) is common.



### **Riverbank: Bryant Creek**

Approximately 1.7 miles of Bryant Creek directly borders the park for a total of nearly 4 miles of streambank along both sides of the stream. Of this, relative amounts of streambank variations occur including eroding meander cut banks, water willow gravel edge, dolomite boulder talus slope, seeping dolomite ledges, and stabilized forested bank. These variations in **bold black subtitles** below include:

- **Eroding Meander Cut Bank** - Approximately 1,950 linear feet. This streambank type occurs where stream current cuts into an unstable high exposed dirt bank (3-10 feet), especially along treeless pastures, resulting in slumping of soil into generally deep portions of the stream. Vegetation is limited to a few annual wetland species occurring along the eroded edge of the shoreline, and species along the abrupt edge of the exposed embankment. The S1 listed one-flowered flatseed (*Cyperus retroflexus*) was located at the base of an eroded bank.



**Figure 61.** Above, an agricultural field devoid of tree cover rapidly erodes as the stream meander eats away the unprotected soil. Bryant Creek is rapidly cutting the bank and moving left while a gravel point bar is accreting outward from the right. Plants along the top edge of the vertical drop also occur in the field while plants along the sluffed off soil are water-born species including Yerba de Tajo (*Eclipta prostrata*); Obe Wan Conobea (*Leucospora multifida*); Passion flower (*Passiflora incarnata*); Hairy aster (*Symphotrichum pilosum*); Swamp marigold (*Bidens aristosa*); Floridan lens grass (*Paspalum floridanum*); and Fragrant flatsedge (*Cyperus odoratus*).

- **Water Willow Gravel Edge** - At approximately 1,300 linear feet, this streambank subtype occupies accreted gravel deposits at the edge of gravel bars stabilized by dense zones of water willow (*Justicia americana*). This zone often forms along straight riffle runs. It is the park's only known location for Carpenter's Square (*Schoenoplectus pungens*; C-value 10) as well as:

Water willow  
Carpenter's square  
Cardinal flower  
Prairie dodder  
Bald spike rush

*Justicia americana*  
*Schoenoplectus pungens*  
*Lobelia cardinalis*  
*Cuscuta campestris*  
*Eleocharis erythropoda*



**Figure 62.** **A:** The only known population of Chairmaker's Rush (*Schoenoplectus pungens*) growing in the water willow zone along Bryant Creek. Coon Den Bluff is in the background. **B:** Closeup of Chairmaker's Rush spikelets.

- **Dolomite Boulder Talus Bank** - This riverbank variation [cponsoni@tnc.org](mailto:cponsoni@tnc.org) occurs where segments of Bryant Creek run collectively one mile along the base of Coon Den and Pearce bluffs. Despite high flood marks along the talus embankment, the talus boulder slope is relatively stable. This streambank zone reaches 8 feet in vertical elevation above the low summer water level. It has strong affinity to the dolomite talus and a narrow zone of mesic dolomite forest above it. The streambank is often forested with a mix of talus slope trees and shrubs, and streambank trees. The only location for Wild Stonecrop (*Sedum ternatum*) occurs on boulders and rocky embankment along the stream. Characteristic flora includes:

Sycamore  
Bur oak

*Platanus occidentalis*  
*Quercus macrocarpa*



Green ash	<i>Fraxinus pennsylvanica</i>
Blue beech	<i>Carpinus carolinianus</i>
Bladderpod	<i>Staphylea trifoliata</i>
Pawpaw	<i>Asimina triloba</i>
Mistflower	<i>Conoclinium coelestinum</i>
Side flowering aster	<i>Symphyotrichum lateriflorum</i>
Scouring rush	<i>Equisetum hyemale</i>
Wild stonecrop	<i>Sedum ternatum</i>
Prairie rose	<i>Rosa setigera</i>
Sensitive fern	<i>Onoclea sensibilis</i>
Great blue lobelia	<i>Lobelia siphilitica</i>
Heart-leaved aster	<i>Symphyotrichum cordifolium</i>
Tall ironweed	<i>Vernonia gigantea</i> subsp. <i>gigantea</i>



**Figure 63.** This talus debris forms the north border of the park located directly across from the giant cane-dominated riverfront forest. A mass of dolomite boulders calved from the nearby cliff, exploding in an avalanche that nearly crosses the river at this point.

- **Seeping Dolomite Ledges** - Approximately 1,200 linear feet. Where the floodplain borders steep upland hillslopes, the stream channel often cuts into dolomite bedrock forming unbroken rock ledges along the streambank. Calcareous seepage occasionally exits along the underlying water table along these impervious ledges, here and there intermixed with moist to wet broken and weathered dolostone fragments. Tania (*Lobelia X speciosa*) is an unusual but distinctive hybrid between great blue lobelia (*Lobelia siphilitica*) and cardinal flower (*L. cardinalis*) along these ledges.

The following plants often occur along this riverbank variation:

Sensitive fern	<i>Onoclea sensibilis</i>
Stalked water horehound	<i>Lycopus rubellus</i>
False wood nettle	<i>Boehmeria cylindrica</i>
Moneywort	<i>Lysimachia nummularia</i>
Great blue lobelia	<i>Lobelia siphilitica</i>
Water pimpernel	<i>Samolus parviflorus</i>
Winged monkey flower	<i>Mimulus alatus</i>
Hidden spikemoss	<i>Selaginella eclipses</i>
Cardinal flower	<i>Lobelia cardinalis</i>
Riverbank wild rye	<i>Elymus riparius</i>



**Figure 64.** During a September botanical float foray, botanists search the seepy dolomite ledges along the riverbank of Bryant Creek for additions to the park's plant list.





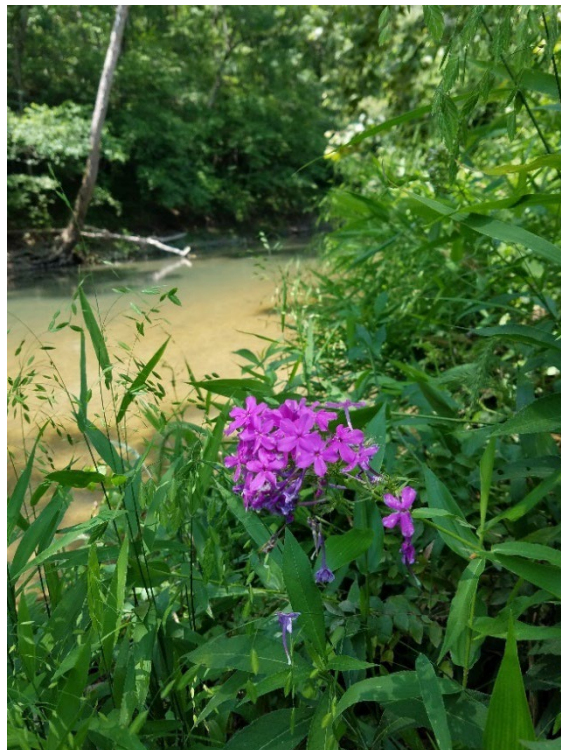
**Figure 65.** A: Botanists discovered the hybrid known as Tania cardinal flower (*Lobelia X speciosa*). The gorgeous amethyst purple flowers are a cross between the two parent plants B: cardinal flower (*lobelia cardinalis*) and blue cardinal flower (*Lobelia siphilitica*).



**Figure 66.** Copious seepage feeds the organically rich mucky soil on dolomite ledges along Bryant Creek. The dolomite bedrock layers extend outward below the water's surface.

- **Stabilized Forested Bank** - Various lengths of streambank totaling nearly 3,500 feet border zones of mature to large old trees along fragmented areas of bottomland forest. These embankments are stabilized by the dense roots of mixed large trees, shrubs, vines, and other herbaceous vegetation. The following plants are common along this zone:

Sycamore	<i>Platanus occidentalis</i>
Schneck oak	<i>Quercus shumardii</i>
Bur oak	<i>Quercus macrocarpa</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Giant cane	<i>Arundinaria gigantea</i>
Wood reed grass	<i>Cinna arundinacea</i>
Garden phlox	<i>Phlox paniculata</i>
Wild golden glow	<i>Rudbeckia lanceolata</i>
Scouring rush	<i>Equisetum hyemale</i>
Bristly greenbriar	<i>Smilax hispida</i>
Raccoon grape	<i>Ampelopsis cordata</i>
Wooly pipe-vine	<i>Isotrema tomentosa</i>
Spike grass	<i>Chasmanthium latifolium</i>
Deer tongue grass	<i>Dichanthelium clandestinum</i>
Late goldenrod	<i>Solidago gigantea</i>
False nettle	<i>Boehmeria cylindrica</i>



**Figure 67.** Deep pink panicles of garden phlox (*Phlox paniculata*) are common along forested riverbanks in the Ozarks.





**Figure 68. A:** Unlike the eroding riverbank, the deep alluvial soil bank on the left is stabilized by the roots of mature bottomland forest trees. The riverbank here is inhabited by a diverse variety of native vines, shrubs, grasses and herbs. **B:** Sensitive fern (*Onoclea sensibilis*), false nettle (*Boehmeria cylindrica*), late goldenrod (*Solidago gigantea*), wild golden glow (*Rudbeckia laciniata*), scouring rush (*Equisetum hyemale*), garden phlox (*Phlox paniculata*), moneywort (*Lysimachia nummularia*), and spike grass (*Chasmanthium latifolium*) are among many conservative plant species noted on this forested riverbank.

### **Gravel Bar**

Extensive deposits of coarse gravel occupy point bars, low islands, abandoned channels, overflow channels, and widened braided channels within the streambed. Sand is an important component associated with gravel bar deposits; more so than other Ozark rivers like the Current, Jack's Fork, Eleven Point, Big, and St. Francois rivers. Unlike these latter rivers, the Roubidoux Formation provides copious quantities of fine-grained sand as Roubidoux sandstone bedrock is eroded throughout the Bryant Creek watershed. As described in Nelson (2010), the gravel bars and sandbars of Bryant Creek are classic Ozark riverine features. Much of their vegetation is both characteristic of and often restricted to this natural community. In addition, Bryant Creek's watershed geographically limits and isolates the development of riparian plant associations, and isolated random plant occurrences. Owing to the often fresh, unvegetated deposition of gravel and sand, many plant species readily pioneer throughout this primary successional habitat. Certain plant species often appear from one growing season to another following frequent, often high-water, floods.



**Figure 69.** Botanists (see acknowledgements) record plant species on gravel bars along Bryant Creek in September 2020. Left to right, Chris Crabtree, Susan Farrington (background, light blue shirt), Harlee Sherrer (foreground), Justin Thomas (background, orange jacket), Ron Kolatskie (foreground), and Andrew Braun. Plants on the left are cocklebur (*Xanthium strumarium*), and sandbar willow (*Salix interior*).

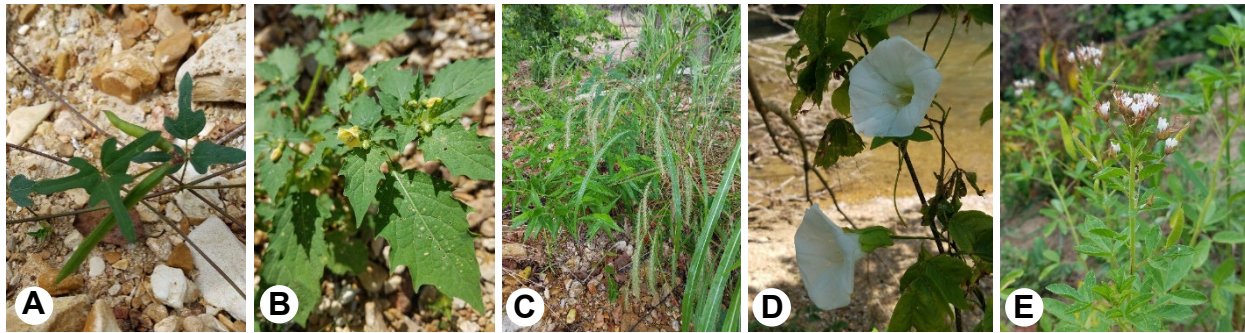
The following shrubs and vines are characteristic and often confined to the gravel bars of Bryant Creek:

Ward's Willow	<i>Salix carolina</i>
Sandbar Willow	<i>Salix interior</i>
Ninebark	<i>Physocarpus opulifolius</i>
Winter Grape	<i>Vitis cinerea</i>
Pale Dogwood	<i>Cornus amonum obliqua</i>
Ozark Witchhazel	<i>Hamamelis vernalis</i>

Some of the herbaceous species documented on gravel bars include:

Straw-Colored Flatseed	<i>Cyperus strigosus</i>
Fragrant Flatseed	<i>Cyperus odoratus</i>
Small Morning Glory	<i>Ipomoea lacunosa</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Thorny Amaranth	<i>Amaranthus spinosus</i>
Small Cottonweed	<i>Froelichia gracilis</i>
Rough Seeded Clammy Weed	<i>Polanisia dodecandra</i>
Mexican Tea	<i>Chenopodium ambrosioides</i>
Bouncing Bet	<i>Saponaria officinalis</i>
Common Evening Primrose	<i>Oenothera biennis</i>
Water Willow	<i>Justicia americana</i>
Trailing Wild Bean	<i>Strophostyles helvola</i>





**Figure 70.** A: Trailing wild bean (*Strophostyles helvola*); B: cutleaf ground cherry (*Physalis angulata*); C: riverbank wild rye (*Elymus riparius*); D: hedge bindweed (*Calystegia sepium*); and E: rough-seeded clammy weed (*Polanisia dodecandra*) are frequent on gravel bars along Bryant Creek.

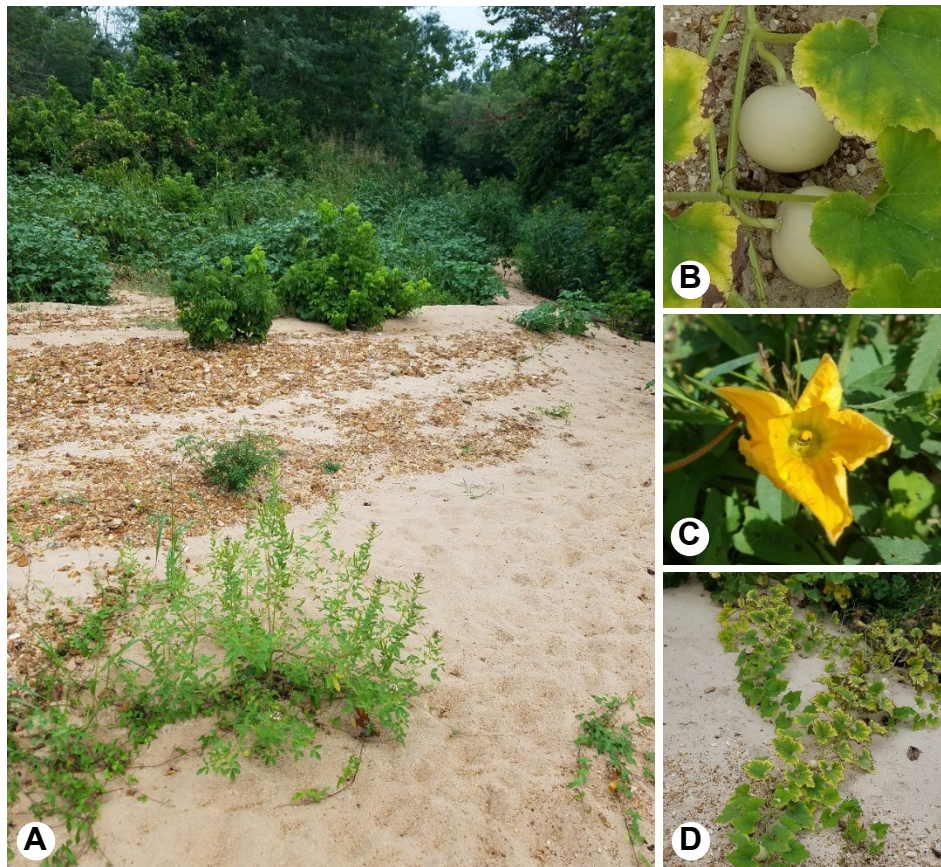
### *Sandbar*



**Figure 71.** Above, an assortment of plant species is competitively evenly spaced on this sandy depression of a sandbar along Bryant Creek. Recorded species include Mexican tea (*Chenopodium ambrosioides*), lamb's quarters (*C. album*), sweet wormweed (*Artemisia annua*), common evening primrose (*Oenothera biennis*), green foxtail (*Setaria viridis*), little love grass (*Eragrostis minor*), cocklebur (*Xanthium strumarium*), Philadelphia panic grass (*Panicum philadelphicum*), and sand croton (*Croton glandulosus*).

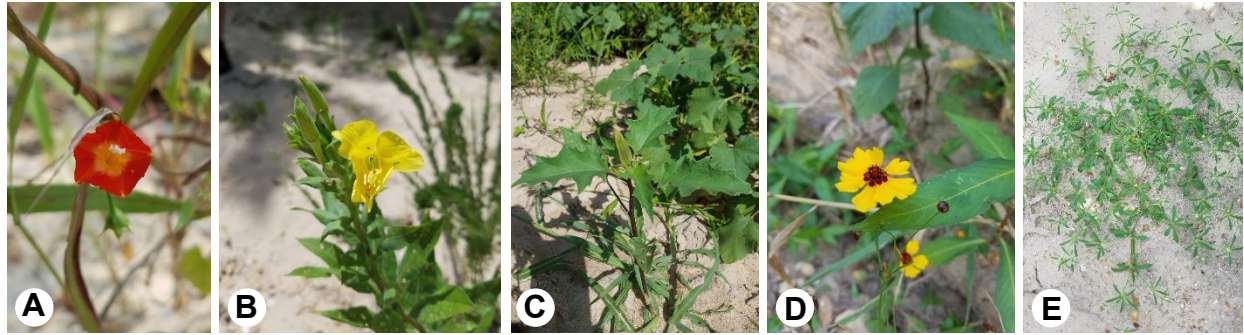


Transport and deposition of small boulders, gravel, and sand are the direct result of stream/river velocity. Fast moving water picks up or scoots gravel along the stream bottom while sand is readily carried by moderate flows anywhere across the floodplain. Sand-sized quartz particles are deposited where high water current slows in velocity. When deposited in large enough quantities sandbars form, often around the back-side curve of accreted point bar meanders, in openings of riverfront forests, behind extensive rows of wood debris, and along elongated narrow zones of shrubs and small trees. Large quantities of sand are also dropped as floodwaters course through trees, canebrakes, and other dense vegetation, especially riverfront forests.



**Figure 72.** A: A scattering of gravel on a sandbar along Bryant Creek with rough seeded clammy weed in the lower left. B, C, D: Three images feature yellow flowered gourd (*Cucurbita pepo* var. *ozarkana*). It was believed *C. pepo* was domesticated in Mexico and cultivated for its egg-sized fruit by Native Americans at least 10,000 years ago. A more recent hypothesis is that var. *ozarkana* was derived from native ancestors in the southeastern United States (Yatskievych 2006).





**Figure 73.** **A:** scarlet morning glory (*Ipomoea coccinea*); **B:** common evening primrose (*Oenothera biennis*); **C:** Jimson weed (*Datura stramonium*); **D:** golden coreopsis (*Coreopsis tinctoria*); **E:** carpetweed (*Mullugo verticillata*).

Characteristic sandbar species include:

Sandbar Willow	<i>Salix interior</i>
Desert Goosefoot	<i>Chenopodium pratericola</i>
Groundfig Spurge	<i>Euphorbia prostrata</i>
Cutleaf Ground Cherry	<i>Physalis angulata</i>
Erect Knotweed	<i>Polygonum erectum</i>
Yellow Flowered Gourd	<i>Cucurbita pepo ozarkana</i>
Stink Grass	<i>Eragrostis cilianensis</i>
Sandbar Love Grass	<i>Eragrostis frankii</i>
Creeping Love Grass	<i>Eragrostis hypnoides</i>
Sessile Flowered Cress	<i>Rorippa sessiliflora</i>
Jimson Weed	<i>Datura stramonium</i>
Cocklebur	<i>Xanthium strumarium</i>
Carpetweed	<i>Mullugo verticillata</i>
Sweet Wormweed	<i>Artemisia annua</i>
Sand Croton	<i>Croton glandulosus</i>
Golden Coreopsis	<i>Coreopsis tinctoria</i>

### **Mudflat**

Fine sand, silt, and organic debris is deposited along the downstream backside of accreted point bars, low deeply scoured cutoff pools in chutes, and old channels silted in by plug bars upon the formation of new chute channels. A good example of a chute cutoff channel occurs on Bryant Creek at the upper end of Coon Den Bluff.

Yerba De Tajo	<i>Eclipta prostrata</i>
Marsh Purslane	<i>Ludwigia palustris</i>
Ditch Stonecrop	<i>Penthorum sedoides</i>
Common Arrowhead	<i>Sagittaria latifolia</i>
Common Toothcup	<i>Ammannia coccinea</i>

Grand Toothcup	<i>Ammannia robusta</i>
Obe-Wan-Conobea	<i>Lecospora multifida</i>
Toothcup	<i>Rotala ramosior</i>
False Pimpernel	<i>Lindernia dubia anagallidea</i>
Peppermint	<i>Mentha piperita</i>
Blue Water Speedwell	<i>Veronica anagallis-aquatica</i>
Lizards Tail	<i>Saururus cernuus</i>
Nodding Bur Marigold	<i>Bidens cernua</i>
Emory's Sedge	<i>Carex emoryi</i>
Panicled Aster	<i>Symphotrichum lanceolatum</i>
Autumn Sedge	<i>Fimbristylis autumnalis</i>
Common Dwarf Rush	<i>Lipocarpha micrantha</i>



**Figure 74.** This mudflat extends outward from the downstream leeward side of an extended point between the main channel of Bryant Creek and an overflow slough to the right. Pearce Bluff is along the right side of the stream. Most of the species listed above occur here.





**Figure 75. A:** Zones of various wetland plants succeed along the mud-filled former channel of Bryant Creek. From the back forward are sycamore (*Platanus occidentalis*), left-sandbar willow (*Salix interior*), Emory’s sedge (*Carex emoryi*), cocklebur (*Xanthium strumarium*), common arrowhead (*Sagittaria latifolia*), and rice cut grass (*Leersia oryzoides*). **B:** Ditch stonecrop (*Penthorium sedoides*) is common in this setting.

***Cut off Stream Channel Slough (Former Bryant Creek Channel)***

Plant species observed in sloughs include:

- |                               |   |
|-------------------------------|---|
| Common Cattail                | <i>Typha latifolia</i>                      |
| Panicled Aster                | <i>Symphyotrichum lanceolatum</i>           |
| Ozark Spatterdock             | <i>Nuphar advena</i> subsp. <i>ozarkana</i> |
| Large Flowered Water Plantain | <i>Alisma trivale</i>                       |
| Engelmanns Arrowhead          | <i>Sagittaria brevirostra</i>               |
| Leafy Pondweed                | <i>Potamogeton foliosus</i>                 |
| Water Willow                  | <i>Justicia americana</i>                   |



**Figure 76. A:** An overflow chute across the floodplain becomes stagnant during typical low water flows of Bryant Creek during the late summer. **B:** Ozark spatterdock (*Nuphar advena* subsp. *ozarkana*) is common in most sloughs.

### ***Streambank***

In contrast to the Bryant Creek stream edge variations that are more riverlike in character, the streambank natural community best fits the smaller tributary drainages of the park. Streambanks better capture gaining stream characteristics, and flora while the losing stream portions fall into the dry-mesic bottomland woodlands and gravel washes. Gaining streams occur in the upper portions of Pike, Major, West, Shiloh, and a few branches of Central hollows. As described in the mesic sandstone forest and spicebush terrace seep descriptions, gaining streams occur where headwaters in steep narrow valleys cut into and intercept the impervious underlying sandstone base rock. These many streams carve into the erosion-resistant sandstone layers creating a wide variety of cascades, some which provide moist to wet niches for cryptogams and vascular flora.



The following images best exemplify characteristics of these gaining headwater streambanks.



**Figure 77.** Precipitation and acid seeps feed this gaining stream in the valley west of the main dolomite glade. Both image locations are in the extreme northeast corner of Section 35. **A:** The stream undercuts a sandstone layer adorned in mosses, ferns, and herbaceous flora. **B:** Several hundred yards downstream, waters flow over layers of solid sandstone pavement, which extends outward beneath a muck soil covered in acid seep sedges, wildflowers, and ferns. It is the park's only known location for royal fern (lower right) (*Osmunda regalis*) discovered by Chris Crabtree. Prairie straw sedge (*Carex suberecta*) and Grass-of-Parnassus (*Parnassia grandifolia*) occur only along the streambank on the left bank of the stream.





**Figure 78.** **A:** A dolomite spring ½ mile upstream (near the main dolomite glade) supplies permanent water into this sandstone canyon. **B:** Acid seepage feeds this stream in West Hollow; the upstream portion of Boiler Hollow. Note the water hemlock (*Cicuta maculata*) along its banks.

### ***Dry-Mesic Bottomland Woodland***

This natural community is included here to contrast natural communities associated with the permanent flowing waters of Bryant Creek. Dry-mesic bottomlands occur primarily along the main drainages known as Shiloh and Central hollows south of Highway N. Both drainages are subject to high precipitation flash floods that move coarse gravel and boulders throughout the floodplain. However, unlike Bryant Creek and the deep hollow drainages north of Highway N, these rock-strewn bottomlands are rapidly drained with poorly defined channels, leaving little surface water throughout the year. Soils are well to somewhat excessively drained. While the riparian areas of Bryant Creek generally contain many plant species adapted to wetter areas, species found in dry-mesic bottomlands also occur in upland dry-mesic conditions. The distinction between forest and woodland is determined by whether fire effects are strong enough to shape fire-mediated vegetation patterns and groundcover. In general, forests along Central Hollow occupy the more protected fire-shadow terraces along north- and east-facing steep hillslopes or occur where gravel wash scours minimize fire effects. Small, restricted zones of dry-mesic bottomland forest occur along the lower losing stream sections of Pike, Major, and Turkey Flat hollows.



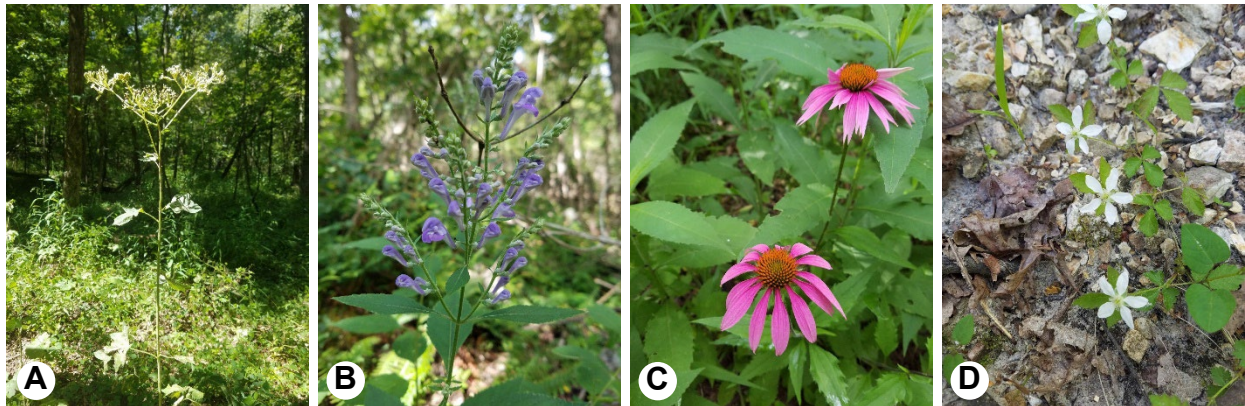
Dominant trees in this nearly one mile long Central Hollow bottomland include white oak (*Quercus alba*), chinquapin oak (*Q. muehlenbergii*), post oak (*Q. stellata*), mockernut hickory (*Carya tomentosa*), sugar maple (*Acer saccharum*), sycamore (*Platanus occidentalis*), and black locust (*Robinia pseudoacacia*). Scattered understory trees are flowering dogwood (*Cornus florida*), deciduous holly (*Ilex decidua*), elderberry (*Sambucus canadensis*), and cockspur hawthorn (*Crataegus crus-galli*).

Spike grass (*Chasmanthium latifolium*), rock satin grass (*Muhlenbergia solbolifera*), grass sedge (*Carex jamesii*), white vervain (*Verbena urticifolia*), bare-stemmed tick trefoil (*Hylodesmum nudiflorum*), common spiderwort (*Tradescantia ohiense*), lousewort (*Pedicularis canadensis*), tall bellflower (*Campanula americana*), and late figwort (*Scrophularia marilandica*) are abundant along with scatterings of Maryland senna (*Senna marilandica*), pale Indian plantain (*Arnoglossum atriplicifolium*), lyre-leaved sage (*Salvia lyrata*), and downy skullcap (*Scutellaria incana*).



**Figure 79. A:** Image in lower Central Hollow shows evidence of frequent flash floods but with no well-defined stream channel in this 200 to 500-foot-wide bottomland. **B:** This is the only known location for tall forked chickweed (*Paronychia canadensis*).





**Figure 80.** Abundant in dry-mesic bottomland woodland are **A:** pale Indian plantain (*Arnoglossum atriplicifolium*); **B:** downy skullcap (*Scutellaria incana*); **C:** purple coneflower (*Echinacea purpurea*); and **D:** one-flowered dewberry (*Rubus enslenii*).

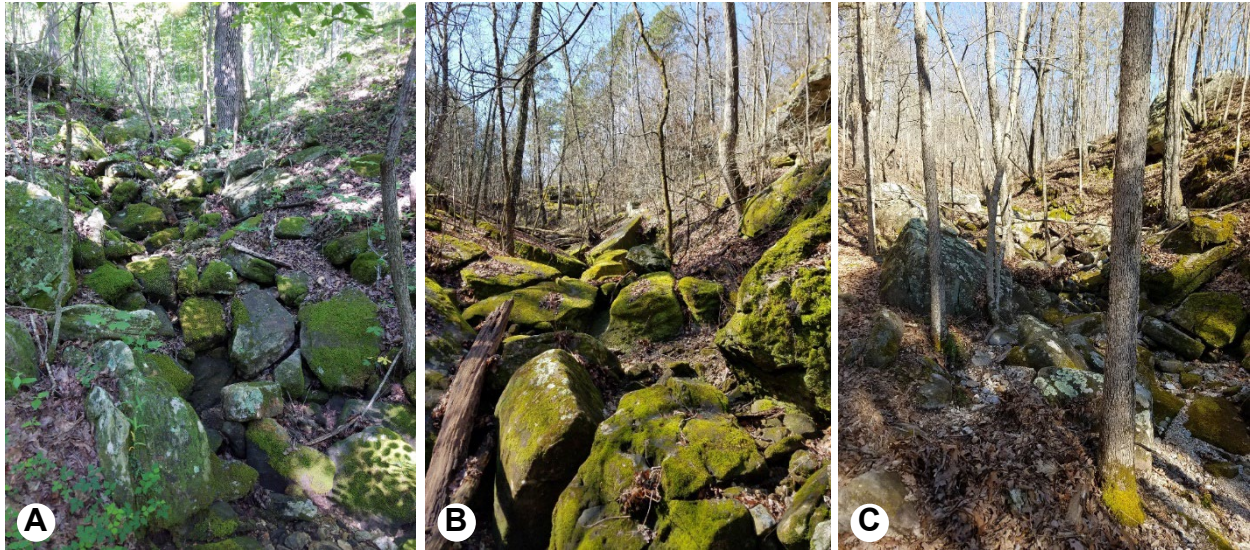
### **Gravel Wash**

Nearly all the gravel wash natural communities in the park are of the blue beech (*Carpinus caroliniana*), ninebark (*Physocarpus opulifolius*), Vernal witch hazel (*Hamamelis vernalis*) subtype (Nelson 2010) typical of dry losing streams and drainages in headwater valleys and ravines. Good examples of this subtype occupy the moderate gradient mid to lower drainages of Central Hollow, and portions of losing stream segments of the deeper hollows north of Highway N. This variable subtype includes the course outwash gravel, stones, and large boulders (up to 3 feet in diameter) in steep eroded ravine drainages descending into lower gradient valleys. Flash floods transport large amounts of gravel and boulders into valleys where it is deposited as fanning alluvium as the waterway widens.

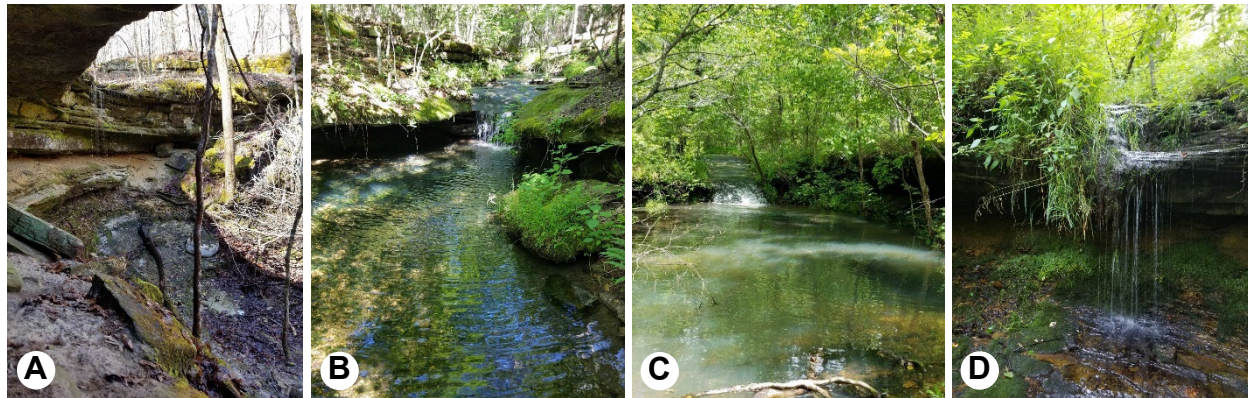


**Figure 81.** These dry gravel and boulder-strewn washes often harbor plant species found in the adjacent dry-mesic upland and bottomland woodlands.





**Figure 82. A, B, C:** Many of the park's small side hollows originate as boulder-strewn draws perched high off the edge of ridges and flats. Heavy rains scour these drains, leaving huge sandstone boulders. Eventually, as they descend into deeper ravines and valleys, large boulders give way to gravel washes and gaining streams.



**Figure 83. A, B, C, D:** Dozens of small waterfalls and pour-overs occur in the park. The moist to wet ledges, overhangs, recesses, seeps, and pools associated with them have affinities to the seeps, springs, streambanks, and moist cliffs/ledges described herein. The images document a few of the many visited by the author.

### ***Cultural Flora***

This category refers to the presence of plant species resulting from the destabilization or destruction of natural communities to build structures, highways, pastures, yards, logging roads, artificial ponds, etc. Human activities also include agricultural practices and landscaping. These cultural effects often facilitate introductions of exotic invasive plant species.





**Figure 84.** One of five artificial ponds built for livestock watering and aesthetics.

The cultural features in Bryant Creek State Park include Simpson Pasture, paved Highway N right-of-way (ROW), county gravel roads, miles of old logging roads (many becoming overgrown), approximately 25 log landings, powerline right-of-way, and five artificial ponds. Noteworthy occurrences of potential problematic exotics include sericea lespedeza (*Lespedeza cuneata*) that occurs sporadically in Simpson Pasture and log landings south of Highway N. Reed canary grass (*Phalaris arundinacea*) is prevalent in moist depressions of silted slackwaters of Bryant Creek. Bog Bulrush (*Schoenoplectus mucronatus*) that occurs in many ponds at Shepherd of the Hills State Park likewise occurs in 3 ponds (tall clumps in pond above) at Bryant Creek State Park.

Chameleon plant (*Hottuynia cordata*) appears on the Global Invasive Species List because it is a huge risk to native habitats. Sought as an ornamental, the plant rapidly spreads through difficult to remove rhizomes. A web search of this species as a rapidly spreading garden plant should suffice to alarm ecologists: <https://awaytogarden.com/why-wont-this-plant-die/>. Dozens of plants occur in front of the house near the carport where it is spreading into the lawn.



**Figure 85.** Chamelion plant (*Hottuynia cordata*) is present near the carport.



## CULTURAL HABITATS

### Abandoned Upland Pasture

Simpson Pasture behind the house and stable barn is the primary habitat for a host of typical cool season grasses including tall fescue (*Festuca arundinacea*), timothy (*Phleum pratense*), smooth brome (*Bromus inernis*), orchard grass (*Dactylis glomerata*), Kentucky Bluegrass (*Poa pretensis*), and tickle grass (*Agrostis hyemalis*). Species found only in the pasture include Adam's needle (*Yucca smalliana*), Deptford pink (*Dianthus armeria*), heavy sedge (*Carex gravida*), common bugle (*Ajuga reptans*), soft chess (*Bromus hordeaceus*), mouse-tail fescue (*Vulpia myuros*), and field sorrel (*Rumex acetosella*). Scattered throughout the pasture, Sericea lespedeza (*Lespedeza cuneata*) and musk thistle (*Carduus nutans*) are noxious weeds in parts of Missouri.

### Rights-of-way for Maintained Paved and Gravel Roads, and Utility Lines

Whether paved or gravel, margins of frequently traveled roadways are quite productive for finding native species otherwise suppressed by extensively shaded adjacent dense woodlands. Likewise, the nearly 100 percent herbaceous native cover of sunlit open powerline utility corridors often concentrate herbaceous ground flora associated with dry open chert and sandstone woodlands. A few of the many species found exclusively along maintained roads and utility corridors include thread-leaved sundrops (*Oenothera linifolia*), common pepper grass (*Lepidium virginicum*), hairy phacelia (*Phacelia hirsuta*), moth mullein (*Verbascum blattaria*), white clover (*Melilotus albus*), Illinois bundle flower (*Desmanthus illinoensis*), shining bluestar (*Amsonia illustris*), biennial gaura (*Oenothera filiformis*), yellow-flowered leafcup (*Smallanthus uvedalius*), Sulphur cinquefoil (*Potentilla recta*), and rosinweed (*Silphium integrifolium*).

### Used and Abandoned Logging Roads and Log Landings

Heavy logging that occurred from 2003-2008 south of Highway N left its mark in the form of extensive logging roads, at least 25 log landings, and soil damage caused by logging activities. Initially, this logging activity opened dense second growth woodlands to increased sunlight beneficial for increasing groundcover density and diversity. Past wildfires and a prescribed burn have further stimulated the recovery of characteristic woodland herbaceous plant life. However, lack of managing the ever-increasing brush and dense tree saplings is beginning to suppress the recovery of woodland herbaceous species. Oddly, several conservative and sensitive species have appeared in ephemeral water-filled deep mud ruts along old logging roads, especially on upland flatwoods. This suggests the propagules for these species might be present across level upland clayey soils in flatwoods that are susceptible to ponding during heavy rains. Most of these locations occur in dense second growth pine stands that might benefit from moderate thinning. These species are discussed under the upland flatwoods natural community.

Impacts from logging activities have also facilitated increases in weedy plant species including poison hemlock (*Conium maculatum*), pokeweed (*Phytolacca americana*), tall fescue

(*Festuca arundinacea*), smooth sumac (*Rhus glabra*), and black raspberry (*Rubus occidentalis*), as well as several introduced grasses along logging roads, including sweet vernal grass (*Anthoxylum odoratum*), weeping love grass (*Eragrostis curvula*) and Caucasian bluestem (*Bothriochloa bladhii*).

Five artificial ponds are scattered across the park, hosting numerous aquatic and pond margin wetland plant species likely introduced over several decades from waterfowl, wind, livestock and humans. As with Shepherd of the Hills State Park (Nelson 2019), bog bulrush (*Schoenoplectus mucronatus*) is an aggressive invasive wetland species here, occurring in three of the ponds.

### Planted Flora in the Yard

While including trees, shrubs, and herbs planted in yards and other areas is atypical for floristic inventories, such species are a major source for the unplanned and accidental spread of numerous exotic or non-native species. For example, silver maple (*Acer saccharinum*) is planted in the yard. Its seedlings can spread into Bryant Creek floodplain where this species does not occur naturally. Chameleon plant (*Hottuynia cordata*), discussed previously, was originally planted in front of the residence and has spread into the adjacent lawn.

## ANALYSIS OF THE FLORA

Of the 940 taxa identified in Bryant Creek State Park, 803 (85 percent) are native. The flora includes representatives of four major vascular plant groups: Pteridophytes (34 taxa), Gymnosperms (4 taxa), Angiosperms (262 monocots and 640 dicots [eudicots and basal angiosperms]). These occur in 116 families and 359 genera. Families with the largest number of species are the Asteraceae (131), Poaceae (121), Cyperaceae (70), and Fabaceae (56), collectively totaling 379 species or 40 percent of the total observed flora. The largest genera are *Carex* (43 species), *Dichanthelium* (20), *Solidago* (14), *Symphotrichum* (14), *Desmodium* (10), *Juncus* (10), *Eragrostis* (9), and *Ranunculus* (9). Several species are abundant and well-distributed across the park. These include white oak (*Quercus alba*), shortleaf pine (*Pinus echinata*), sassafras (*Sassafras albidum*), hog peanut (*Amphicarpaea bracteata*), dittany (*Cunila origanoides*), silky bush clover (*Lespedeza cuneata*), late low blueberry (*Vaccinium pallidum*), bare-stemmed tick trefoil (*Hylodesmum nudiflorum*), Christmas fern (*Polystichum acrostichoides*), lyre-leaved sage (*Salvia lyrata*), and old field goldenrod (*Solidago nemoralis*).

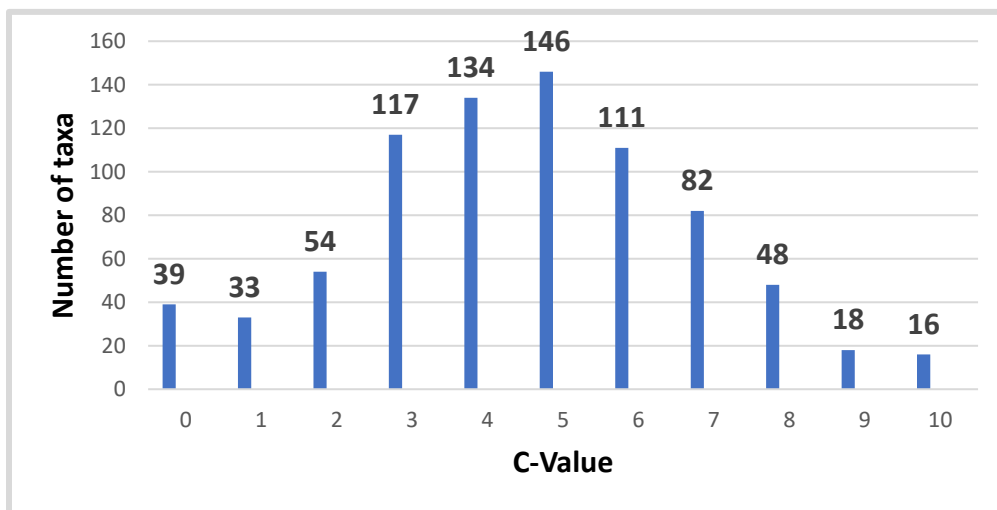
As shown in **Table 5**, the flora includes 13 Missouri species of conservation concern (MDC 2022). Seven are not recorded from any other Missouri state park: gaping panic grass (*Steinchisma hians*), showy lady slipper orchid (*Cypripedium reginae*), lobed spleenwort (*Asplenium pinnatifidum*), hirsute lettuce (*Lactuca hirsuta*), cliff fern (*Woodsia obtusa* subsp. *occidentalis*), large-seeded mercury (*Acalypha deamii*), Ozark spiderwort (*Tradescantia ozarkana*), prickly bog sedge (*Carex atlantica* var. *atlantica*), crane fly orchid (*Tipularia discolor*), pink smartweed (*Persicaria bicornis*), and one-flowered flatseed (*Cyperus retroflexus*).



**Table 5.** Missouri Species of Conservation Concern in Bryant Creek State Park

Scientific Name	Common Name	State Rank	Population Size
<i>Acalypha deamii</i>	Large Seeded Mercury	S1	2 plants
<i>Asplenium pinnatifidum</i>	Lobed Spleenwort	SU	145 plants
<i>Carex atlantica</i> subsp. <i>atlantica</i>	Prickly Bog Sedge	S1	3 clumps
<i>Cyperus retroflexus</i>	One-Flowered Flatseed	S1	2 plants
<i>Cypripedium reginae</i>	Showy Lady Slipper Orchid	S2S3	7 plants
<i>Lactuca hirsute</i>	Hairy Lettuce	SU	8 plants (scattered)
<i>Micranthes palmeri</i>	Palmer’s Saxifrage	S1	Several hundred
<i>Persicaria bicornis</i>	Pink Smartweed	SU	3-8 plants
<i>Steinchisma hians</i>	Gaping Panic Grass	S3	Several hundred
<i>Tipularia discolor</i>	Crane Fly Orchid	S3	4 plants (scattered)
<i>Tradescantia ozarkana</i>	Ozark Spiderwort	S2	8 plants
<i>Viburnum molle</i>	Arrow-Wood	SU	<10 small shrubs
<i>Woodsia obtusa</i> subsp. <i>occidentalis</i>	Cliff Fern	S1	5 plants

Resource scientists within the Missouri State Park system have adopted the Floristic Quality Assessment (FQI) as a means of monitoring and assessing the natural integrity and recovery/restoration of state park natural landscapes. Ladd & Thomas (2015) enumerate on the discipline of the FQI approach that forms the primary framework of the park system’s vegetative monitoring program. When comparing to the C-value distribution table on page 14 of Ladd & Thomas, the numbers of taxa assigned each C-value for Bryant Creek (**Figure 86**) closely parallel the relative percentages in each assigned value for the Missouri Flora. This comparison suggests that the park’s flora contains a relatively moderate to high number of conservative (and restorable) taxa, and good quality native index when considering the distribution and abundance of each taxa throughout the park. However, many of these conservative taxa occur in isolated occurrences and low numbers at the park.

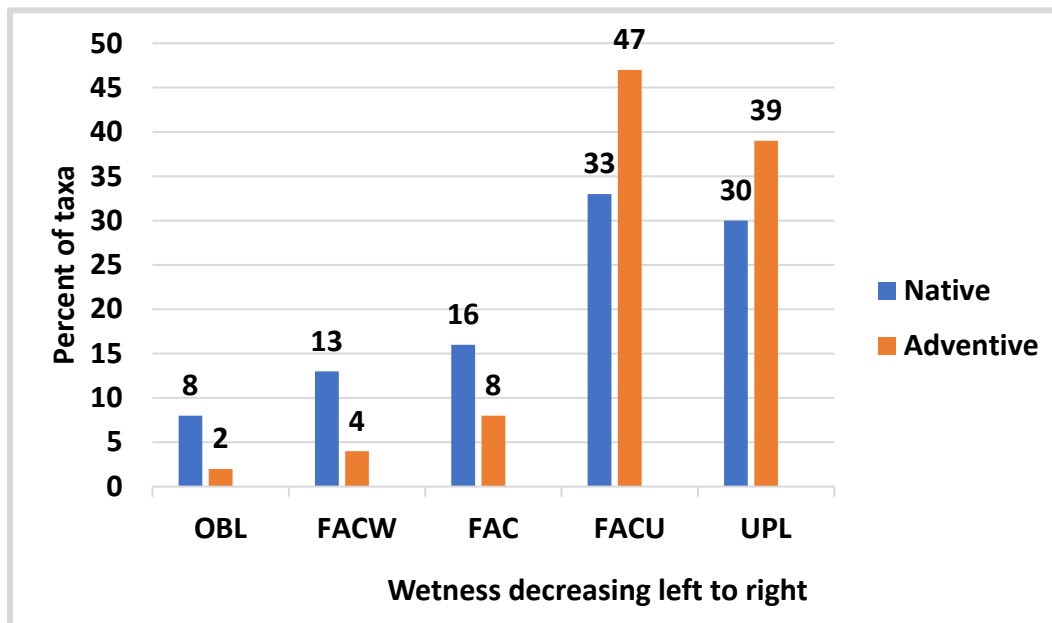


**Figure 86.** C-Value distribution for Bryant Creek State Park.

## DISCUSSION

Many high C-value conservative plant species occurred in local, isolated locations, often discovered during random traversals. I believe there is a high probability other conservative taxa will be discovered at the site, especially as restoration activities progress. Active and immediate ecological restoration on a large scale is critical for stimulating and increasing otherwise isolated and conservative plant species, and for mitigating impacts of extensive browsing by white-tailed deer observed in the park.

When the list of native taxa in Bryant Creek State Park (**Figure 87**) is compared to the “wetness distribution” of Missouri Flora (Ladd & Thomas 2015, Figure 1), the analysis supports a flora with drier affinities. This is expected for the Ozark Highlands in general, since a disproportionate number of wetland obligate species occur in northern and southeastern Missouri. While nearly 50 percent of Missouri’s flora is rated facultative or wetter, in contrast, the flora of Bryant Creek is rated 36 percent, leaving 64 percent adapted to drier uplands. This distribution is likely the norm for this portion of the Ozarks.



**Figure 87.** Percentage wetness distribution proportional between native and adventive taxa.

Another major factor in interpreting the park’s floristic diversity is that a large portion of the plant species associated with the glades, dry and dry-mesic woodlands, and presumed shrub barrens strongly validate the historic occurrence of open, fire-mediated, species-rich woodlands, and perhaps savanna qualities south of Highway N, especially in and around the dolomite glade knob. Numerous but small isolated populations of conservative grasses, sedges, and forbs were likely more evenly distributed throughout the widespread dry open woodlands, barrens, glades, and to a lesser extent the dry-mesic woodlands.



## Landscape Variations Add to Plant Diversity

Highway N runs along the high ridge dissecting Bryant Creek State Park into two different landscapes. South of Highway N, the Gainesville Oak Woodland (Nigh & Schroeder 2002) consists of broad upland flatwoods and dry woodlands. Within this landscape across two square miles, relief varies no greater than 165 feet and is dominated by post oak and shortleaf pine dry woodlands. Deep sandstone ravines and mesic forests are nearly non-existent. Land survey records strongly indicate an open woodland and to some extent savanna/barren tree structure. Fortunately, in the last decade, logging and wildfire have maintained these open conditions. A recent 200-acre prescribed burn has further aided in restoring an open woodland character.

The author spent many hours traversing these open woodlands, flatwoods, and broad dry-mesic bottomland woodlands of Central Hollow. A significant finding was the dramatic increase in both numbers and occurrences of plant species adapted to open, fire-mediated natural communities. In contrast with the sparser vegetation of the same dry sandstone and chert woodland types north of Highway N, herbaceous ground cover here is estimated greater than 50 percent (nearing 80 percent in the prescribed burn area), with potential to move toward the open woodland characteristics seen at Ha Ha Tonka State Park (see images under Dry Sandstone Woodland natural community discussion). Additionally, the park's most significant dolomite glade bald occurs in this area.

North of Highway N, tributaries draining into Bryant Creek have carved deep, rugged river break hills of the Bryant Creek Oak-Pine Woodland/Forest Hills (Nigh & Schroeder 2002). Dropping nearly 400 feet in elevation, Pike, Major, Turkey Run, and a portion of Boiler hollows harbor deep, narrow valley ravines carved through two primary horizontal thick layers of sandstone. Mature to old growth shortleaf pine and white oak dominate narrow ridgetops and south-facing steep hillslopes. Descending into deep fern-clad hollows, one encounters mixed hardwood mesic forests, waterfalls, spicebush seeps, and dry to moist sandstone cliffs and ledges. Equally significant are the distinctive natural communities associated with Coon Den Bluff, and the numerous riparian variations of bottomland forests, gravel bars, streambanks, and sloughs associated with a mature meandering river system. Many plant species occurring in this landscape variation are not found in the same natural communities south of Highway N.

Each landscape type possesses unique variations. For example, all the natural community variations described for dry chert and sandstone woodlands in Nelson (2010) occur in one or the other landscape, adding to aggregate species richness.

## Threats to Park Flora

This study reveals a high degree of vascular plant diversity resulting from the great variety of natural communities associated with the region's distinctive landscape. Park staff are commended for their deliberate efforts to initiate ecological restoration. Fortunately, the completion of a significant prescribed burn across a portion of the park's open woodland structure

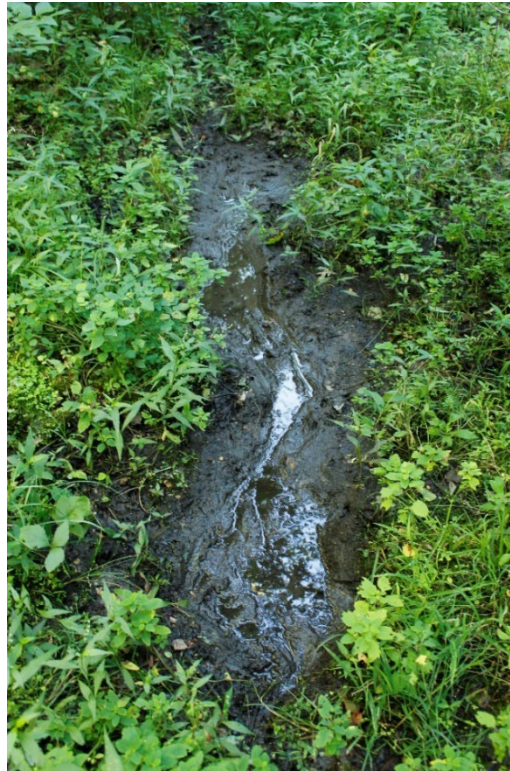
(from recent logging activities) stimulated a positive floristic response. Plant species richness, abundance, and flowering success allowed for a substantial comparison between fire-mediated flora versus untreated areas. Careful, deliberate application of burning is essential toward stimulating and restoring the flora of fire-dependent natural communities and increasing resilience to threats as described below.

### Animal Population Imbalances

While hiking throughout the park's varied landscape over the course of a growing season, I gained insight into how historic human disturbances have impacted the park's flora, and the threats that reduce plant populations. Of disturbing note was the impact of deer browsing, causing a gradual and persistent reduction in flowering success as the growing season progressed. During initial plant growth, I anticipated that plant species would reach successful flowering and seed production. Unfortunately, many individuals of some species were browsed to the point of not flowering. Two examples are offered: 1) by mid-summer in the large dolomite glade, I identified the emerging stems of several characteristic species, including sessile-leaved tick trefoil (*Desmodium sessilifolium*), compass plant (*Silphium laciniatum*), prairie dock (*S. terebinthinaceum*), rosinweed (*S. integrifolium*), and Illinois bundle flower (*Desmanthus illinoensis*), but toward summer's end, few flowering stems were found; 2) large areas of nearly barren groundcover and understory seedlings/saplings especially in closed dry-mesic sandstone woodlands, instead of the expected diversity and abundance of woodland species found in healthy natural communities, I noted a sparse presence of sedges, ferns, hog peanut (*Amphicarpaea bracteata*), milk pea (*Galactia regularis*), and spike grass (*Chasmanthium latifolium*). The gradual conversion of rich woodland flora toward a simple set of a few dominant species is well documented in forests and woodlands in eastern North America. White tailed deer are causing severe ecological damage in portions of the park, where browsing by large numbers constantly stresses and displaces or eliminates palatable species, and reduces or eliminates understory shrubs and trees.

Damage by armadillos is another serious problem, often overlapping with deer browsing. Armadillos are especially attracted to spicebush seeps, where they dig and wallow in wet mucky soil. Signs of wallowing activity (**Figure 88**) were fresh everywhere, and the damage severe. Their foraging is also pervasive throughout mesic dolomite forests, mostly associated with the steep dolomite talus slopes below the cliffs along Bryant Creek. This activity may be contributing to the rapid spread of Japanese stiltgrass (*Microstegium vimineum*) on talus slopes and streambanks. Although a problem in the region, I did not find any sign of feral hog damage in the park during this study.





**Figure 88.** Fresh evidence of armadillo wallowing in a spicebush terrace seep.

### Invasive Plants

The majority of introduced species at the park have minimal impacts on native plant presence, composition, and abundance. Examples include many gravel bar and sandbar species such as bouncing bet (*Saponaria officinalis*), carpetweed (*Mullugo verticillata*), and scarlet morning glory (*Ipomoea coccinea*). In contrast, several species are regarded as either invasive — meaning that they cause changes in a variety of natural communities, or noxious — meaning they threaten agriculture or other human resources.

The Missouri Invasive Plants Council (MoIP, 2020) lists 142 species of invasive plants in Missouri. Thirty-one of these species occur in Bryant Creek State Park. Subsequently, a subset of 30 priority invasive species are highlighted by the Missouri Department of Conservation (MDC, 2020) Invasive Plants webpage. These sources provide regional assessment maps for impact severity, abundance, and probable spread of the 30 species for future monitoring. Of particular concern are the 17 invasive plants recorded in the park and prioritized by MDC (2020). Invasive species listed below are grouped by the impacts, or severity to which a species may threaten the park's natural communities following the categories listed by the MoIP. Unless otherwise noted, all the species referenced below are on the MoIP (2020) invasive plant list.

- **Severe ecological damage** - The following invasive plants are causing or have the potential to cause severe ecological damage to natural communities in the park. Severe as applied here means significant or permanent impacts to ecosystem structure, species composition, ecological processes, light availability, fuels, and soil chemistry. Zone delineations follow the Natural Resources Management Plan for Bryant Creek State Park (McCarty 2021).

**Zone 1:** Japanese stiltgrass (*Microstegium vimineum*) has altered ecosystem conditions in areas of mesic dolomite forests (**Figure 89**) along the steep hillslopes above the riverbanks of Bryant Creek, and can become abundant on dolomite talus slopes. Its abundance is moderate to high, with nearly 1,000 populations. This alteration is leading to localized extirpation of native plant species. Red cedar (*Juniperus virginiana*) damage to several small dolomite glades north of Highway N is severe, with groups of trees shading and eliminating glade species.

**Zone 2:** Sericea lespedeza (*Lespedeza cuneata*) is spreading from large populations along the logging roads, open ridgetop flats, and log landings. It has potential to spread into prescribed burn units in the absence of native species competition, and where overly dense woody vegetation is removed, spotted knapweed (*Centaurea stoebe* subsp. *micranthos*), Japanese honeysuckle (*Lonicera japonica*), and autumn olive (*Eleagnus umbellata*) are expected to increase.

**Zone 4:** Sericea lespedeza (*Lespedeza cuneata*) is ubiquitous (McCarty 2021). Large, nearly solid masses of flowering stems occur throughout all the pastures, producing huge quantities of viable seed. Likewise, tall fescue (*Festuca arundinacea*) occurs in large continuous populations where it (along with Sericea lespedeza) has replaced nearly 100 percent of all native species that occurred before conversion to pasture.

**Zone 5:** Red cedar (*Juniperus virginiana*) has caused severe damage to dolomite glades, shading and nearly eliminating former glade herbaceous cover.



**Figure 89.** Japanese stiltgrass (*Microstegium vimineum*) forms dense cover in this mesic dolomite forest along a steep slope beneath Pearce Bluff.



- **Moderate ecological damage** - The following invasive species are currently, or capable of becoming, sufficiently abundant to reduce abundance or cause displacement of native species in natural communities, but seldom cause extirpation. However, without controls to reduce these species, their impacts can become severe.

**Zone 1:** Multiflora rose (*Rosa multiflora*) occurs widely and can become abundant, especially in mesic bottomland forests of streams, dolomite talus, riverbanks, and riverfront forests.

**Zone 2:** Autumn olive (*Elaeagnus umbellata*) is scattered in open old fields of ridgetops along the edges of primary logging roads and log landings, and young saplings are scattered in open, previously burned and logged woodlands. Because of its aggressive invasive behavior, this species can become abundant within a decade.

**Zone 3:** Reed Canary Grass (*Phalaris arundinacea*) occurs sporadically in moist sandy depressions of sandbars, and in slackwater mudflats, generally in full sun. Where present, it forms dense colonies that appear to be expanding. Based on its aggressive potential to spread rapidly, it can become locally abundant, causing displacement of other native riparian species.

**Zone 4:** Moderate populations (hundreds of plants) of smooth brome (*Bromus inermis*), poverty brome (*B. sterilis*), downy brome (*B. tectorum*), and Johnson grass (*Sorghum halapense*) are scattered throughout old fields. These species (listed by MoIP 2020) can become abundant.

- **Low impact in natural communities** - The following species are present, but currently with minimal impacts on native plant species. While numbers may currently be low, several of the referenced species are known to rapidly increase and infest natural communities and may be worthy of immediate control efforts to contain population at an early stage.

**Zone 2:** Spotted knapweed (*Centaurea stoebe* subsp. *micranthos*) is mostly confined to edges of the primary logging road and a few log landings. Bradford pear (*Pyrus calleryana*) is mostly confined to a few small trees near the locked gate to the main dolomite glade and a few trees at the homesite. This species can rapidly spread and is an immediate threat in Zone 2. Poison hemlock (*Conium maculatum*) is present in moderate numbers in areas disturbed by logging equipment, and the gravel wash where the primary logging road crosses Central Hollow. One population of Caucasian bluestem (*Bothriochloa bladhii*) is located near the east locked gate along Highway N.

**Zone 3:** Johnson grass (*Sorghum halapense*) is scattered along sand and gravel bars while moneywort (*Lysimachia nummularia*) is locally common along moist riverbanks.

**Zone 4:** Japanese honeysuckle (*Lonicera japonica*) is scattered in the pastures, along with musk thistle (*Carduus nutans*).

Fortunately, the extensive landscape of Bryant Creek State Park, at nearly 3,000 acres, is mostly a mix of intact, restorable natural communities. Most of the plant species observed may increase and recover in enough numbers or occurrences, providing restoration activities and eradication efforts are sustained through time.

### Management Considerations

The park's Natural Resource Management Plan (McCarty 2021) succinctly covers natural resource management goals and objectives and implementation of ecological restoration/exotic species activities. The suggestions follow observations made in describing natural communities, and associations of plant families/species best suited to the site's natural disturbance types and patterns.

Fire is an integral natural process and critical for restoring and maintaining much of the park's natural communities. Historic dormant season fires had low impact effects in burning through dry and dry-mesic forests, dolomite talus, and acid seeps. However, prescribed burn contractors may not be aware of such limitations and sensitivity of forest-adapted flora and cryptogams. This is exacerbated by altered fuels loads from anthropogenic activities including decades of fire suppression. Ignition plans should avoid upslope burning through mesic sandstone ravines, spicebush seeps, dry-mesic forests (Coon Den Bluff), bottomland forests, and dolomite talus slopes. Except under exceptional droughts, vegetation adapted to high soil moisture conditions and areas dominated by moss-fern cover generally will not burn; such sites likely had minimal legacy of pre-Eurosettlement fires.

Red cedar (*Juniperus virginiana*) forms stands of dense maturing trees across small dolomite glades north of Highway N associated with the Turkey Run Graben north fault. These red cedars should be removed. In addition, the park's only sandstone glade occurs east of the house on steep slopes above Pike Hollow. Several rare and conservative plant species occur only on these glades.

### Potential Natural Area

Several areas in the park potentially qualify for designation as state Natural Areas based on assessments of floristic quality and integrity of natural communities. Of special interest is Coon Den Bluff, which was documented for its natural community quality in the Missouri Natural Heritage Program (Smith 1990). Its principal features are the combination of natural communities associated with a 0.7-mile-long, 300-foot-high bluff. From the highest elevation of 1,040-feet a narrow ridge is capped in dry sandstone woodland which descends a steep (30-45-degree) slope through a dry-mesic sandstone forest. Near the top of the forested bluff, a moist sandstone cliff and ledges 10-20 feet high follows a contour nearly the bluff's entire length. Huge, truck-sized blocks are slumped along the forested slope downward, dropping 200 feet in relief to the vertical edge of a 100-foot dolomite cliff. Most of the dramatic cliff face is dry, eventually becoming moist as it intercepts its pediment below. Numerous wet-weather springs and seeps drip from the edge



and along ledges. A rock and boulder strewn steep talus slope with moist dolomite ledges steps down from the pediment, blending with a steep rock and boulder strewn talus slope, then ending along the bank of Bryant Creek.

The author and Doug Ladd (**Figure 90**) traversed the steep dry-mesic sandstone forest to the top edge of the cliffs in September. We discovered several additional features associated with steep bluff disturbances. At least two large slumps occur where steepness and gravity have caused forested soils to slip downward. A second feature is the presence of a small sandstone talus field. Toward the east end of the bluff, occurs a dry-mesic chert forest and moist chert cliff associated with the cryptozoan reef. One option is to delineate a natural area boundary capturing the entire bluff and elongated ridge between Bryant Creek, Pearce Bluff, and Pike Hollow creek. Doing so would also include the park's only sandstone glade and associated acid seep. An estimated 15 natural communities occur within a ca. 350-acre unit. In addition, this study has captured a significant number of plant species associated with these natural communities, including three species of conservation concern.



**Figure 90.** Doug Ladd examines lichens at the base of a large black gum tree (*Nyssa sylvatica*) in this dry-mesic sandstone forest along Coon Den Bluff.

## ACKNOWLEDGEMENTS

I thank Carl Bonnell, Park Superintendent at Table Rock State Park, and his staff for logistical support and providing a UTV for site access, without which the project would have taken two collecting seasons as is customary for a master's thesis-style plant study. Natural Resources Steward Chris Crabtree accompanied me on numerous field trips, adding to the list of plant species, including pointing out the identification of *Micranthes palmeri*. George Yatskievych confirmed images of *Carex atlantica* subsp. *atlantica* and *Woodsia obtusa* subsp. *occidentalis*. Justin Thomas located two occurrences of *Persicaria bicornis* during the Bryant Creek foray, and confirmed identifications of *Steinchisma hians*, *Eryngium prostratum*, and *Anthoxanthum odoratum*. Justin and Andrew Braun established nine vegetation monitoring plots across the park, which aided in the development and confirmation of site flora. Chris Crabtree assisted in accessing the plot data via Universal FQA Calculator, which I cross-referenced to natural community descriptions. Hearty thanks to Paul McKenzie and Doug Ladd for joining me in September. Paul's keen eye for grasses and sedges helped add over 20 species, while Doug located *Monotropa hypopitys*, identified *Juncus tenuis* var. *anthelatus*, and confirmed *Symphotrichum praealtum*.

On September 22, nine botanists joined me in kayaking Bryant Creek with a goal of adding at least 30 additional taxa to the site flora, and ended up adding 38! Paul McKenzie and I then documented an additional 23 species the next day. I am indebted to Andrew Braun, Chris Crabtree, Dan Drees, Susan Farrington, Ron Kolatskie, Ken McCarty, Paul McKenzie, Harlee Scherrer, and Justin Thomas for making the foray. Thanks to Jack and Florice Pearce for generously allowing us access on their property to float Bryant Creek.

Finally, Ken McCarty's vision and passion for increasing knowledge of Bryant Creek's outstanding natural resources provided the impetus for this study. The Missouri Department of Natural Resources, Division of State Parks, Natural Resource Management Program provided the funding for this project.

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## APPENDIX: VASCULAR FLORA OF BRYANT CREEK STATE PARK

The following list is arranged hierarchically by taxonomic category, and then alphabetically by family within each category, except that Pteridophytes and Gymnosperms are aggregated and not separated by family. Within each family, taxa are arranged alphabetically generally following Yatskievych (1999, 2006, 2013). Native taxa are rendered in **bold** italics and introduced taxa are in SMALL CAPS (note that some taxa introduced at the site may be native elsewhere in Missouri). Scientific name, common name, C-value, abundance/distribution rating, and habitat comments are provided for each taxon; distribution and abundance comments are those used in the field data entry forms and plant database created for this project:

### Plant Species Area Distribution

**Widespread:** Plants are uniformly dispersed and seen in many different natural communities/habitats in the park.

**Locally Common:** Plants tend to have their highest densities spaced evenly with a high degree of fidelity (faithful) to one or several natural community types or disturbance habitats.

**Scattered:** Patches of plant populations or individuals are generally separated by large distances but still often found in one or several natural communities or habitats.

**Isolated:** Small numbers of plants or populations that are far away, secluded, and solitary to the extent they are difficult to locate, or their discovery is purely random and accidental.  
Example: One population of smoke tree (*Cotinus obovatus*) or one plant of Trelease's larkspur (*Delphinium treleasei*).

### Plant Species Abundance

**High:** Tens of thousands of plants found in large populations.

**Moderate:** Hundreds of plants seen frequently in referenced habitat or natural community.

**Low:** Individuals or small populations occurring in low densities; few plants seen occasionally throughout natural community or disturbed habitat.

**Rare:** Less than 10 population occurrences or less than 100 individuals scattered throughout the park.

**Very Rare:** One to three individuals or small populations (less than 5) scattered throughout.

For Species of Conservation Concern (MDC 2022), the assigned rating is provided under the abundance column (e.g., SU for Status Undetermined). Numbers in brackets refer to the author's collection numbers for vouchers specimens deposited in MODNR.



## PTERIDOPHYTES — 34 TAXA

### Ferns, Quillworts, Spikemosses, Horsetails

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Adiantum pedatum</i> var. <i>pedatum</i> Mesic to dry mesic soils of forests and woodlands, talus slopes, moist ledges	6	Maidenhair Fern	Locally Common
<i>Asplenium pinnatifidum</i> Cracks of exposed sandstone ledges in dry woodlands of Pike and Major Hollows [2100]	10	Lobed Spleenwort	Rare (SU)
<i>Asplenium platyneuron</i> Scattered in old fields, dry and dry-mesic rocky woodlands, ledges	4	Ebony Spleenwort	Moderate
<i>Asplenium resiliens</i> Isolated on shaded crevices of dolomite ledges and cliffs.	9	Black Spleenwort	Low
<i>Asplenium rhizophyllum</i> Isolated primarily moss-covered dolomite boulders and ledges of dolomite talus slopes	7	Walking Fern	Low
<i>Athyrium filix-femina</i> Sandstone ledges of spicebush seep in north-facing dry-mesic sandstone forest	8	Lady Fern	Rare
<i>Botrychium dissectum</i> Upland flatwoods, overgrown old fields, mesic bottomland forests.	5	Cut-Leaved Grape Fern	Scattered
<i>Botrychium virginianum</i> var. <i>virginianum</i> Dry mesic sandstone forest, mesic bottomland forest and woodland	4	Rattlesnake Fern	Low
<i>Cheilanthes feei</i> Restricted to dry dolomite cliff ledges top of Coon Den Bluff	8	Slender Lip Fern	Low
<i>Cheilanthes lanosa</i> Top of dry sandstone ledges and large boulders	7	Hairy Lip Fern	Moderate
<i>Cystopteris bulbifera</i> Crevices and ledges of moist dolomite cliffs	8	Bulblet Fern	Low
<i>Cystopteris protrusa</i> Mesic dolomite and sandstone forests, dolomite talus along Bryant Creek only	5	Southern Fern	Moderate
<i>Cystopteris tennesseensis</i> Moist dolomite cliffs and boulders/ledges in mesic dolomite forest	8	Tennessee Bladder Fern	High
<i>Deparia acrostichoides</i> Colonies in spicebush seeps of main valley west of house	10	Silvery Spleenwort	Rare
<i>Diplazium pycnocarpon</i> Throughout mesic dolomite talus along Coon Den Bluff only	10	Narrow-Leaved Spleenwort	Moderate
<i>Dryopteris marginalis</i> Locally common on moist sandstone cliffs and ledges; isolated on dolomite talus	7	Marginal Shield Fern	Moderate
<i>Equisetum hyemale</i> var. <i>affine</i> Along shaded moist streambank of Bryant Creek	3	Scouring Rush	Moderate
<i>Equisetum laevigatum</i> Mesic bottomland forest along dry stream terrace draining to Bryant Creek	4	Scouring Rush	Rare
<i>Isoetes butleri</i> Wet seepage along lower portion of dolomite glade; two plants observed	8	Butler's Quillwort	Very Rare

MATTEUCCIA STRUTHIOPTERIS var. PENNSYLVANICA		Ostrich Fern	Very Rare
Despite mowing and weeding, persistently sprouting behind house by back door			
<i>Onoclea sensibilis</i>	6	Sensitive Fern	Low
Few occurrences moist stable streambanks base of talus and ledges along Bryant			
<i>Ophioglossum engelmannii</i>	7	Glade Adder's Tongue	Very Rare
Less than 10 plants in two isolated populations on dolomite glade			
<i>Osmunda regalis</i> var. <i>spectabilis</i>	8	Royal Fern	Very Rare
One occurrence along edge of acid seep-fed stream on sandstone bedrock			
<i>Pellaea atropurpurea</i>	7	Purple Cliff Brake	Moderate
Scattered on dry ledges and boulders of dolomite glades and dry dolomite woodland			
<i>Pellaea glabella</i>	9	Smooth Cliff Brake	Low
In cracks and crevices of dolomite and chert cliffs east Coon Den Bluff			
<i>Phegopteris hexagonoptera</i>	8	Broad Beech Fern	High
Widespread in most deep mesic sandstone ravines, spicebush seeps, and mesic terraces			
<i>Polypodium polypodioides</i>	8	Resurrection Fern	Rare
Edge of dry mossy dolomite cliff along Coon Den Bluff			
<i>Polypodium virginianum</i>	9	Common Polypody	Low
Occasional on large sandstone blocks and ledges of dry-mesic woodlands			
<i>Polystichum acrostichoides</i>	5	Christmas Fern	High
Widespread in dry-mesic and mesic forest and woodlands, dolomite talus			
<i>Pteridium aquilinum</i>	4	Bracken Fern	Moderate
Upland open dry chert/sandstone woodlands and flatwoods south of Highway N			
<i>Selaginella apoda</i>	8	Marsh Spikemoss	Very Rare
Restricted to moss-covered gravel of acid seep at base of sandstone glade			
<i>Selaginella eclipes</i>	8	Hidden Spikemoss	Low
Scattered about seepage beneath waterfalls, base of cliffs, shaded recesses of ledges [2099]			
<i>Woodsia obtusa</i> subsp. <i>obtusa</i>	5	Cliff Fern	Moderate
Crevices of sandstone/dolomite/chert in woodlands, forests, cliffs.			
<i>Woodsia obtusa</i> subsp. <i>occidentalis</i>	10	Cliff Fern	Very Rare (SU)
Several clumps in moist opening of pine-dominated upland flatwoods south of Hwy N [2113]			

## GYMNOSPERMS — 4 TAXA

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Juniperus virginiana</i> var. <i>virginiana</i>	2	Red Cedar	Moderate
Confined to dolomite glades and a few old fields			
<i>Pinus echinata</i>	5	Shortleaf Pine	High
Widespread in dry and dry-mesic sandstone/chert woodlands, and upland flatwoods			
PINUS STROBUS		Eastern White Pine	Very Rare
One tree noted behind house			
<i>Taxodium distichum</i> var. <i>distichum</i>	8	Bald Cypress	Very Rare
Small populations in spicebush seep and around native sinkhole depression — these populations may represent a slight native range extension for the species in Missouri, as there were no signs of planting in these remote sites distant from any habitation			



## ANGIOSPERMS

### Monocots — 263 TAXA

#### AGAVACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Manfreda virginica</i> Scattered around dolomite glades	7	American Aloe	Rare
YUCCA SMALLIANA Isolated in Simpson Pasture		Adam's Needle	Rare

#### ALISMATACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Alisma triviale</i> Stagnant slough along Bryant Creek; water-filled deep road ruts	3	Large-Flowered Water Plantain	Rare
<i>Sagittaria brevirostra</i> Isolated population in stagnant slough	5	Engelmanns Arrowhead	Very Rare
<i>Sagittaria latifolia</i> var. <i>latifolia</i> Scattered in stagnant sloughs, mudflats of backwaters, and one artificial pond	4	Common Arrowhead	Moderate

#### ARACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Arisaema triphyllum</i> subsp. <i>triphyllum</i> Moist dolomite ledges, dolomite talus, mesic dolomite forest	6	Jack-in-the Pulpit	Low
<i>Arisaema dracontium</i> Mesic bottomland forest along Bryant Creek	6	Green Dragon	Rare

#### ASPARAGACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
HYACINTHUS ORIENTALIS Few clumps growing in yard		Hyacinth	Very Rare

#### COMMELINACEAE — 4 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
COMMELINA COMMUNIS Scattered on gravel bars, yard, old field, roadsides, dry-mesic bottomland forests		Common Dayflower	Low
<i>Tradescantia longipes</i> Isolated on exposed open dry cherty woodlands	8	Wild Crocus	Rare
<i>Tradescantia ohiensis</i> Scattered in open dry chert woodlands, dry-mesic bottomland woodland, roadsides	3	Common Spiderwort	Moderate
<i>Tradescantia ozarkana</i> Isolated in mesic dolomite forest along Bryant Creek	10	Ozark Spiderwort	Very Rare (S2)

**CYPERACEAE — 70 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Carex albicans</i> var. <i>albicans</i> Locally common in dry to dry-mesic open chert and sandstone woodlands and forests	6	Bellows-Beaked Sedge	High
<i>Carex albursina</i> Scattered along mesic dolomite talus slope and moist ledges below Coon Den Bluff	9	White Bear Sedge	Moderate
<i>Carex amphibola</i> Dry and dry-mesic woodlands, mesic bottomland forests, and riverfront forests	3	Narrow-Leaved Sedge	Moderate
<i>Carex annectens</i> var. <i>annectens</i> Wet open depressions, mud ruts, spicebush terrace seeps	4	Yellow-Fruited Sedge	Low
<i>Carex atlantica</i> subsp. <i>atlantica</i> Acid seep at base of sandstone glade	10	Prickly Bog Sedge	Very Rare (S1)
<i>Carex austrina</i> In water-filled rutted depression of old logging road on upland flatwoods	5	Southern Sedge	Rare
<i>Carex blanda</i> Scattered in mesic sandstone/dolomite forests, mesic and dry-mesic bottomland forests	2	Common Wood Sedge	Moderate
<i>Carex brevior</i> Along embankment of artificial pond in front of house	4	Short-Beaked Sedge	Rare
<i>Carex bushii</i> Cherty openings of dolomite glade, dry chert woodland, powerline ROW, roadsides.	4	Bush's Sedge	Low
<i>Carex careyana</i> Large population confined to mesic dolomite talus below Pearce Bluff [2103]	9	Carey's Sedge	Moderate
<i>Carex cephalophora</i> Scattered in dry chert/sandstone woodland, pasture, yard	5	Woodbank Sedge	Moderate
<i>Carex cherokeensis</i> One occurrence in degraded fen [2124]	7	Cherokee Sedge	Very Rare
<i>Carex crawei</i> Dolomite glade	10	Crawe's Sedge	Low
<i>Carex crinita</i> Isolated clumps in spicebush terrace seeps of deep valleys	7	Fringed Sedge	Rare
<i>Carex davisii</i> Few plants in mesic bottomland forest along Bryant Creek	3	Davis' Sedge	Rare
<i>Carex digitalis</i> Scattered in mesic sandstone/dolomite forests, mesic bottomland forests	7	Narrow-Leaved Wood Sedge	Moderate
<i>Carex digitalis</i> var. <i>macropoda</i> One occurrence in mesic bottomland forest along Bryant Creek [2109]	7	Narrow-Leaved Wood Sedge	Rare
<i>Carex eburnea</i> Locally common throughout crevices and ledges of dolomite cliff and around red cedars on glades and cliff tops	3	Bristle-leaved Sedge	Moderate
<i>Carex emoryi</i> Colonies of mudflat slackwater of Bryant Creek	6	Emory's Sedge	Rare



<i>Carex festucacea</i>	5	Fescue Sedge	Low
Scattered in Ozark fen, mesic bottomland forest, roadside ROW			
<i>Carex frankii</i>	2	Frank's Sedge	Moderate
Scattered in wet depressions of Simpson's Pasture, margins of pond at house			
<i>Carex glaucoidea</i>	4	Blue Sedge	Moderate
Scattered throughout upland flatwoods and dry sandstone woodlands on ridges			
<i>Carex granularis</i> var. <i>haleana</i>	4	Meadow Sedge	Low
Isolated around Ozark fens, spicebush terrace seeps, mesic bottomland terrace forests			
<i>Carex gravida</i>	5	Heavy Sedge	Rare
Scattered sparsely in Simpson Pasture			
<i>Carex grisea</i>	4	Gray Sedge	Moderate
Mesic bottomland forest			
<i>Carex hirsutella</i>	4	Fuzzy Wuzzy Sedge	High
Upland flatwoods, dry sandstone and chert woodland, roadsides, ROWs			
<i>Carex hirtifolia</i>	7	Hairy Sedge	Rare
Mesic bottomland forest along Bryant Creek			
<i>Carex hystericina</i>	7	Bottlebrush Sedge	Rare
Scattered in spicebush terrace seeps, ravine side slope seeps			
<i>Carex jamesii</i>	4	Grass Sedge	High
Mesic dolomite and bottomland forest, dolomite talus, dry-mesic bottomland woodland			
<i>Carex lurida</i>	6	Sallow Sedge	Low
Spicebush terrace seep, Ozark fen, edge of artificial pond			
<i>Carex meadii</i>	6	Mead's Sedge	Low
Dolomite glade			
<i>Carex mesochorea</i>	3	Oval-Headed Sedge	Low
Scattered along edge of Simpson Pasture			
<i>Carex molesta</i>	3	Troublesome Sedge	Rare
Ozark fen			
<i>Carex muehlenbergii</i> var. <i>enervis</i>	8	Sand Sedge	Low
Scattered in cherty openings of dry chert woodland			
<i>Carex nigromarginata</i> var. <i>nigromarginata</i>	7	Black-Edged Sedge	Moderate
Scattered in upland flatwoods, dry chert and sandstone woodland [2102]			
<i>Carex oligocarpa</i>	6	Few-Fruited Sedge	High
Common in dry and dry-mesic sandstone, chert, dolomite woodland, upland flatwoods			
<i>Carex retroflexa</i>	4	Reflexed Sedge	Moderate
Dry woodlands, upland flatwoods			
<i>Carex rosea</i>	6	Stellate Sedge	Low
Spicebush terrace seep and mesic bottomland terrace forest			
<i>Carex squarrosa</i>	6	Squarrose Sedge	Rare
One clump found in water-filled deep ruts of old logging road			

<i>Carex suberecta</i> Isolated in Ozark fen	9	Prairie Straw Sedge	Very Rare
<i>Carex texensis</i> Isolated in spicebush terrace seeps; scattered in mesic bottomland terrace forest [2108]	3	Texas Sedge	Moderate
<i>Carex umbellata</i> Scattered in exposed openings of dry chert and sandstone woodlands	6	Umbel-Like Sedge	Moderate
<i>Carex vulpinoidea</i> Wet depressions in open upland flatwoods, old dirt road ruts, pasture	3	Fox Sedge	Low
<i>Cyperus acuminatus</i> Low depression of opening in upland flatwoods	3	Short-Pointed Cyperus	Rare
<i>Cyperus echinatus</i> Sandstone glade, road ROW, yard	3	Ball Sedge	
<i>Cyperus esculentus</i> Gravel bar	0	Chufa	Low
<i>Cyperus odoratus</i> Gravel bar	3	Fragrant Flatsedge	Low
<i>Cyperus refractus</i> Isolated in dry mesic bottomland woodlands, gravel washes, riverfront forests	6	Reflexed Flatsedge	Low
<i>Cyperus retroflexus</i> Dry sandy eroded bank along Bryant Creek [2132]	6	One-Flowered Flatseed	Very Rare (S1)
<i>Cyperus squarrosus</i> Locally common on mudflats and edge of sandbars along Bryant Creek	3	Awned Flatseed	High
<i>Cyperus strigosus</i> Isolated occurrences on gravel bars of Bryant Creek	1	Straw-Colored Flatsedge	Rare
<i>Eleocharis compressa</i> var. <i>compressa</i> Widespread across dolomite glades and dry dolomite woodland	5	Flat-Stemmed Spike Rush	Moderate
<i>Eleocharis engelmannii</i> Edge of artificial pond	5	Engelmann's Spike Rush	Low
<i>Eleocharis erythropoda</i> Sandbars and mudflats along Bryant Creek	5	Bald Spike Rush	Moderate
<i>Eleocharis obtusa</i> Edge of ponds, mud ruts of old logging roads, wet depressions in upland flatwoods	2	Blunt Spike Rush	Low
<i>Eleocharis palustris</i> Edge of artificial pond [2121]	5	Marsh Spike Rush	Very Rare
<i>Eleocharis verrucosa</i> Dense mats on seepy sandstone glade	4	Slender Spike Rush	High
<i>Fimbristylis autumnalis</i> Common on mudflats, sloughs, and moist sand depressions of sandbars along Bryant Ck	5	Autumn Sedge	Moderate
<i>Fimbristylis puberula</i> var. <i>puberula</i> Isolated populations on dolomite glades	7	Glade Fimbry	Moderate
<i>Fuirena simplex</i> var. <i>simplex</i> Ozark fen and isolated on mudflats of Bryant Creek [2131]	8	Umbrella Grass	Very Rare



<i>Lipocarpa micrantha</i>	5	Common Dwarf Bulrush	Very Rare
Confined to edges of stagnant pool of old slough along Bryant Creek [2135]			
SCHOENOPLECTUS MUCRONATUS		Bog Bulrush	Moderate
Abundant in several artificial ponds			
<i>Schoenoplectus pungens</i>	10	Chairmaker's Rush	Very Rare
Scattered along gravel bar edge stabilized by water willow			
<i>Schoenoplectus tabernaemontana</i>	5	Great Bulrush	Very Rare
Few stems in shallow old artificial pond			
<i>Scirpus atrovirens</i>	3	Dark Green Rush	Low
Dolomite spring and isolated along riverbank of Bryant Creek			
<i>Scirpus pendulus</i>	3	Red Bulrush	Moderate
Depressions in flatwoods, water-filled road ruts, ditches, gravel washes, pasture			
<i>Scleria oligantha</i>	8	Few-Flowered Nut Rush	Low
Scattered in dolomite glade and open dry chert woodland			
<i>Scleria pauciflora</i>	6	Papillose Nut Rush	Low
Open wet depressions of upland flatwoods and dolomite glade			
<i>Scleria triglomerata</i>	6	Tall Nut Rush	Moderate
Rocky openings of dry chert and sandstone woodlands			
<i>Trichophorum planifolium</i>	9	Wood Club-Rush	Low
Restricted to a few locations in dry-mesic chert and sandstone woodlands			

### DIOSCOREACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Dioscorea quaternata</i>	5	Four-Leaved Yam	Low
Widely scattered in dry-mesic sandstone forests and dolomite woodlands, mesic dolomite forests, and dolomite talus slopes			
<i>Dioscorea villosa</i>	5	Wild Yam	Low
One occurrence in gravel bar thicket			

### IRIDACEAE — 4 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
IRIS PALLIDA		Sweet Iris	Very Rare
Few plants in yard			
<i>Nemastylis nuttallii</i>	9	Nuttall's Prairie Iris	Very Rare
One fruiting plant found on dolomite glade; not located during growing season			
<i>Sisyrinchium angustifolium</i>	5	Pointed Blue-Eyed Grass	Low
Isolated occurrences in dry-mesic bottomland woodlands and forests, mesic bottomland forests, riverfront forests, gravel washes			
<i>Sisyrinchium campestre</i>	5	Prairie Blue-Eyed Grass	Low
Dolomite glade, open dry chert woodland			

**JUNCACEAE — 12 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Juncus acuminatus</i> Scattered in low depressions of upland flatwoods and along gravel roads	4	Sharp-Fruited Rush	Low
<i>Juncus biflorus</i> Isolated in low moist depression in fescue opening of upland flatwoods [2123]	5	Two-Flowered Rush	Rare
<i>Juncus dudleyi</i> In seeps of Ozark fens and dolomite springs	6	Dudley's Rush	Low
<i>Juncus effusus</i> subsp. <i>solutus</i> Several stems growing in standing water of deep dirt ruts on upland flatwoods	4	Common Rush	Very Rare
<i>Juncus interior</i> Wet depression in lower portion of dolomite glade	5	Inland Rush	Low
<i>Juncus marginatus</i> Wet dirt road rut depression in upland flatwoods	4	Grass-Leaved Rush	Rare
<i>Juncus nodatus</i> Several plants confined to acid seep near sandstone glade	6	Stout Rush	Very Rare
<i>Juncus secundus</i> Wet depression in dolomite glade and upland flatwoods	5	Secund Rush	Low
<i>Juncus tenuis</i> var. <i>anthelatus</i> One small population in wet road rut depression of upland flatwoods	2	Path Rush	Very Rare
<i>Juncus tenuis</i> var. <i>tenuis</i> Common along barren dirt of woods roads and old logging roads; pastures and yards	0	Path Rush	Moderate
<i>Luzula campestris</i> var. <i>bulbosa</i> Scattered in open exposed soil of dry and dry-mesic chert and sandstone woodlands	4	Wood Rush	Low
<i>Luzula campestris</i> var. <i>multiflora</i> Along moist exposed sandstone ledges	4	Wood Rush	Rare

**LEMNACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Lemna aequinoctialis</i> Small population in mud of drying artificial pond	5	Lesser Duckweed	Very Rare
<i>Wolffia brasiliensis</i> Abundant in one artificial pond north of house	8	Pointed Water Meal	High

**LILIACEAE — 17 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Allium canadense</i> var. <i>canadense</i> Dry sandstone woodland, dry-mesic bottomland woodland and forest, gravel washes	2	Wild Garlic	Low
<i>Allium mutabile</i> Scattered in dolomite glade and dry dolomite woodlands	7	Glade Onion	Moderate
<i>Allium stellatum</i> Scattered in dolomite glade	6	Prairie Onion	Low



ALLIUM VINEALE		Field Garlic	Low
Pasture, yard, along logging roads, log landings			
<i>Camassia scilloides</i>	6	Wild Hyacinth	Moderate
Dolomite glade and dry dolomite woodlands			
<i>Erythronium albidum</i>	5	White Trout Lily	Moderate
Dry and dry-mesic chert/sandstone woodland, mesic dolomite forest, mesic bottomland forest, dolomite glade			
HEMEROCALLIS FULVA var. FULVA		Day Lily	Very Rare
Near house			
<i>Hypoxis hirsuta</i>	5	Yellow Star Grass	Low
Dry chert and dolomite woodland, dolomite glade			
<i>Maianthemum racemosum</i> subsp. <i>racemosum</i>	4	Feathery False Solomon's Seal	Low
Mesic dolomite and sandstone forest and talus slope, moist dolomite cliff			
NARCISSUS POETICUS		Poet's Narcissus	Very Rare
In yard			
Narcissus pseudonarcissus		Daffodil	Rare
In yard, spreading			
<i>Nothoscordum bivalve</i> var. <i>bivalve</i>	4	False Garlic	Moderate
Scattered in dolomite glades, dry chert/dolomite woodlands			
<i>Polygonatum biflorum</i> var. <i>commutatum</i>	4	Smooth Solomon's Seal	Low
Mesic dolomite and sandstone forest, dolomite talus, moist dolomite cliff			
<i>Trillium sessile</i>	5	Toad Trillium	Moderate
Scattered mesic dolomite and chert forest, dry-mesic dolomite forest, mesic dolomite talus, moist dolomite cliff			
TULIPA sp.		Tulip	Very Rare
Scattered in garden and yard			
<i>Uvularia grandiflora</i>	6	Bellwort	Moderate
Mesic sandstone and dolomite forest, Dry-mesic chert forest, dolomite talus, moist dolomite and sandstone cliff, spicebush terrace seeps, ravine spicebush seeps			
<i>Veratrum woodii</i>	8	False Hellebore	Moderate
Dolomite talus, moist dolomite cliff, mesic dolomite forest			

### ORCHIDACEAE — 14 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Aplectrum hyemale</i>	8	Putty Root Orchid	Very Rare
Pike Hollow only on mesic bottomland terrace forests			
<i>Corallorhiza odontorhiza</i>	6	Late Coral Root	Very Rare
Two flowering plants in dry-mesic sandstone forests along Coon Den Bluff			
<i>Corallorhiza wisteriana</i>	7	Wister's Coral Root	Low
Isolated occurrences in dry-mesic sandstone woodland, dry-mesic bottomland woodland, gravel wash			

<i>Cypripedium calceolus</i> var. <i>parviflorus</i>	8	Small Yellow Lady's Slipper	Low
Scattered in dry-mesic sandstone and dolomite forest, mesic dolomite forest			
<i>Cypripedium reginae</i>	10	Showy Lady's Slipper	Very Rare (S2S3)
Dozen flowering plants on seepy moist dolomite cliff ledge			
<i>Galearis spectabilis</i>	7	Showy Orchis	Very Rare
One plant flowering along dolomite spring of Pike Hollow			
<i>Goodyera pubescens</i>	10	Rattlesnake Plantain	Very Rare
Several plants found in dry-mesic and mesic sandstone forests			
<i>Hexalectris spicata</i>	8	Crested Coral Root	Very Rare
Four plants observed in red cedar grove on dolomite glade bald			
<i>Liparis liliifolia</i>	7	Purple Twayblade	Rare
Isolated occurrences in dry-mesic chert woodlands and forests			
<i>Spiranthes cernua</i>	5	Nodding Ladies' Tresses	Rare
Sandstone glade			
<i>Spiranthes lacera</i>	6	Slender Ladies' Tresses	Low
Openings in upland flatwoods, dolomite glade, old logging roads, pasture			
<i>Spiranthes magnicamporum</i>	7	Dune Ladies' Tresses	Rare
Dolomite glades			
<i>Tipularia discolor</i>	10	Crane Fly Orchid	Very Rare (S3)
Rotting log debris in ravine of mesic sandstone forest; deep leaf litter upland flatwoods			
<i>Triphora trianthophora</i>	9	Nodding Pogonia	Rare
Scattered along valley streams terraces in mesic bottomland forests			

### POACEAE — 121 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Agrostis eliottiana</i>	3	Awned Bent Grass	Low
Scattered on sterile soil of dry sandstone woodland, sandstone ledges, gravel roadsides			
<i>Agrostis hyemalis</i> var. <i>hyemalis</i>	3	Tickle Grass	Low
Dry sandstone woodland, moist dolomite cliff			
<i>Agrostis perennans</i> var. <i>perennans</i>	3	Upland Bent Grass	Low
Dry chert woodland, roadside ROW			
<i>Alopecurus carolinianus</i>	0	Annual Foxtail	Very Rare
One plant observed in degraded Ozark Fen at dolomite spring road crossing			
<i>Andropogon gerardii</i>	5	Big Bluestem	Low
Scattered in mostly open dry chert and sandstone woodland south of Hwy N, dolomite glade, roadside ROW			
<i>Andropogon gyrans</i> var. <i>gyrans</i>	3	Elliott's Broom Sedge	Low
Isolated in sterile, gravelly dry chert and sandstone woodlands, and roadsides			
<i>Andropogon virginicus</i> var. <i>virginicus</i>	2	Broom Sedge	Moderate
Dry open chert and sandstone woodlands mostly south of Hwy N, log landings, logging roads, pastures, highway ROW, powerline Row			

ANTHOXANTHUM ODORATUM		Sweet Vernal Grass	High
Locally common edge of logging roads, log landings south Hwy N where intersecting dry chert and sandstone woodlands, upland forests; possibly future aggressive invasive [2115]			
<i>Aristida dichotoma</i> var. <i>curtissii</i>	3	Churchmouse Three-Awn	Moderate
Locally common across dolomite glades			
<i>Aristida dichotoma</i> var. <i>dichotoma</i>	3	Poverty Grass	Low
Widely scattered on dolomite glades			
<i>Aristida longespica</i> var. <i>longespica</i>	2	Slimspike Three-Awn	Low
Isolated occurrences on dolomite glade			
<i>Aristida oligantha</i>	1	Plains Three-Awn Grass	Moderate
Scattered in sterile open soils of stable yard, pond embankments, pastures, edge of dirt roads, log landings, dolomite glade			
<i>Aristida purpurascens</i>	5	Arrow Feather	Low
Widely scattered on dolomite glade			
<i>Arundinaria gigantea</i>	7	Giant Cane	High
Forms large dense colony structure in primary riverfront forest, and stable streambanks along Bryant Creek			
BOTHRIOCHLOA BLADHII		Caucasian Bluestem	Rare
Restricted to edge of logging road near east gate			
<i>Bothriochloa laguroides</i> subsp. <i>torreyana</i>	0	Silver Beard Grass	Low
Scattered sparingly along Hwy N ROW			
<i>Bouteloua curtipendula</i>	7	Side-Oats Grama	Low
Scattered on dolomite glade			
<i>Brachyelytrum erectum</i>	5	Low-Awned Wood Grass	Moderate
Scattered colonies in upland forests, dry and dry mesic chert and sandstone woodlands			
BROMUS HORDEACEUS subsp.		Soft Chess	Moderate
HORDEACEUS			
Locally common along dirt roads through Simpson Pasture			
BROMUS INERNIS		Smooth Brome	Low
Scattered dense populations in Simpson's Pasture and field west of stable			
<i>Bromus pubescens</i>	5	Woodland Brome	Moderate
Scattered in dry-mesic chert woodlands, dry sandstone woodlands, dry-mesic dolomite forests			
BROMUS STERILIS		Poverty Grass	Moderate
Isolated but dense colonies in pastures, roadside ROW, and yard			
BROMUS TECTORUM var. TECTORUM		Downy Brome	Low
Along Hwy N ROW			
<i>Chasmanthium latifolium</i>	4	Spike Grass	Moderate
Locally common and likely increasing where browsed in upland flatwoods, dry-mesic woodlands and forests, pastures, dry-mesic bottomland woodlands			
<i>Chloris verticillata</i>	0	Windmill Grass	Very Rare
Confined around stable			



<b><i>Cinna arundinacea</i></b>	7	Common Wood Reed	Low
Widely scattered in riverfront forest, mesic bottomland forests (including stream terraces), and along forested streambanks			
CYNODON DACTYLON		Bermuda Grass	Very Rare
House yard only			
DACTYLIS GLOMERATA		Orchard Grass	Low
Scattered in Simpson's Pasture			
<b><i>Danthonia spicata</i></b>	3	Poverty Oat Grass	High
Locally common in dry chert and sandstone woodlands, dry-mesic sandstone woodlands, upland flatwoods, in gravelly old logging roads, dolomite glade			
<b><i>Diarrhena obovata</i></b>	6	Obovate Beak Grass	Low
Scattered in riverfront and mesic bottomland forests			
<b><i>Dichantherium ashei</i></b>	7	Ashe's Panic Grass	Low
Widely scattered in dry chert and sandstone woodlands			
<b><i>Dichantherium bicknellii</i></b>	6	Bicknell's Panic Grass	Rare
Confined to steep, open dry chert woodlands [2118]			
<b><i>Dichantherium bosci</i></b>	5	Bosc's Panic Grass	Moderate
Dry and dry-mesic chert and sandstone woodlands, dry-mesic sandstone forests			
<b><i>Dichantherium clandestinum</i></b>	4	Deer Tongue Grass	Low
Dry sandstone woodland, dry-mesic bottomland woodlands, gravel washes, gravel bars, riverbanks, depressions in pastures			
<b><i>Dichantherium commutatum</i> var. <i>commutatum</i></b>	7	Variable Panic Grass	Low
Open dry chert woodlands			
<b><i>Dichantherium dichotomiflorum</i></b>	0	Knee Grass	Moderate
Scattered in upland flatwoods, dry and dry-mesic chert, sandstone woodlands			
<b><i>Dichantherium dichotomum</i> var. <i>barbulatum</i></b>	6	Forked Panic Grass	Moderate
Scattered in dry chert and sandstone woodlands			
<b><i>Dichantherium dichotomum</i> var. <i>dichotomum</i></b>	8	Forked Panic Grass	Low
Dolomite glade			
<b><i>Dichantherium lanuginosum</i></b>	2	Woolly Panic Grass	High
Widely Scattered in dry and dry-mesic chert and sandstone woodlands, upland flatwoods, pastures, along logging roads, log landings, dolomite glade, ROW's			
<b><i>Dichantherium laxiflorum</i></b>	6	Lax-Flowered Panic Grass	Low
Scattered in upland flatwoods, dry and dry mesic chert woodlands, dry sandstone woodlands, dry-mesic bottomland forests.			
<b><i>Dichantherium linearifolium</i></b>	5	Slender-Leaved Panic Grass	Low
Widely scattered in dry chert and sandstone woodlands, along dry sandstone ledges			
<b><i>Dichantherium longiligulatum</i></b>	4	Coastal Plain Panic Grass	Low
Riverfront forest and edge of artificial pond			

<b><i>Dichanthelium malacophyllum</i></b>	5	Soft-Leaved Panic Grass	Rare
Found in yard by Justin Thomas			
<b><i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i></b>	4	Soft-Leaved Panic Grass	Low
Dry sandstone and chert woodlands mostly south of Hwy N, edge of pasture			
<b><i>Dichanthelium praecocius</i></b>	9	Early-Branched Panic Grass	Low
Open dry chert woodland on steep slope [2112]			
<b><i>Dichanthelium ravenelii</i></b>	7	Ravenell's Panic Grass	Low
Scattered in dry chert woodland and sandstone glade			
<b><i>Dichanthelium scoparium</i></b>	6	Velvety Panic Grass	Low
Dolomite glade, upland flatwoods, Dry chert woodlands			
<b><i>Dichanthelium sphaerocarpon</i> var. <i>sphaerocarpon</i></b>	5	Round-Fruited Panic Grass	Moderate
Dolomite glade, open dry chert and sandstone woodlands			
<b><i>Dichanthelium villosissimum</i></b>	6	White Haired Panic Grass	Low
Mostly exposed southwest rocky slopes of dry chert and sandstone woodlands			
<b><i>Dichanthelium wernerii</i></b>	7	Werner's Panic Grass	Low
Scattered in dry chert and sandstone woodlands			
DIGITARIA CILIARIS		Southern Crabgrass	Low
Widely scattered on sand and gravel bars			
DIGITARIA ISHAEMUM		Smooth Crabgrass	Moderate
Abundant around house, roadsides, logging roads			
ECHINOCHLOA CRUSGALLI		Barnyard Grass	Low
Water's edge of pond			
<b><i>Echinochloa muricata</i></b>	2	Cockspur Grass	Low
Several plants in Ozark fen and along gravel wash			
ELEUSINE INDICA subsp. INDICA		Indian Goose Grass	Low
Scattered on gravel and sandbars			
<b><i>Elymus glabriflorus</i></b>	4	Southeastern Wild Rye	Moderate
Dry sandstone and chert woodlands, Hwy ROW, upland pastures			
<b><i>Elymus hystrix</i></b>	4	Bottlebrush Grass	Low
Moist dolomite cliff (ledges), riverfront forests, dry-mesic bottomland woodlands			
ELYMUS REPENS		Quack Grass	Low
Along highway ROW			
<b><i>Elymus riparius</i></b>	7	Riverbank Wild Rye	Low
Riverbank, open riverfront forests, gravel bars			
<b><i>Elymus villosus</i></b>	4	Silky Wild Rye	Low
Scattered in riverfront forests, riverbank			
<b><i>Elymus virginicus</i> var. <i>virginicus</i></b>	5	Virginia Wild Rye	Moderate
Riverfront forests, mesic bottomland forests			
<b><i>Eragrostis capillaris</i></b>	3	Lace Grass	Rare
Several plants in powerline ROW across dry chert woodland			

ERAGROSTIS CILIANENSIS		Stink Grass	Low
Scattered in sandy open riverfront forests, sandbars and gravel bars			
ERAGROSTIS CURVULA		Weeping Love Grass	Very Rare
Several sterile clumps on logging road embankment next to east gate; often planted on highway ROWs to stabilize steep eroding banks; can become invasive			
<b>Eragrostis frankii</b>	3	Sandbar Love Grass	Rare
Scattered in gravel washes, Ozark fen			
<b>Eragrostis hirsuta</b>	4	Bigtop Love Grass	Low
Open sandy/gravelly riverfront forests, dolomite glade			
<b>Eragrostis hypnoides</b>	4	Creeping Love Grass	Very Rare
Several plants on sand bank along recently filled slough across from Coon Den Bluff			
ERAGROSTIS MINOR		Little Love Grass	Low
Widely scattered clumps on gravel and sandbars along Bryant Creek			
<b>Eragrostis spectabilis</b>	3	Purple Love Grass	Low
Dolomite glade, open dry chert woodland (south of Hwy N), log landings, pastures, Hwy N ROW			
<b>Eragrostis trichoides</b>	4	Tall Love Grass	Low
Open dry chert woodland			
<b>Erianthus alopecuroides</b>	8	Silver Plumegrass	Low
Locally in open dry chert and sandstone woodland, mostly non-flowering culms			
FESTUCA ARUNDINACEA		Tall Fescue	High
Widespread dominant grass in Simpson Pasture, planted in old log landings, overgrown pastures in upland flatwoods south side of park, highway ROW, eroded riverbanks			
<b>Festuca paradoxa</b>	6	Cluster Fescue	Low
Sandstone ledges in dry sandstone woodland			
<b>Festuca subverticillata</b>	4	Nodding Fescue	Moderate
Dry-mesic and mesic sandstone and dolomite forests, gravel washes			
<b>Glyceria striata</b>	4	Fowl Manna Grass	Moderate
Common around dolomite springs, spicebush seeps, seepy waterfalls, riverbanks			
<b>Gymnopogon ambiguus</b>	8	Beard Grass	Rare
Mostly on sandstone glades, open dry sandstone woodlands above ledges, sparsely in dry chert woodlands [2130]			
<b>Hordeum pusillum</b>	0	Little Barley	Very Rare
Few plants around stable			
<b>Leersia oryzoides</b>	3	Rice Cut Grass	Low
Artificial pond margins, margin of sloughs and slackwater mudflats along Bryant Creek			
<b>Leersia virginica</b> var. <b>virginica</b>	4	White Grass	Moderate
Scattered in depressions and muddy road ruts of upland flatwoods; mesic bottomland terrace forests, stream margins, mesic dolomite forests, seeps			
<b>Melica nitens</b>	6	Melic Grass	Rare
Low ledges and shade of red cedar in dry dolomite woodlands around glades			
MICROSTEGIUM VIMINEUM		Japanese Stiltgrass	High
Dense cover along base of dolomite talus slopes down to streams edge of Bryant Creek. Disturbed gravel spoils of graded drainage ditches along gravel roads, gravel washes, dry-mesic chert forests.			



<b><i>Muhlenbergia capillaris</i> var. <i>capillaris</i></b>	9	Pink Satin Grass	Very Rare
A few isolated occurrences on the primary dolomite glade			
<b><i>Muhlenbergia frondosa</i></b>	3	Common Satin Grass	Low
Scattered in riverfront forest along Bryant Creek; identified by Dr. Paul McKenzie			
<b><i>Muhlenbergia mexicana</i></b>	6	Leafy Satin Grass	Low
Moist dolomite ledges in dry-mesic dolomite woodland			
<b><i>Muhlenbergia schreberi</i></b>	0	Nimblewill	Moderate
Dense cover in yard, around stable, pasture, log landings, margin of gravel roads			
<b><i>Muhlenbergia sobolifera</i></b>	4	Rock Satin Grass	High
Scattered in dry and dry-mesic woodlands, dry-mesic forests, dry-mesic bottomland woodlands, upland flatwoods			
<b><i>Muhlenbergia sylvatica</i></b>	5	Woodland Satin Grass	Low
Isolated in dry sandstone woodland; ledges of moist dolomite forests			
<b><i>Muhlenbergia tenuiflora</i> var. <i>tenuiflora</i></b>	6	Slender Satin Grass	Rare
Isolated colony along seepy sandstone ledges of steep ravine in mesic sandstone forest [2126]			
<b><i>Panicum anceps</i> var. <i>anceps</i></b>	3	Beaked Panic Grass	Moderate
Moist depressions in upland flatwoods, muddy dirt road ruts in woodlands, pastures, yard, ditches, gravel washes			
<b><i>Panicum capillare</i></b>	0	Old Witch Grass	High
Abundant in dolomite glades, rocky openings of dry dolomite woodland, dry rocky roadsides			
<b><i>Panicum flexile</i></b>	3	Wiry Panic Grass	High
Dolomite glade			
<b><i>Panicum philadelphicum</i></b>	4	Philadelphia Panic Grass	Low
Widely scattered in sandy openings of riverfront forest, sandbars, dolomite glades			
<b><i>Panicum virgatum</i></b>	4	Switch Grass	Moderate
Dolomite glade; open dry chert, sandstone, and dolomite woodlands: ROWs			
<b><i>Pascopyrum smithii</i></b>	0	Western Wheat Grass	Rare
One occurrence on sandbar			
<b><i>Paspalum floridanum</i> var. <i>floridanum</i></b>	4	Florida Lens Grass	Low
Isolated occurrences on roadsides, mud rut depressions, riverbank, upland flatwoods			
<b><i>Paspalum leave</i> var. <i>leave</i></b>	3	Smooth Lens Grass	Low
Yard, pastures, log landings, along roadside ROW			
<b><i>Paspalum pubiflorum</i> var. <i>glabrum</i></b>	3	Hairy-Flowered Lens Grass	Low
Scattered in sandy openings of riverfront forests, sandbars			
<b><i>Paspalum setaceum</i> var. <i>muhlenbergii</i></b>	3	Hairy Len's Grass	Low
Dolomite glade at powerline cut right-of-way			
PHALARIS ARUNDINACEA		Reed Canary Grass	Moderate
Sporadic dense colonies in low sand depressions and slackwater along Bryant Creek. Likely escaped and introduced from upstream pastures where used as forage			
PHLEUM PRETENSE		Timothy	Moderate
Isolated but dense colonies in Simpson Pasture, also few log landings, and low places of open gravel washes			

POA ANNUA		Annual Blue Grass	Low
Mostly on barren gravelly soil of driveway, yard, gravelly logging roads			
POA COMPRESSA		Canada Blue Grass	High
Simpson Pasture, overgrown fields south side of park, roadsides, yard			
POA PRATENSIS		Kentucky Blue Grass	High
Simpson Pasture, old fields, dry chert woodlands, ROWs			
<b>Poa sylvestris</b>	5	Kentucky Blue Grass	Moderate
Locally common on dry sandstone cliff (ledges), gravel washes, mesic sandstone forests			
<b>Schizachyrium scoparium</b>	5	Little Bluestem	High
Locally abundant on dolomite glade, dry chert and sandstone woodland (especially burned), openings in upland flatwoods, logging road margins, log landings, edge of Simpson Pasture along woodlands			
SETARIA FABERI		Giant Foxtail	Rare
Mostly in yard around house, especially near carport			
SETARIA GLAUCA		Yellow Foxtail	Moderate
Pastures, old fields, disturbed roadsides, yard			
<b>Setaria parviflora</b>	4	Perennial Foxtail	Low
Isolated occurrences in dry chert woodland, edge of logging road, dolomite glade			
SETARIA VIRIDIS var. VIRIDIS		Green Foxtail	Rare
Several plants on gravel bar			
<b>Sorghastrum nutans</b>	4	Indian Grass	Moderate
Scattered on dolomite glades, open dry chert and sandstone woodlands, ROWs, edge of pastures			
SORGHUM HALEPENSE		Johnson Grass	Low
Locally common in pastures, riverfront forests, on gravel bars, ROWs, around stable			
<b>Sphenopholis obtusata</b> var. <b>major</b>	6	Slender Wedge Grass	Low
Dry-mesic chert forest, mesic bottomland forest, gravel wash			
<b>Sporobolus clandestinus</b>	5	Rough Rush Grass	Low
Sparsely scattered in dolomite glade, highway ROW on flatwoods, dry chert woodland			
<b>Sporobolus compositus</b> var. <b>compositus</b>	3	Rough Dropseed	Low
Dolomite glade			
<b>Sporobolus ozarkanus</b>	2	Ozark Dropseed	Moderate
Locally common on dolomite glades and dry dolomite woodlands			
<b>Sporobolus vaginiflorus</b>	0	Sheathed Rough Grass	Low
Scattered over dolomite glade, sandstone glade, and openings in upland flatwoods			
<b>Steinchisma hians</b>	7	Gaping Panic Grass	Rare (S3)
Locally common in water-filled or muddy deep road rut pools on old logging roads [2125]			
<b>Tridens flavus</b> var. <b>flavus</b>	1	False Redtop	Moderate
Scattered in pastures, road ROW, upland old fields south side of park, sparingly in dolomite glades			
<b>Tripsacum dactyloides</b>	5	Gama Grass	Very Rare
One clump found in open gravel wash of dry-mesic bottomland woodland			
VULPIA MYUROS		Mouse-Tail Fescue	Moderate
Locally common in compacted dirt road across Simpson Pasture			

*Vulpia octoflora* var. *octoflora* 2 Six-Weeks Fescue Low  
Isolated occurrences in rocky barren patches of dry chert and sandstone woodlands, edges of dry sandstone boulders and ledges

### PONTEDERIACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Heteranthera rotundifolia</i>	5	Roundleaf Mud Plantain	Low

Abundant in one artificial pond, few plants in water-filled deep ruts in old logging roads

### POTAMOGETONACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Potamogeton diversifolius</i>	5	Waterthread Pondweed	Moderate
<i>Potamogeton foliosus</i> var. <i>foliosus</i>	6	Leafy Pondweed	Very Rare

Abundant in two artificial ponds

Small population isolated in stagnant pool of old slough along Bryant Creek

### SMILACACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Smilax bona-nox</i>	3	Saw Greenbriar	Moderate
<i>Smilax ecirrhata</i>	5	Upright Carrion Flower	Low
<i>Smilax hispida</i>	3	Bristly Greenbriar	Low

Locally common in dry sandstone and chert woodlands, upland flatwoods, rock shelves of dolomite glades

Dry-mesic bottomland woodland woodlands and forests, mesic dolomite forests, dolomite talus

Scattered in dry-mesic to mesic bottomland woodlands, riverfront forests, riverbanks

### TYPHACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Typha angustifolia</i>	0	Narrow-Leaved Cattail	Very Rare
<i>Typha latifolia</i>	1	Common Cattail	Very Rare

One small population in pond next to house

One small population found in stagnant pool of old slough on Bryant Creek

## Dicots — 639 TAXA

### ACANTHACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Dicliptera brachiata</i>	6	Wild Mudwort	Rare
<i>Justicia americana</i>	5	Water Willow	Moderate
<i>Ruellia humilis</i>	3	Hairy Ruellia	Low

Several plants on seepy ledges of riverbank along Bryant Creek

Locally common where stabilizing gravel bars and gravel banks of Bryant Creek

Scattered on dolomite glades, open dry chert woodlands, roadside ROWs



<i>Ruella pedunculata</i>	5	Wild Petunia	Low
Locally in dry dolomite woodlands and Hwy ROW			
<i>Ruella strepens</i>	3	Smooth Ruellia	Low
Dry-mesic dolomite forest and mesic bottomland forest			

### AMARANTHACEAE — 4 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Amaranthus albus</i>	0	Tumbleweed	Rare
Isolated on gravel bars			
AMARANTHUS SPINOSUS		Thorny Amaranth	Low
Scattered on gravel bars in in open sandy riverfront forests			
<i>Froelichia gracilis</i>	3	Small Cottonweed	Low
Widely scattered on gravel bars, on Hwy road margin			
<i>Iresine rhizomatosa</i>	5	Bloodleaf	Moderate
Scattered in riverfront forests, riverbanks			

### ANACARDIACEAE — 7 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Cotinus obovatus</i>	9	American Smoke Tree	Low
Small isolated population confined to dry dolomite woodlands and ledges along the northern extent of the park's graben [2119]			
<i>Rhus aromatica</i> var. <i>aromatica</i>	4	Common Fragrant Sumac	Moderate
Scattered on dolomite glade under red cedar, dry dolomite woodlands, dry chert and sandstone woodlands, upland flatwoods, especially south of Hwy N in openings			
<i>Rhus aromatica</i> var. <i>serotina</i>	6	Tall Fragrant Sumac	Low
Dolomite glades, rocky exposed dry sandstone woodlands			
<i>Rhus copallinum</i>	2	Shining Sumac	Moderate
Especially abundant throughout dry sandstone and chert woodlands in response to past wildfires and prescribed burn; scattered elsewhere including old fields, pasture, logging roads and landings			
<i>Rhus glabra</i>	1	Smooth Sumac	Moderate
Abundant throughout dry sandstone and chert woodlands, pasture, log landings			
<i>Toxicodendron pubescens</i>	7	Eastern Poison Oak	Very Rare
Isolated on exposed open dry chert knob along Hwy N			
<i>Toxicodendron radicans</i>	1	Poison Ivy	Moderate
Scattered throughout most natural communities; especially abundant in dry-mesic woodlands and dry-mesic to mesic forests, also along riverbanks, pastures, gravel washes			

### ANNONACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Asimina triloba</i>	5	Pawpaw	Moderate
Scattered to isolated in lower elevations of dry-mesic to mesic woodlands, forests, moist dolomite cliff ledges, dolomite talus, riverfront forests, mesic bottomland forests			

**APIACEAE — 20 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Angelica venenosa</i> Occasional in dry and dry-mesic chert woodlands, dry-mesic chert and sandstone forests, dry-mesic dolomite woodland, upland flatwoods	8	Wood Angelica	Low
<i>Chaerophyllum tainturieri</i> Dry-mesic chert forests, dry-mesic bottomland forests, mesic dolomite forest, dry-mesic and mesic bottomland forests and woodlands, upland pastures	3	Wild Chervil	Moderate
<i>Cicuta maculata</i> var. <i>maculata</i> Scattered in spicebush seep forest and moist dolomite cliff (ledges)	5	Water Hemlock	Rare
CONIUM MACULATUM Disturbed soil from logging operations in dry sandstone woodland and where logging road intersects dry-mesic bottomland woodland on south side of park		Poison Hemlock	Low
<i>Cryptotaenia canadensis</i> Dolomite talus, dry-mesic and mesic bottomland forests (including valley terraces), dry-mesic bottomland woodland, gravel washes	2	Honewort	Moderate
DAUCUS CAROTA subsp. CAROTA Dry chert and sandstone woodland, pastures, road ROWs, long landings, dolomite glades		Queen Anne's Lace	Moderate
<i>Erigenia bulbosa</i> Scattered in mesic bottomland forests, riverfront forests	6	Harbinger of Spring	Moderate
<i>Eryngium prostratum</i> Few plants isolated in mud ruts of logging road in upland flatwoods [2134]	5	Creeping Coyote Thistle	Very Rare
<i>Eryngium yuccifolium</i> Widely scattered in dry chert and sandstone woodlands mostly south of Hwy N, also in upland flatwoods	8	Rattlesnake Master	Low
<i>Osmorhiza longistylis</i> Scattered through dry-mesic chert and dolomite forest, common in mesic dolomite forest and dolomite talus, and in mesic bottomland forests	3	Smooth Sweet Cicely	Moderate
<i>Oxypolis rigidior</i> Ozark fen, ravine side slope seeps, seepy ledges of moist dolomite cliffs	7	Combane	Low
<i>Polytaenia nuttallii</i> Small population isolated on dolomite glade	8	Prairie Parsley	Very Rare
<i>Sanicula canadensis</i> Dry sandstone woodland, mesic sandstone and dolomite forest, mesic bottomland forest	3	Canadian Snake Root	Moderate
<i>Sanicula odorata</i> Mesic dolomite forest and dolomite talus	2	Clustered Black Snakeroot	Rare
<i>Sium suave</i> Spicebush terrace seeps and mesic dolomite forest	6	Water Parsnip	Very Rare
<i>Taenidia integerrima</i> Dry and dry-mesic dolomite woodland, dry-mesic forest	6	Yellow Pimpernel	Low
<i>Thaspium trifoliatum</i> var. <i>flavum</i> Widely scattered in dry mesic dolomite woodland	6	Yellow Meadow Parsnip	Low

TORILIS JAPONICA Japanese Hedge Parsley Rare  
Road ROW

*Zizia aptera* 7 Heart-Leaved Meadow Parsnip Low

Several scattered plants Isolated along gravel wash in Major Hollow

*Zizia aurea* 5 Golden Alexanders Low

Widely scattered in dry sandstone, chert, dolomite woodland; dry-mesic dolomite woodland, mesic dolomite forest, dry-mesic bottomland woodland, upland flatwoods

### APOCYNACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Amsonia illustris</i>	7	Shining Blue Star	Rare
Restricted to Hwy roadside in ditches over dolomite glade and open dry chert woodland			
<i>Apocynum cannabinum</i>	3	Prairie Dogbane	Low
Scattered in dry sandstone and chert woodlands, upland flatwoods, dolomite glade, Ozark fen, dolomite spring, and Hwy ROW			
VINCA MINOR		Common Periwinkle	Very Rare
Scattered along back of house			

### AQUIFOLIACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Ilex decidua</i>	5	Possum Haw	Low
Dry dolomite woodlands, dry-mesic bottomland woodland, glades			

### ARALIACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Panax quinquefolius</i>	8	Ginseng	Rare
Isolated occurrences in mesic sandstone, dolomite forests, dolomite talus, spicebush terrace seeps			

### ARISTOLOCHIACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Asarum canadense</i>	6	Wild Ginger	Moderate
Locally common in mesic sandstone and dolomite forests, dry-mesic dolomite forests, mesic bottomland woodland, dolomite talus, ledges of moist dolomite cliffs			
<i>Endodeca serpentaria</i>	6	Virginia Snakeroot	Low
Widely scattered in dry-mesic chert and sandstone woodlands and forests			
<i>Isotrema tomentosa</i>	7	Pipe-Vine	Low
Scattered along riverbanks of Bryant Creek where climbing in low trees			

### ASCLEPIADACEAE — 7 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Asclepias purpurascens</i>	6	Purple Milkweed	Low
Widely scattered in low drainages of open dry and dry-mesic chert woodlands, especially south of Hwy N, along Hwy N ROW			



<i>Asclepias quadrifolia</i>	6	Four-Leaved Milkweed	Low
Scattered in dry and dry-mesic chert woodland, upland flatwoods			
<i>Asclepias tuberosa</i> subsp. <i>interior</i>	5	Butterfly Weed	Low
Scattered in dry and dry-mesic chert woodlands, dry-mesic chert forest, Hwy ROWs			
<i>Asclepias verticillata</i>	2	Whirled Milkweed	Low
Widely scattered in dry and dry-mesic chert woodlands, dolomite glade, Ozark fen			
<i>Asclepias viridiflora</i>	7	Short Green Milkweed	Low
Sparse on dolomite glades, dry dolomite woodlands			
<i>Asclepias viridis</i>	5	Green-Flowered Milkweed	Low
Dolomite glades, dry chert woodlands, Hwy ROW			
<i>Matelea decipiens</i>	5	Climbing Milkweed	Low
Sparse on dolomite glade, dry dolomite woodlands, gravel washes			

**ASTERACEAE — 131 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
ACHILLEA MILLEFOLIUM		Yarrow	Moderate
Scattered to common in pastures, roadsides, log landings, sparse on glades			
<i>Ageratina altissima</i>	2	White Snakeroot	Moderate
Locally common in dry and dry-mesic chert woodlands (particularly disturbed by past logging), log landings, upland flatwoods, Mesic dolomite forest, mesic talus, riparian forest			
<i>Ambrosia artemisiifolia</i>	0	Common ragweed	Moderate
Locally common in open disturbed soils of dry and dry-mesic sandstone, chert woodlands, upland flatwoods, open logging roads, Hwy roadsides, pastures, gravel washes			
<i>Ambrosia bidentata</i>	0	Southern ragweed	Low
Open disturbed soil of dry sandstone woodlands, upland flatwoods, riverfront forests, logging roads, pasture, edge of Hwy ROW			
<i>Ambrosia trifida</i>	0	Giant Ragweed	Low
Occasional in riverfront forests, riverbanks, gravel washes			
<i>Antennaria parlinii</i>	5	Pussy's Toes	Moderate
Locally common in dry chert and sandstone woodlands, dry sandstone ledges, upland flatwoods, dolomite glades			
<i>Arnoglossum atriplicifolium</i>	4	Pale Indian Plantain	Moderate
Locally common on mesic bottomland forests on small stream terraces, dry-mesic chert and sandstone forests, dry-mesic bottomland woodland, gravel washes			
<i>Arnoglossum plantagineum</i>	8	Prairie Indian Plantain	Very Rare
Isolated occurrences edge of Ozark fen and dolomite glade			
ARTEMISIA ANNUA		Sweet Wormweed	Low
Scattered in riverfront forest, gravel bars, sandbars			
<i>Bidens aristosa</i>	1	Swamp Marigold	Low
Scattered in open sandy riverfront forests, riverbanks, gravel bars, edges of sloughs, pastures			
BIDENS BIPINNATA		Spanish Needles	Low
Scattered in riverfront forests, gravel bars, gravel washes, disturbed areas, log landings			

<b><i>Bidens cernua</i></b>	5	Nodding Bur Marigold	Low
Isolated along mud flats, riverbanks, sloughs			
<b><i>Bidens connata</i></b>	3	Purple-Stemmed Tickseed	Low
Gravel bar			
<b><i>Bidens frondosa</i></b>	2	Common Beggar's Ticks	High
Along riverbanks, edge of sloughs, scattered in riverfront forests, edge of ponds			
<b><i>Bidens vulgata</i></b>	1	Tall Beggar's Ticks	Low
Along stagnant pool in filled slough			
<b><i>Bradburia pilosa</i></b>	3	Soft-Golden Aster	High
Dry chert and sandstone woodland, upland flatwoods, along logging roads, ROWs			
<b><i>Brickellia eupatorioides</i> var. <i>texana</i></b>	7	Ozark False Boneset	Low
Dolomite glade, dry dolomite woodland, dry dolomite cliff			
CARDUUS NUTANS		Musk Thistle	Rare
Few scattered in Simpson Pasture, also along gravel road			
CENTAUREA STOEBE subsp. MICRANTHOS		Spotted Knapweed	Low
Dry dolomite woodland, scattered in upland pasture, Hwy ROW, logging roads			
CICHORIUM INTYBUS		Chickory	Low
Scattered along Hwy ROW, logging road edge, log landings			
<b><i>Cirsium altissimum</i></b>	4	Tall Thistle	Low
Scattered in upland flatwoods, dry and dry-mesic chert woodland, dry-mesic bottomland forests, dry-mesic bottomland woodland, riverbanks			
CIRSIUM VULGARE		Bull Thistle	Low
Pastures, around stable, along gravel road, Hwy ROW, logging road, log landing			
<b><i>Conoclinium coelestinum</i></b>	3	Mistflower	Low
Scattered along riverbanks, top of talus boulders along edge of Bryant Creek			
<b><i>Conyza canadensis</i> var. <i>canadensis</i></b>	0	Horseweed	Moderate
Pasture, around stable, along gravel roads, logging roads, log landing			
<b><i>Coreopsis lanceolata</i></b>	5	Sand Coreopsis	Moderate
Scattered in dry chert, sandstone and dolomite woodland, dolomite glades; more abundant along edge of logging roads south side of Highway N			
<b><i>Coreopsis palmata</i></b>	7	Prairie Coreopsis	Low
Dolomite glade, dry chert and sandstone woodland,			
<b><i>Coreopsis pubescens</i> var. <i>pubescens</i></b>	7	Star Tickseed	Low
Widely scattered on dolomite glades, dry-mesic chert and dolomite woodland, dry-mesic bottomland woodland, gravel washes, riverbanks.			
<b><i>Coreopsis tinctoria</i></b>	1	Golden Coreopsis	Rare
Isolated in sandy openings of riverfront forests along Bryant Creek			
<b><i>Coreopsis tripteris</i></b>	6	Tall Coreopsis	Low
Scattered along edge of Ozark fen, Hwy ROW, along dolomite spring			
<b><i>Echinacea pallida</i></b>	7	Pale Purple Coneflower	Rare
Dry chert woodland, dry dolomite cliff edge, upland pasture			
<b><i>Echinacea purpurea</i></b>	5	Purple Coneflower	Very Rare
One plant found flowering along gravel wash in dry-mesic bottomland woodland			

<b><i>Echinacea simulata</i></b>	7	Glade Purple Coneflower	Low
Scattered across open dolomite glades			
<b><i>Eclipta prostrata</i></b>	3	Yerb De Tajo	Low
Sparse along edges of mudflats, muddy embankments, sloughs			
<b><i>Elephantopus carolinianus</i></b>	3	Elephant's Foot	Moderate
Gravel openings in riverfront forests, gravel washes, edge of gravel roads			
<b><i>Erectites hieracifolius</i></b>	1	Fireweed	Low
Scattered in recently burned open dry chert and sandstone woodlands; also widely scattered in upland flatwoods, soils disturbed by logging operations, pasture, and yard			
<b><i>Erigeron annuus</i></b>	1	Annual Fleabane	Low
Isolated occurrences in dry and dry-mesic sandstone/chert woodlands, upland flatwoods, edges of logging roads, gravel washes, roadside ROW			
<b><i>Erigeron philadelphicus</i></b>	3	Marsh Fleabane	Low
Isolated along edge of main logging road near glade			
<b><i>Erigeron pulchellus</i> var. <i>pulchellus</i></b>	6	Robin's Plantain	Low
On exposed mossy banks of small drainages over sandstone and chert; mesic bottomland forests on small stream terraces, dry-mesic bottomland woodlands			
<b><i>Erigeron strigosus</i> var. <i>strigosus</i></b>	3	Daisy Fleabane	High
Locally common on dolomite glade, dry chert and sandstone woodlands, upland flatwoods, gravel washes, along logging roads, pastures, roadside ROWs.			
<b><i>Eupatorium altissimum</i></b>	3	Tall Boneset	Low
Scattered in dry sandstone woodlands, upland flatwoods, pastures, logging roads			
<b><i>Eupatorium purpureum</i></b>	6	Purple Joe Pye Weed	Low
Occasional in mesic dolomite forests, dolomite talus, mesic bottomland forests			
<b><i>Eupatorium serotinum</i></b>	1	Late Boneset	Low
Occasional in upland flatwoods, pasture, dry chert woodlands, roadsides			
<b><i>Eupatorium sessilifolium</i></b>	7	Upland Boneset	Rare
Colony of plants confined to dry chert woodlands in prescribed burn area [2128]			
<b><i>Gamochaeta argyrinea</i></b>	2	Southern Cudweed	Low
Widely scattered across dry chert and sandstone woodlands, upland flatwoods, edge of old logging roads, pond embankment			
<b><i>Grindelia lanceolata</i></b>	3	Spiny-Toothed Gumweed	Low
Scattered on dolomite glade, along logging roads			
<b>HELENIUM AMARUM var. AMARUM</b>		Bitterweed	High
Locally common in pastures, along logging roads, log landings, Hwy ROWs			
<b><i>Helenium autumnale</i></b>	5	Sneezeweed	Very Rare
Sparse in Ozark fen			
<b><i>Helianthus hirsutus</i></b>	3	Oblong Sunflower	High
Locally common in dry and dry-mesic woodlands, upland flatwoods, Hwy ROWs			
<b><i>Helianthus strumosus</i></b>	7	Pale-Leaved Sunflower	Very Rare
Few plants restricted to low moist pine-dominated flatwoods south of Hwy N			
<b><i>Helianthus tuberosus</i></b>	3	Jerusalem Artichoke	Rare
Small population along eroded bank of Bryant Creek			



<b><i>Heliopsis gracilis</i></b>	5	False Sunflower	Low
Isolated occurrences in dry chert and dolomite woodlands, dry-mesic bottomland woodlands, gravel washes			
<b><i>Heliopsis helianthoides</i> var. <i>helianthoides</i></b>	5	False Sunflower	Moderate
Scattered in dry and dry-mesic chert and dolomite woodlands, dry-mesic bottomland woodlands, dolomite glades, riverbanks			
<b><i>Heterotheca camporum</i> var. <i>camporum</i></b>	1	Narrow-Leaved Golden Aster	Low
Scattered in open dry chert- sandstone woodlands, along logging roads south of Hwy N			
<b><i>Hieracium gronovii</i></b>	4	Hairy Hawkweed	Moderate
Widely scattered over dry and dry-mesic sandstone and chert woodlands			
<b><i>Ionactis linariifolius</i></b>	9	Flax-Leaved Aster	Low
Local occurrences in dry chert and sandstone woodlands			
<b><i>Krigia biflora</i> var. <i>biflora</i></b>	5	Orange False Dandelion	Moderate
Scattered across all woodlands and dry-mesic forests, glades, upland flatwoods			
<b><i>Krigia caespitosa</i> subsp. <i>caespitosa</i></b>	2	Opposite-Leaved Dandelion	Moderate
Locally common along center and edges of logging roads, pastures, log landings			
<b><i>Krigia virginica</i></b>	3	Common Dwarf Dandelion	Low
Dry chert, sandstone, dolomite woodlands; dry sandstone ledges, upland flatwoods, sandstone glade			
<b><i>Lactuca canadensis</i></b>	3	Wild Lettuce	Low
Occasional in dry chert and sandstone woodland			
<b><i>Lactuca floridana</i></b>	3	Blue Lettuce	Low
Dry-mesic chert forests, dry-mesic and mesic dolomite forests, dolomite talus, moist dolomite cliff (ledges), mesic bottomland forests			
<b><i>Lactuca hirsuta</i></b>	4	Hairy Lettuce	Rare (SU)
Isolated occurrences in dry chert and sandstone woodlands, and upland flatwoods			
LACTUCA SALIGNA		Willow Lettuce	Very Rare
One population restricted to gravelly edge of Hwy N			
LACTUCA SERRIOLA		Prickly Lettuce	Rare
Few plants found in open upland (logged) flatwoods south of Hwy N			
LEUCANTHEMUM VULGARE		Ox-Eye Daisy	Low
Scattered in disturbed areas of logging roads, pastures, yard, along gravel roads, Hwy N ROW			
<b><i>Liatris aspera</i></b>	6	Rough Blazing Star	Low
Scattered on dolomite glades and dry chert woodlands			
<b><i>Liatris cylindracea</i></b>	7	Cylindrical Blazing Star	Moderate
Locally common on dolomite glades, dry dolomite cliff tops, dry open chert woodlands			
<b><i>Liatris pycnostachya</i> var. <i>pycnostachya</i></b>	6	Prairie Blazing Star	Rare
Found only in Ozark fens			
<b><i>Liatris squarrosa</i> var. <i>squarrosa</i></b>	6	Scaly Blazing Star	Low
Scattered in open dry chert woodlands and upland flatwoods			
Matricaria discoidea		Pineapple Weed	Very Rare
Few plants along driveway at house only			

<b><i>Nabalus altissimus</i></b>	5	Tall White Lettuce	Low
Along moist sandstone ledges, mesic sandstone forests			
<b><i>Oligoneuron album</i></b>	9	Stiff Aster	VR
Local population isolated at edge of Ozark fen on open chert woodland			
<b><i>Packera aurea</i></b>	7	Common Golden Ragwort	Moderate
Locally abundant along seepy slopes of sandstone ravines, Ozark fens, dolomite springs			
<b><i>Packera obovata</i></b>	4	Round-Leaved Ragwort	Moderate
Locally common in dry-mesic dolomite woodland, dry-mesic bottomland forests, along gravel washes and adjacent terraces			
<b><i>Palafoxia callosa</i></b>	5	Small Palafoxia	Low
Dolomite glades			
<b><i>Parthenium hispidum</i></b>	9	Hairy Feverfew	Low
Locally common in one location on dolomite glade			
<b><i>Parthenium integrifolium</i></b>	6	Quinine	Low
Cherty areas on dolomite glade, open dry chert and sandstone woodlands, in utility line ROWs, edge of pasture in cherty soil, openings of upland flatwoods			
<b><i>Polymnia canadensis</i></b>	6	Leafcup	Low
Scattered and restricted to dolomite talus slopes, moist dolomite cliff ledges			
<b><i>Pseudognaphalium obtusifolium</i></b>	2	Old-Field Balsam	Low
Scattered in open dry chert and sandstone woodlands especially south of Hwy N, pastures			
<b><i>Pyrrhopappus carolinianus</i></b>	0	Yellow False Dandelion	Low
Isolated in log landings, edge of logging roads south of Hwy N			
<b><i>Ratibida pinnata</i></b>	4	Grey-Headed Coneflower	Moderate
Locally common in dry chert and sandstone woodlands, along logging roads, Hwy ROWs			
<b><i>Rudbeckia fulgida</i> var. <i>palustris</i></b>	7	Orange Coneflower	Rare
Sparse occurrences in Ozark fens, along dolomite springs, in spicebush terrace seeps, and seepy dolomite ledges along riverbank of Bryant Creek			
<b><i>Rudbeckia hirta</i> var. <i>pulcherrima</i></b>	1	Black-Eyed Susan	Moderate
Scattered through dry chert, sandstone and dolomite woodlands, dolomite glades, upland flatwoods, roadsides, logging roads, pastures, yard.			
<b><i>Rudbeckia laciniata</i> var. <i>laciniata</i></b>	4	Wild Golden Glow	High
Locally common throughout riverfront forests, mesic bottomland forests, lower valley gravel washes, riverbanks			
<b><i>Rudbeckia missouriensis</i></b>	6	Missouri Black-Eyed Susan	Moderate
Locally abundant on dolomite glades, dry dolomite woodlands, dolomite outcrops, top of dry dolomite cliffs			
<b><i>Rudbeckia triloba</i></b>	3	Brown-Eyed Susan	Moderate
Primarily low elevations in gravelly drainages, gravel washes, riverfront forests, riverbanks, gravel bars, disturbed areas including log landings and along logging roads			
<b><i>Silphium asteriscus</i> var. <i>asteriscus</i></b>	7	Starry Rosinweed	Low
Occasional in dry and dry-mesic chert woodlands, and ledges on dry dolomite cliff			
<b><i>Silphium integrifolium</i> var. <i>integrifolium</i></b>	4	Rosinweed	Very Rare
One occurrence on dolomite glade			

<b><i>Silphium laciniatum</i></b>	6	Compass Plant	Rare
Widely scattered on dolomite glades			
<b><i>Silphium perfoliatum</i></b>	3	Cup Plant	Very Rare
Seen in two instances; one plant on moist dolomite cliff ledge; several plants on riverbank in giant cane			
<b><i>Silphium terebinthinaceum</i></b>	5	Prairie Dock	Rare
Widely scattered on dolomite glades			
<b><i>Smallanthus uvedalius</i></b>	8	Yellow-Flowered Leafcup	Very Rare
Few plants seen along Hwy ROW; few plants on edge of Simpson Pasture			
<b><i>Solidago altissima</i> var. <i>altissima</i></b>	1	Tall Goldenrod	Low
Scattered populations in pasture, Hwy ROW, and spicebush terrace seep			
<b><i>Solidago arguta</i></b>	7	Sharp-Leaved Goldenrod	Moderate
Scattered in dry and dry-mesic chert woodlands, along dry sandstone ledges, moist dolomite ledges, upland flatwoods, and gravel wash embankments.			
<b><i>Solidago buckleyi</i></b>	8	Buckley's Goldenrod	Rare
Dry-mesic sandstone woodlands and forests, dry dolomite woodland around ledges			
<b><i>Solidago caesia</i></b>	7	Blue-Stemmed Goldenrod	Moderate
Mesic sandstone and dolomite forests, along rocky permanent streams in deep valleys, moist sandstone and dolomite cliffs, dolomite talus slopes, boulders and ledges along Bryant Creek riverbank			
<b><i>Solidago drummondii</i></b>	8	Drummond's Goldenrod	Low
Dry dolomite cliffs and ledges			
<b><i>Solidago gigantea</i></b>	3	Late Goldenrod	Low
Scattered in riverfront forests; locally common along stable riverbanks			
<b><i>Solidago hispida</i> var. <i>hispida</i></b>	6	White Goldenrod	Low
Widely scattered in dry chert and sandstone woodlands, dry sandstone ledges			
<b><i>Solidago juncea</i></b>	4	Early Goldenrod	Moderate
Scattered in dry chert and sandstone woodland; colonial basal rosettes scattered in upland flatwoods south of Hwy N			
<b><i>Solidago nemoralis</i> var. <i>longipetiolata</i></b>	2	Old-Field Goldenrod	Low
Scattered in dry chert, sandstone, and dolomite woodlands, dolomite glades			
<b><i>Solidago nemoralis</i> var. <i>nemoralis</i></b>	2	Old-Field Goldenrod	Low
Scattered in dry chert, sandstone, dolomite woodlands, upland flatwoods, along logging roads, old fields, ROWs.			
<b><i>Solidago petiolaris</i></b>	8	Downy Goldenrod	Low
Scattered in open dry chert and sandstone woodlands, dry sandstone cliff ledges			
<b><i>Solidago radula</i></b>	6	Rough Goldenrod	Low
Scattered in open dry chert and sandstone woodlands, along dry dolomite ledges			
<b><i>Solidago rigida</i></b>	5	Stiff Goldenrod	Very Rare
Isolated along edge of dolomite glade			
<b><i>Solidago rugosa</i> subsp. <i>rugosa</i></b>	6	Rough-Leaved Goldenrod	Rare
Isolated population in low moist open upland flatwoods, in Ozark fen, open spicebush terrace seep			



<b><i>Solidago ulmifolia</i></b>	4	Elm-Leaved Goldenrod	High
Dry-mesic upland forests, dry and dry-mesic sandstone and dolomite woodlands, mesic dolomite forests, moist dolomite cliffs			
SONCHUS ASPER subsp. ASPER		Spiny Sow Thistle	Rare
Few plants isolated in moist opening of upland flatwoods south of Hwy N			
<b><i>Symphyotrichum anomalum</i></b>	7	Blue Aster	Low
Dry and dry-mesic chert, sandstone, dolomite woodland, upland flatwoods, dry-mesic bottomland woodland			
<b><i>Symphyotrichum cordifolium</i></b>	4	Heart-Leaved Aster	Low
Along moist sandstone ledges, mesic dolomite forests, moist dolomite cliff, dolomite talus, stable rocky riverbanks			
<b><i>Symphyotrichum laeve</i></b>	7	Smooth Blue Aster	Low
Scattered on dolomite glades, dry dolomite woodland, open dry chert woodlands, Ozark fen			
<b><i>Symphyotrichum lanceolatum</i></b> var. <b><i>lanceolatum</i></b>	3	Panicled Aster	Low
Scattered sparingly along edges of slackwater mudflats, open slough edges, riverbanks			
<b><i>Symphyotrichum lateriflorum</i></b>	3	Side-Flowering Aster	Moderate
Moist or seepy soil of mesic sandstone forests, spicebush terrace seeps, ravine side slope seeps, edges of valley streams, dolomite spring branches, moist dolomite cliff ledges, seepy ledges along riverbanks, Ozark fens			
<b><i>Symphyotrichum oblongifolium</i></b>	6	Aromatic Aster	Low
Rocky ledges of dolomite glades, open rocky dolomite woodlands, dry dolomite cliffs			
<b><i>Symphyotrichum oolentangiense</i></b>	7	Azure Aster	Low
Dolomite glades, open dry chert woodlands especially south of Hwy N			
<b><i>Symphyotrichum patens</i></b>	5	Spreading Aster	Low
All dry woodlands, upland flatwoods			
<b><i>Symphyotrichum pilosum</i></b> var. <b><i>pilosum</i></b>	0	Hairy Aster	Moderate
Scattered in open chert and sandstone woodlands, upland flatwoods, disturbed soils of log landings and heavily logged woodlands; locally common in pastures, along gravel roads, Hwy ROW, eroded riverbanks.			
<b><i>Symphyotrichum pilosum</i></b> var. <b><i>pringlei</i></b>	2	Hairy Aster	Low
Widely scattered on dolomite glades and open dry chert woodlands			
<b><i>Symphyotrichum praealtum</i></b>	6	Willow Aster	Very Rare
Small population in low moist opening of upland flatwoods south of Hwy N			
<b><i>Symphyotrichum sericeum</i></b>	9	Silky Aster	Very Rare
Isolated on dolomite glade; more numerous on dolomite glade on knob east Hwy N			
<b><i>Symphyotrichum turbinellum</i></b>	6	Prairie Aster	Very Rare
Isolated occurrences on dry chert and sandstone woodlands south of Hwy N; few on upland flatwoods			
<b><i>Symphyotrichum urophyllum</i></b>	4	Arrow-Leaved Aster	Moderate
Mostly on rocky ledges, boulders, talus slopes along riverbank of Bryant Creek			
TARAXACUM ERYTHROSPERMUM		Red-Seeded Dandelion	Very Rare
One plant found on gravel bar			

TARAXACUM OFFICINALE		Common Dandelion	Low
Scattered in yard, pastures, roadsides, log landings			
<i>Verbesina alternifolia</i>	4	Wingstem	Moderate
Scattered in riverfront forest and along riverbanks			
<i>Verbesina helianthoides</i>	5	Yellow Crownbeard	Moderate
Scattered in dry chert and sandstone woodland, mostly south of Hwy N			
<i>Verbesina virginica</i> var. <i>virginica</i>	5	White Crownbeard	High
Scattered in riverfront forests, riverbanks, pastures, roadsides, dry woodlands			
<i>Vernonia arkansana</i>	7	Great Ironweed	Very Rare
Isolated on dolomite glades, Ozark fen, gravel bars			
<i>Vernonia baldwinii</i>	2	Western Ironweed	Moderate
Widely scattered in upland flatwoods, dry chert and sandstone woodlands, Hwy ROW, pastures, along logging roads, gravel washes			
<i>Vernonia gigantea</i> var. <i>gigantea</i>	6	Tall Ironweed	Rare
Few isolated occurrences along riverbank of Bryant Creek			
<i>Xanthium speciosum</i>	0	Cocklebur	High
Locally common in sandy openings of riverfront forests, sandbars and gravel bars of Bryant Creek			
<i>Xanthium strumarium</i>	0	Cocklebur	Low
Scattered on gravel bars of Bryant Creek			

### BALSAMINACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Impatiens capensis</i>	3	Orange Jewelweed	Moderate
Locally common in spicebush terrace seeps, ravine side slope seeps in mesic sandstone forests, along moist dolomite cliffs and ledges, dolomite springs, shaded permanent streambanks of deep headwater valleys			
<i>Impatiens pallida</i>	5	Yellow Jewelweed	Low
Confined to a few populations along mesic dolomite forests and dolomite talus			

### BERBERIDACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Caulophyllum thalictroides</i>	8	Blue Cohosh	Moderate
Locally common in mesic dolomite forests and dolomite talus slopes at the base of moist dolomite cliffs			
<i>Podophyllum peltatum</i>	4	May Apple	High
Locally common on mesic bottomland forests of stream terraces, dry-mesic chert and sandstone forests, dry-mesic and mesic bottomland forests, riverfront forests			

### BETULACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Carpinus caroliniana</i>	6	Blue Beech	Low
Locally common at base of dolomite talus on riverbank of Bryant Creek, along valley gravel washes, mesic dolomite forests, riverfront forests, dry-mesic sandstone forests			

<b><i>Corylus americana</i></b>	4	American Hazelnut	Low
Widely scattered in open chert and sandstone woodlands south of Hwy N, along mesic bottomland forests of stream terraces, gravel washes			
<b><i>Ostrya virginiana</i></b>	4	Ironwood	Moderate
Scattered understory tree in dry-mesic to mesic forests, along dry cliff edges, dry dolomite woodlands			

**BIGNONIACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Campsis radicans</i></b>	3	Trumpet Creeper	Low
Scattered along riverbanks, gravel washes, on cliff faces, cliff edges, riverfront forests			

**BORAGINACEAE — 4 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Hackelia virginiana</i></b>	3	Stickseed	Rare
Isolated in dry sandstone and chert woodlands, dry-mesic bottomland woodlands, gravel washes			
<b><i>Lithospermum canescens</i></b>	6	Hoary Puccoon	Low
Scattered in dolomite glades and dry rocky dolomite woodlands; sparingly in open dry chert woodlands and dry dolomite cliff edges			
<b><i>Myosotis verna</i></b>	2	Spring Forget-Me-Not	Rare
Isolated around yard, pasture, stable			
<b><i>Onosmodium molle</i> subsp. <i>subsetosum</i></b>	4	Ozark False Gromwell	Very Rare
Glade openings in dry dolomite woodlands			

**BRASSICACEAE — 17 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
ARABIDOPSIS THALIANA		Mouse-Ear Cress	Rare
Scattered sparingly around yard and pasture [2104]			
BARBAREA VULGARIS		Yellow Rocket	Low
Scattered in disturbed habitats including yard, pastures, roadsides, log landings, gravel washes, gravel bars			
<b><i>Boechera canadensis</i></b>	4	Sickle Pod	Low
Widely scattered on dolomite glades, glade openings in dry dolomite woodlands			
<b><i>Boechera laevigata</i></b>	6	Smooth Bank Cress	Low
Scattered in dry-mesic dolomite woodlands and forests, mesic dolomite forests, moist dolomite cliff ledges, dolomite talus			
CAPSELLA BURSA-PASTORIS		Sheperd's Purse	Low
Widely scattered in yard, along gravel road, and around stable			
<b><i>Cardamine bulbosa</i></b>	7	Bulbous Cress	Low
Locally common in mesic sandstone forests, particularly deep ravines and moist to wet ledges of sandstone waterfalls, spicebush terrace seeps, along seep-fed streams, dolomite springs, cool-shaded slough edges			



<i>Cardamine concatenata</i>	4	Toothwort	Moderate
Locally common in dry-mesic chert, sandstone, and dolomite forests, mesic sandstone and dolomite forests, dry-mesic chert woodlands, mesic bottomland forests, moist dolomite cliff ledges			
<i>Cardamine parviflora</i> var. <i>arenicola</i>	3	Small-Flowered Bitter Cress	Low
Scattered in yard, pasture, roadsides, along logging roads, disturbed soil of old log landings, dry and dry-mesic chert woodlands			
<i>Cardamine pensylvanica</i>	6	Pennsylvania Bitter Cress	Rare
Moist sandstone ledge and around stable			
<i>Draba cuneifolia</i> var. <i>cuneifolia</i>	5	Wedgeleaf Draba	Very Rare
Few isolated populations on dolomite glades			
<i>Leavenworthia uniflora</i>	7	Michaux's Leavenworthia	Rare
Widely scattered on wet dolomite flatrock depressions and low seepy rock shelves on dolomite glades			
LEPIDIUM CAMPESTRE		Field Cress	Rare
Several plants along Hwy ROW next to gated gravel road to glade			
<i>Lepidium virginicum</i>	0	Common Pepper Cress	Low
Widely scattered along edges of gravel roads and Hwy ROW			
MICROTHLASPI PERFOLIATUM		Perfoliate Pennycress	Very Rare
Few scattered plants isolated next to stable only			
NASTURTIUM OFFICINALE		Water Cress	Rare
Restricted to dolomite spring run at logging road culvert crossing by glade			
<i>Rorippa sessiliflora</i>	3	Sessile-Flowered Cress	Rare
Few widely scattered plants in sandy openings of riverfront forests			
SISYMBRIUM LOESELII		Tall Hedge Mustard	Very Rare
Several plants confined to edge of porch behind house			

### CACTACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Opuntia humifusa</i>	4	Eastern Prickly Pear	Very Rare
Several isolated occurrences on glades, and Hwy N ROW			

### CAMPANULACEAE — 8 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Campanula americana</i>	4	Tall Bellflower	Low
Scattered in dry-mesic and mesic dolomite forest, dry-mesic dolomite woodland, moist dolomite cliff (ledges), dolomite talus, mesic bottomland forest			
<i>Lobelia cardinalis</i>	6	Cardinal Flower	Low
Scattered along riverbanks			
<i>Lobelia inflata</i>	3	Indian Tobacco	Low
Dry-mesic chert woodland, mesic sandstone forest, dry-mesic dolomite woodlands and forests, dry sandstone cliffs (ledges)			

<b><i>Lobelia siphilitica</i></b>	4	Great Blue Lobelia	Low
Scattered along dolomite spring runs, Spicebush terrace seeps, seepy ledges along sandstone ravines, riverbanks			
<b><i>Lobelia spicata</i></b>	5	Pale Spiked Lobelia	Low
Scattered in dry and dry-mesic chert, sandstone, dolomite woodlands; dolomite glades, upland flatwoods			
<b><i>Lobelia X speciosa</i></b>	6	Tania hybrid form	Very Rare
Hybrid between <i>Lobelia cardinalis</i> and <i>L. siphilitica</i> growing on dolomite ledges along riverbanks of Bryant Creek			
<b><i>Triodanis biflora</i></b>	3	Small Venus' Looking Glass	Low
Widely scattered along gravel road and in Simpson Pasture			
<b><i>Triodanis perfoliata</i></b>	2	Perfoliate Venus' Looking Glass	Low
Upland flatwoods, dry chert and sandstone woodlands, pastures, along roadsides			

**CANNABACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
HUMULUS LUPULUS var. LUPULUS		European Hop	Rare
Isolated along eroding dirt embankments along Bryant Creek			

**CAPRIFOLIACEAE — 8 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Lonicera flava</i></b>	7	Yellow Honeysuckle	Moderate
Locally common in upland flatwoods, dry sandstone and chert woodlands, dry-mesic sandstone woodlands, along dry-sandstone cliffs and ledges; no flowering plants due to near elimination by deer in summer			
LONICERA JAPONICA		Japanese Honeysuckle	Low
Scattered in isolated locations in pastures, roadsides, fencerows, yard			
<b><i>Sambucus canadensis</i></b>	2	Elderberry	Moderate
Locally common in dry-mesic bottomland woodland, gravel washes, riverbanks along Bryant Creek; scattered in dolomite talus and mesic dolomite forests, along ledges of moist dolomite cliffs			
<b><i>Symphoricarpos orbiculatus</i></b>	1	Coralberry	Moderate
Locally common in upland flatwoods, ridgetops of dry sandstone and chert woodlands, dry-mesic bottomland woodlands, pastures			
<b><i>Triosteum angustifolium</i></b>	6	Yellow-Flowered Horseweed	Very Rare
Small population confined to rocky drainage of dry-mesic dolomite woodland			
<b><i>Viburnum molle</i></b>	8	Arrow-Wood	Rare (SU)
Widely scattered along moist dolomite cliff ledges and dolomite talus [2107]			
<b><i>Viburnum prunifolium</i></b>	4	Black Haw	Low
Widely scattered in mesic dolomite forests, mesic bottomland forests, and dolomite talus			
<b><i>Viburnum rufidulum</i></b>	4	Southern Black Haw	Low
Widely scattered along edges of dolomite glades, dry dolomite woodland, dry chert woodlands, dry-mesic bottomland woodlands, gravel washes			

### CARYOPHYLLACEAE — 11 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
CERASTIUM BRACHYPETALUM Several plants isolated in driveway of house		Gray Chickweed	Very Rare
CERASTIUM GLOMERATUM Scattered locally in upland flatwoods, along gravel road, yard, pasture		Clammy Chickweed	Low
<i>Cerastium nutans</i> subsp. <i>nutans</i> In moss cover of moist sandstone bedrock along headwater drainage, upland flatwoods, dry sandstone cliff ledges	2	Nodding Chickweed	Low
DIANTHUS ARMERIA subsp. ARMERIA Scattered in Simpson pasture, log landings, edge of yard, roadsides		Deptford Pink	Low
<i>Minuartia patula</i> Scattered in patches on exposed dolomite flatrock of dolomite glades	7	Slender Sandwort	Low
<i>Paronychia canadensis</i> Isolated local population in dry gravel wash of dry-mesic bottomland woodland	4	Tall Forked Chickweed	Very Rare
SAPONARIA OFFICINALIS Small flowering clump on gravel bar of Bryant Creek		Bouncing Bet	Very Rare
<i>Silene stellata</i> Widely scattered in dry-mesic sandstone forests, dry-mesic bottomland forests, gravel washes	5	Starry Campion	Low
<i>Silene virginica</i> Isolated populations in a few chert woodlands, and dolomite glade	7	Fire Pink	Rare
STELLARIA GRAMINEA Small local population along dolomite spring at culvert crossing before glade [2105]		Common Stitchweed	Rare
STELLARIA MEDIA Locally common on ledges and base of moist dolomite cliffs, along streams, in yard, roadsides, pasture		Common Chickweed	Low

### CELASTRACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Celastrus scandens</i> Isolated occurrences in mesic bottomland forests, riverbanks, grown over old fields	3	Climbing Bittersweet	Low
EUONYMUS HEDERACEUS Mesic bottomland forests, dolomite talus, mesic dolomite forests		Wintercreeper	Low
<i>Euonymus obovatus</i> Widely scattered in dolomite talus, mesic dolomite forests, ledges at base of moist dolomite cliffs	9	Running Strawberry	Rare

### CHENOPODIACEAE — 6 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
CHENOPODIUM ALBUM Isolated in upland flatwoods, sporadic on gravel bars of Bryant Creek		Lamb's Quarters	Low
CHENOPODIUM AMBROSIOIDES Occasional in sandy openings of riverfront forests, sandbars		Mexican Tea	Low



<i>Chenopodium missouriense</i>	1	Missouri Goosefoot	Very Rare
One occurrence on gravel bar along Bryant Creek across from Coon Den Bluff			
<i>Chenopodium pratericola</i>	0	Desert Goosefoot	Very Rare
Chris Crabtree found one plant on gravel bar along Bryant Creek			
CHENOPODIUM SIMPLEX		Maple-Leaved Goosefoot	Rare
Scattered in silty dolomite deposits along base of moist dolomite cliffs			
<i>Chenopodium standleyanum</i>	3	Woodland Goosefoot	Rare
Base of dolomite cliffs and in riverfront forests			

### CISTACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Lechea mucronata</i>	5	Hairy Pinweed	Low
Isolated on exposed gravelly soil of open dry chert woodlands			
<i>Lechea tenuifolia</i>	4	Slender-Leaved Pinweed	Low
Widely scattered in open, exposed clayey soil of upland flatwoods			

### CLEOMACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Polanisia dodecandra</i> subsp. <i>trachysperma</i>	4	Rough-Seeded Clammy Weed	Low
Widely scattered on sandbars and gravel bars on Bryant Creek			

### CLUSIACEAE — 6 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Hypericum drummondii</i>	4	Nits and Lice	Rare
Sterile lichen-covered clayey soil in open ROW upland flatwoods			
<i>Hypericum mutilum</i> subsp. <i>mutilum</i>	4	Weak St. John's Wort	Low
Wet depressions and muddy road ruts of old logging roads, yards, pastures, moist dolomite ledges, + dolomite springs			
<i>Hypericum prolificum</i>	4	Shrubby St. John's Wort	Low
Widely scattered in upland flatwoods, dry sandstone woodlands, dry-mesic bottomland forests, dry rocky gravel washes			
<i>Hypericum punctatum</i>	3	Spotted St. John's Wort	Low
Sparsely scattered in dry and dry-mesic sandstone woodlands, roadside ditches, low upland drainages			
<i>Hypericum sphaerocarpum</i>	5	Round-Fruited St. John's Wort	Low
Scattered colonies around dolomite glades and dry dolomite woodlands			
<i>Hypericum strangulum</i>	6	Common St. Andrew's Cross	Moderate
Scattered in dry sandstone and chert woodlands, upland flatwoods, sandstone glade			

**CONVOLVULACEAE — 9 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Calystegia sepium</i> Isolated on gravel bar on Bryant Creek	1	Hedge Bindweed	Low
CONVOLVULUS ARVENSIS Common around stable		Field Bindweed	Low
<i>Cuscuta campestris</i> Scattered along riverfront forests, on gravel bars growing on <i>Justicia americana</i>	4	Prairie Dodder	Low
<i>Cuscuta compacta</i> Isolated growing on <i>Lindera benzoin</i> in mesic bottomland stream terrace	7	Compact Dodder	Rare
<i>Evolvulus nuttallianus</i> Few local occurrences on dolomite glade	8	Shaggy Evolvulus	Very Rare
IPOMOEA COCCINEA Scattered on sandbars along Bryant Creek		Scarlet Morning Glory	Low
<i>Ipomoea lacunosa</i> Scattered on gravel bars along Bryant Creek	1	Small Morning Glory	Low
<i>Ipomoea pandurata</i> Scattered on dolomite glades, dry-mesic bottomland woodlands, gravel washes	2	Wild Sweet Potato	Moderate
IPOMOEA PURPUREA One occurrence in weedy grasses next to carport		Common Morning Glory	Very Rare

**CORNACEAE — 6 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Cornus alternifolia</i> Restricted to mesic dolomite forest along talus slope and moist ledges at base of Coon Den Bluff	8	Pagoda Dogwood	Rare
<i>Cornus amomum</i> subsp. <i>obliqua</i> Isolated colonies on gravel bars and riverbanks of Bryant Creek; also rarely on gravel washes	5	Pale Dogwood	Low
<i>Cornus drummondii</i> One small tree flowering on edge of dolomite glade	2	Rough-Leaved Dogwood	Very Rare
<i>Cornus florida</i> Scattered on dolomite glades, dry and dry-mesic chert and dolomite woodland, dry-mesic sandstone woodland; well-developed understory canopy in dry-mesic to mesic chert and sandstone forests.	5	Flowering Dogwood	Moderate
CORNUS MAS One small tree planted behind house		Cornelia Cherry	Very Rare
<i>Nyssa sylvatica</i> Scattered to isolated trees in dry to dry-mesic woodlands and forests, upland flatwoods, rocky ravines	5	Black Gum	Low

**CRASSULACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Sedum ternatum</i> Isolated population covering dolomite boulders and stable riverbank at the base of talus along edge of Bryant Creek	6	Wild Stonecrop	Very Rare

### CUCURBITACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Cucurbita pepo</i> var. <i>ozarkana</i> Isolated occurrences on sandbars along Bryant Creek.	2	Yellow-Flowered Gourd	Very Rare
<i>Sicyos angulatus</i> Occasional along streambanks of Bryant Creek	4	Bur Cucumber	Low

### EBENACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Diospyros virginiana</i> Widely scattered on dolomite glades, dry chert woodlands, pastures, riverfront forests	3	Persimmon	Low

### ELAEAGNACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
ELAEAGNUS UMBELLATA Few isolated occurrences in open upland flatwoods, dry sandstone woodland, pastures, along logging roads, dry-mesic bottomland woodland; increasing seedlings		Autumn Olive	Rare
ELAEAGNUS ANGUSTIFOLIA One large old small tree found next to spicebush terrace seep		Russian Olive	Very Rare

### ERICACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Monotropa hypopithys</i> One isolated population at base of dry sandstone ledge and dry sandstone woodlands	8	Pinesap	Very Rare
<i>Monotropa uniflora</i> Isolated occurrences in dry chert woodland and mesic sandstone forest	7	Indian Pipe	Rare
<i>Vaccinium arboreum</i> Locally common on summits of dry sandstone ledges in dry sandstone woodlands; also scattered in dry chert woodland, upland flatwoods, edge of Simpson Pasture	6	Farkleberry	Moderate
<i>Vaccinium pallidum</i> Widespread, often dominant understory in dry and dry-mesic chert and sandstone woodlands, top of dry sandstone cliffs and ledges, upland flatwoods	4	Late Low Blueberry	High
<i>Vaccinium stamineum</i> Widely scattered in dry chert and sandstone woodlands, upland flatwoods	6	Deerberry	Low

### EUPHORBIACEAE — 14 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Acalypha deamii</i> Isolated in low gravelly area of riverfront forests [2127]	7	Large-Seeded Mercury	Very Rare (S1)
<i>Acalypha monococca</i> Widely scattered on dolomite glade, gravel washes, and mesic bottomland forests	3	One-Seeded Slender Mercury	Low



<b><i>Acalypha rhomboidea</i></b>	1	Rhombic Copperleaf	Low
Scattered in riverfront forests			
<b><i>Acalypha virginica</i></b>	2	Virginia Mercury	Moderate
Scattered in upland flatwoods, dry chert and sandstone woodlands			
<b><i>Croton capitatus</i> var. <i>capitatus</i></b>	0	Hogwort	Moderate
Scattered on dolomite glades, sandstone glade, upland flatwoods			
<b><i>Croton gladulosus</i> var. <i>septentrionalis</i></b>	1	Sand Croton	Low
Widely scattered in riverfront forests, gravel washes, gravel bars			
<b><i>Croton monanthogynus</i></b>	2	Prairie Tea	Moderate
Scattered on dolomite glades, upland flatwoods			
<b><i>Croton wildenowii</i></b>	4	Common Rushfoil	Moderate
Locally dense cover in open dry sterile clayey soil of flatwoods, dirt logging roads, ROWs, open dry sandstone woodlands			
<b><i>Euphorbia corollata</i></b>	3	Flowering Spurge	Low
Scattered on dolomite glades, upland flatwoods, open dry chert and sandstone woodlands mostly south of Hwy N, Hwy ROWs, along gravel roads, pastures, yard			
<b><i>Euphorbia dentata</i></b>	0	Toothed Spurge	Low
Dolomite glades, upland flatwoods, riverfront forests, gravel washes			
<b><i>Euphorbia maculata</i></b>	0	Creeping Spurge	Low
Scattered on dolomite outcrops on dolomite glades, and in asphalt cracks of highway			
<b><i>Euphorbia nutans</i></b>	0	Nodding Spurge	Low
Scattered mostly in open sand of riverfront forests, sandbars, gravel bars, gravel washes			
<b><i>Euphorbia prostrata</i></b>	8	Groundfig Spurge	Low
Several plants growing along edge of driveway			
<b><i>Tragia betonicifolia</i></b>	4	Noseburn	Rare
Widely scattered across open dolomite glades			

### FABACEAE — 56 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Acaciella angustissima</i></b>	10	Prairie Acacia	Rare
Few isolated stems among red cedars on dolomite glade and in rocky dry dolomite woodland			
ALBIZIA JULIBRISSIN		Mimosa	Very Rare
One small tree found on gravel road drainage cut			
<b><i>Amorpha canescens</i></b>	8	Leadplant	Low
Widely scattered in open dry sandstone and chert woodlands, mostly south of Hwy N in logged portion			
<b><i>Amphicarpaea bracteata</i></b>	4	Hog Peanut	High
Locally common in all dry, dry-mesic woodlands and forests, mesic forests, upland flatwoods			
<b><i>Apios americana</i></b>	6	Groundnut	Low
Along dolomite spring and mesic bottomland forests			
<b><i>Astragalus crassicaarpus</i> var. <i>trichocalyx</i></b>	7	Ground Plum	Very Rare
Restricted to dolomite glade and dry dolomite woodland along Hwy N east end of park			

<b><i>Baptisia bracteata</i> var. <i>leucophaea</i></b>	7	Cream Wild Indigo	Low
Widely scattered in open dry chert and sandstone woodlands, upland flatwoods, highway ROWs			
<b><i>Cercis canadensis</i> var. <i>canadensis</i></b>	3	Redbud	Low
Among red cedars on dolomite glades, dry-rocky dolomite woodlands, dry sandstone woodlands, edges of dry chert cliffs			
<b><i>Chamaecrista fasciculata</i></b>	2	Partridge Pea	Low
Widely scattered in dry chert woodland, dolomite glades, Hwy ROWs, and along logging roads			
<b><i>Chamaecrista nictitans</i> var. <i>nictitans</i></b>	2	Wild Sensitive Plant	Moderate
Scattered in open upland flatwoods, dry chert and sandstone woodlands, edge of pastures			
<b><i>Clitoria mariana</i></b>	7	Butterfly Pea	Low
Widely scattered in dry shortleaf pine-dominated sandstone and chert woodlands			
<b><i>Crotalaria sagittalis</i></b>	5	Rattlebox	Low
Dry open rocky sandstone and chert woodlands, sandstone glade, upland flatwoods			
<b><i>Dalea candida</i></b>	8	White Prairie Clover	Low
Widely scattered to isolated on dolomite glades, dry dolomite woodlands, dry cliff edges			
<b><i>Dalea purpurea</i></b>	8	Purple Prairie Clover	Low
Scattered on dolomite glades, open dry dolomite woodlands, dry dolomite cliff edges			
<b><i>Desmanthus illinoensis</i></b>	3	Illinois bundle Flower	Very Rare
One population isolated along Highway N ROW			
<b><i>Desmodium ciliare</i></b>	5	Hairy Tick Trefoil	Low
Occasional in dry chert and sandstone woodland, upland flatwoods			
<b><i>Desmodium cuspidatum</i></b>	5	Bracted Tick Trefoil	Low
Widely scattered in dry and dry-mesic chert woodland, dry-mesic dolomite woodland and forests, dry-mesic bottomland woodlands, dry gravel washes			
<b><i>Desmodium glabellum</i></b>	3	Dilleni's Tick Trefoil	Low
Scattered in open dry chert and sandstone woodlands			
<b><i>Desmodium laevigatum</i></b>	7	Smooth Tick Trefoil	Low
Scattered in dry and dry mesic sandstone and chert woodlands			
<b><i>Desmodium marilandicum</i></b>	5	Small-Leaved Tick Trefoil	Moderate
Locally common in open dry and dry-mesic chert woodland, upland flatwoods			
<b><i>Desmodium nutallii</i></b>	7	Nuttall's Tick Trefoil	Rare
Scattered in open dry and dry-mesic chert woodlands, upland flatwoods			
<b><i>Desmodium paniculatum</i></b>	3	Panicled Tick Trefoil	Rare
Scattered in dry chert and sandstone woodlands			
<b><i>Desmodium perplexum</i></b>	3	Confusing Trefoil	Low
Scattered in dry chert and sandstone woodlands, upland flatwoods			
<b><i>Desmodium rotundifolium</i></b>	6	Round-Leaved Tick Trefoil	Low
Occasional in dry rocky chert and sandstone woodlands			
<b><i>Desmodium sessilifolium</i></b>	5	Sessile-Leaved Tick Trefoil	Rare
Scattered on dolomite glades			
<b><i>Galactia regularis</i></b>	6	Milk Pea	High
On dolomite glades, dry chert, sandstone, and dolomite woodlands			

<b><i>Gleditsia triacanthos</i></b>	2	Honey Locust	Low
Scattered throughout Simpson Pasture, old fields			
GLYCINE MAX		Soy Bean	Very Rare
Isolated occurrences on sandbars and sandy openings of riverfront forests			
<b><i>Hylodesmum glutinosum</i></b>	4	Pointed Tick Trefoil	Moderate
Widespread across all dry-mesic and mesic woodlands and forests			
<b><i>Hylodesmum nudiflorum</i></b>	4	Bare-Stemmed Tick Trefoil	High
Locally common in dry, dry-mesic, and mesic woodlands and forests			
<b><i>Hylodesmum pauciflorum</i></b>	8	Small-Flowered Tick Trefoil	Rare
Two isolated colonies along spicebush seeps of steep sandstone ravines			
KUMMEROWIA STIPULACEA		Korean Bush Clover	Moderate
Common in pastures, old fields, roadsides, yard			
KUMMEROWIA STRIATA		Japanese Bush Clover	High
Scattered in pastures, old fields, sandbars, gravel roadsides, yard			
LESPEDEZA CUNEATA		Silky Bush Clover	High
Widespread in pastures, log landings, along logging roads; scattered in open dry sandstone and chert woodlands, upland flatwoods south of Hwy N.			
<b><i>Lespedeza frutescens</i></b>	5	Violet Bush Clover	Low
Widely scattered in dry sandstone and chert woodland, upland flatwoods			
<b><i>Lespedeza hirta</i> subsp. <i>hirta</i></b>	7	Hairy Bush Clover	Moderate
Locally common in exposed barren rocky slopes of dry chert (sandstone) woodlands			
<b><i>Lespedeza procumbens</i></b>	4	Trailing Bush Clover	Moderate
Scattered in dry sandstone and chert woodlands, upland flatwoods			
<b><i>Lespedeza repens</i></b>	4	Creeping Bush Clover	Moderate
Scattered in dry sandstone woodlands mostly south of Hwy N			
<b><i>Lespedeza virginica</i></b>	5	Slender Bush Clover	Low
Scattered sparsely on dolomite glades, open dry chert, sandstone and dolomite woodlands, upland flatwoods			
MELILOTUS ALBUS		White Sweet Clover	Low
Scattered primarily along edge of highway, pastures, logging roads			
MELILOTUS OFFICINALIS		Yellow Sweet Clover	Moderate
Scattered primarily along highway ROW			
<b><i>Mimosa quadrivalis</i> var. <i>nuttallii</i></b>	6	Sensitive Briar	Low
Widely scattered in open dry sandstone and chert woodlands mostly south of Hwy N			
<b><i>Orbexilum pedunculatum</i> var. <i>pedunculatum</i></b>	6	Sampson's Snakeroot	Low
Isolated on dolomite glade, dry dolomite woodland, and upland flatwoods			
<b><i>Pedimelum tenuifolium</i></b>	8	Scurfy Pea	Moderate
Locally common in upland flatwoods, scattered in dry chert and sandstone woodlands			
ROBINIA PSEUDOACACIA		Black Locust	Low
Few scattered trees in dry-mesic bottomland woodlands of Central Hollow			



<b><i>Senna marilandica</i></b>	4	Maryland Senna	Low
Widely scattered in dry-mesic bottomland woodlands, gravel washes, dry-mesic bottomland forests, riverfront forests			
<b><i>Strophostyles helvola</i></b>	2	Trailing Wild Bean	Low
Sandy openings of riverfront forests, isolated on gravel bars of Bryant Creek			
<b><i>Strophostyles umbellata</i></b>	2	Pink Wild Bean	Low
Scattered on open dry chert and sandstone woodlands, dolomite glades, margins of logging roads			
<b><i>Stylosanthes biflora</i></b>	5	Pencil Flower	Low
Isolated occurrences on sandstone glade, dry sandstone and chert woodlands			
<b><i>Tephrosia virginiana</i></b>	5	Goat's Rue	Moderate
Locally common on dry exposed soil of open chert and sandstone woodland, upland flatwoods, cherty residuum on dolomite glade			
TRIFOLIUM CAMPESTRE		Low Hop Clover	Low
Locally common in pastures, old fields, along logging roads, yard			
TRIFOLIUM DUBIUM		Little Hop Clover	Low
Scattered in yard, pasture, around stable, along gravel road			
TRIFOLIUM PRATENSE		Red Clover	Low
Scattered along roadsides, logging road, pasture, yard			
TRIFOLIUM REPENS		White Clover	Moderate
Locally common in yard, around stable, in pastures			
<b><i>Vicia caroliniana</i></b>	6	Wood Vetch	Low
Widely scattered in open chert and sandstone woodlands, along streambanks			
VICIA SATIVA subsp. NIGRA		Common Vetch	Low
Occasional along edge of logging roads, Hwy N ROW, pastures			

### FAGACEAE — 11 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Quercus alba</i></b>	4	White Oak	High
Locally common to scattered in all woodland and forest natural communities			
<b><i>Quercus coccinea</i></b>	5	Scarlet Oak	Low
Local populations isolated primarily on mid-slope benches of dry-mesic chert and dolomite forests			
<b><i>Quercus imbricaria</i></b>	3	Shingle Oak	Very Rare
One tree found in Simpson's Pasture			
<b><i>Quercus macrocarpa</i></b>	4	Bur Oak	Low
Isolated in mesic bottomland forest, riverfront forest, and riverbanks along Bryant Creek			
<b><i>Quercus marilandica</i> var. <i>marilandica</i></b>	4	Blackjack Oak	Low
Open excessively drained steep rocky slopes of exposed chert and sandstone woodlands			
<b><i>Quercus muehlenbergii</i></b>	5	Chinquapin Oak	Moderate
Scattered in dry to dry-mesic dolomite woodlands, along crest of dry dolomite cliffs, and dolomite talus			
<b><i>Quercus rubra</i></b>	5	Red Oak	Moderate
Scattered in north and east-facing valleys of dry-mesic to mesic chert, sandstone, and dolomite woodlands and forests, also dolomite talus slopes			

<i>Quercus shumardii</i> var. <i>acerifolia</i>	5	Schneck Oak	Low
Scattered in wooded portions of dolomite glades, dry dolomite woodlands, tops of dry dolomite cliffs.			
<i>Quercus shumardii</i> var. <i>shumardii</i>	7	Shumard Oak	Rare
Widely scattered in mesic bottomland forests, riverfront forests, and riverbanks along Bryant Creek			
<i>Quercus stellata</i>	4	Post Oak	Moderate
Dolomite glades, upland flatwoods, dry chert and sandstone woodlands			
<i>Quercus velutina</i>	4	Black Oak	Moderate
Scattered in upland flatwoods, dry chert and sandstone woodlands			

**FUMARIACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Corydalis flavula</i>	3	Pale Corydalis	Moderate
Scattered in dry-mesic chert forests, mesic dolomite forests, dry-mesic and mesic bottomland forests, dry-mesic bottomland woodlands			
<i>Dicentra cucullaria</i>	6	Dutchman's Breeches	Low
Mesic sandstone and dolomite forests, mesic bottomland forests, dolomite talus			

**GENTIANACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Gentiana puberulenta</i>	9	Downy Gentian	Very Rare
Open dry chert woodland south side of Hwy N			
<i>Sabatia angularis</i>	4	Rose Gentian	Rare
Scattered on dolomite glade			

**GERANIACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Geranium carolinianum</i>	0	Carolina Cranebill	Low
Scattered in pastures, along logging roads, Hwy ROW, yard			
<i>Geranium maculatum</i>	5	Wild Geranium	Low
Scattered in mesic sandstone and dolomite forests, mesic bottomland forests, dolomite talus, moist dolomite cliff ledges			

**GROSSULARIACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Ribes missouriense</i>	3	Wild Gooseberry	Moderate
Upland flatwoods, dry sandstone woodland, dry dolomite cliff ledges			

**HAMAMELIDACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Hamamelis vernalis</i>	7	Vernal Witch Hazel	Low
Restricted to gravel washes in Central Hollow south side of park, and on gravel bars on Bryant Creek			

**HELIOTROPIACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Heliotropium tenellum</i>	8	Glade Heliotrope	Moderate

**HYDRANGEACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Hydrangea arborescens</i> subsp. <i>discolor</i>	7	Wild Hydrangea	High
Dry and moist dolomite cliff, dolomite talus, moist sandstone ledges			

**HYDROPHYLLACEAE — 4 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Ellisia nyctelea</i>	1	Aunt Lucy	Moderate
Scattered in mesic bottomland forests, riverfront forests, found in dolomite glade			
<i>Hydrophyllum canadense</i>	7	Canada Waterleaf	Low
Confined to mesic dolomite forests including associated dolomite talus			
<i>Hydrophyllum virginianum</i>	4	Virginia Waterleaf	Low
Scattered in mesic dolomite forests, dolomite talus, moist dolomite ledges at base of cliff			
<i>Phacelia hirsuta</i>	4	Hairy Phacelia	Rare
Isolated occurrence in dry dolomite woodland, and along gravel road			

**JUGLANDACEAE — 7 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Carya cordiformis</i>	5	Bitternut Hickory	Low
Mesic sandstone and dolomite forests, dry-mesic bottomland woodlands			
CARYA ILLINOINENSIS		Pecan	Very Rare
One tree planted behind house			
<i>Carya ovalis</i>	6	Red Hickory	Low
Widely scattered in dry chert and sandstone woodlands			
<i>Carya ovata</i> var. <i>ovata</i>	4	Shagbark Hickory	Low
Widely scattered in dry-mesic chert and sandstone woodlands, dry-mesic chert forests			
<i>Carya texana</i>	5	Black Hickory	Moderate
Scattered on high ridges of dry chert and sandstone woodlands, upland flatwoods			
<i>Carya tomentosa</i>	5	Mockernut Hickory	Low
Scattered in protected headwater draws and lower slopes of dry-mesic chert and sandstone forests, and dry-mesic bottomland woodlands			
<i>Juglans nigra</i>	4	Black Walnut	Low
Scattered in mesic dolomite forests, dry-mesic and mesic bottomland forests, dolomite talus, pastures, yard			

**LAMIACEAE — 31 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
AJUGA REPTANS		Common Bugle	Rare
Small population scattered in tall fescue behind stable			



<b><i>Blephilia ciliata</i></b>	6	Ohio Horse Mint	Low
Dry and dry-mesic dolomite woodlands and forests, dry and moist dolomite cliff			
<b><i>Blephilia hirsuta</i> var. <i>hirsuta</i></b>	7	Wood Mint	Rare
Dry gravel wash			
<b><i>Clinopodium arkansanum</i></b>	7	Low Calamint	High
Dense cover on thin soil over dolomite bedrock of glades			
<b><i>Cunila origanoides</i></b>	6	Dittany	High
Locally common throughout dry and dry-mesic woodlands, upland flatwoods, along dry sandstone ledges, gravel road edges			
<b><i>Hedeoma hispida</i></b>	3	Rough Pennyroyal	Low
Exposed barren chert of dry chert woodlands and along gravel roads			
<b><i>Hedeoma pulegioides</i></b>	4	American Pennyroyal	Very Rare
Growing in gravel deposits of high gradient chert boulder wash in headwaters of dry chert woodland; only known population			
LAMIUM AMPLEXICAULE		Henbit	Moderate
Scattered in yard and around stable, pastures			
LAMIUM PURPUREUM		Purple Dead Nettle	Low
Widely scattered in yard around house			
<b><i>Lycopus americanus</i></b>	4	Common Water Horehound	Very Rare
Known only from one Ozark fen east side of park			
<b><i>Lycopus rubellus</i></b>	6	Stalked Water Horehound	Rare
Scattered along seepy dolomite ledges at riverbank edge of Bryant Creek			
MENTHA x PIPERITA		Peppermint	Very Rare
Few plants found in stagnant pools of old river channel slough across from Coon Den			
<b><i>Monarda bradburiana</i></b>	5	Bradbury Bee Balm	Low
Scattered in dry chert, sandstone, and dolomite woodlands; upland flatwoods			
<b><i>Monarda fistulosa</i> subsp. <i>fistulosa</i></b>	4	Wild Bergamot	Low
Widely scattered in dry dolomite woodland, pastures, roadsides, dolomite glades			
PERILLA FRUTESCENS		Beefsteak Plant	High
Locally common on gravel deposits in gravel washes, ravines, riverfront forests, gravel road edges, gullies, pastures, yard, gravel bars			
<b><i>Physostegia virginiana</i> subsp. <i>praemorsa</i></b>	7	False Dragonhead	Low
Scattered on dolomite glades			
<b><i>Physostegia virginiana</i> subsp. <i>virginiana</i></b>	5	False Dragonhead	Low
On boulders and dolomite talus along riverbank of Bryant Creek			
<b><i>Prunella vulgaris</i> var. <i>lanceolata</i></b>	1	Self-Heal	Low
Widely scattered along gravel washes, streams, gravel road margins, sinkhole ponds, upland flatwoods			
<b><i>Pycnanthemum pilosum</i></b>	5	Hairy Mountain Mint	Low
Local isolated populations in open dry chert and sandstone woodlands, gravel washes			
<b><i>Pycnanthemum tenuifolium</i></b>	4	Slender Mountain Mint	Low
Scattered in openings of upland flatwoods, dry chert and sandstone woodlands, dolomite glades, Hwy ROWs			

<b><i>Pycnanthemum virginianum</i></b>	6	Common Mountain Mint	Very Rare
Isolated on seepy sandstone glade, Ozark fen			
<b><i>Salvia lyrata</i></b>	3	Lyre-Leaved Sage	High
Locally common to widespread in dry and dry-mesic woodlands, upland flatwoods, pastures, old fields, gravel washes, stream terraces, along gravel and logging roads			
<b><i>Scutellaria bushii</i></b>	10	Bush's Skullcap	Rare
Restricted to isolated populations on dolomite glades [2120]			
<b><i>Scutellaria incana</i></b>	5	Downy Skullcap	Low
Along streambanks in valleys, rocky headwater ravines			
<b><i>Scutellaria lateriflora</i></b>	5	Mad-Dog Skullcap	Rare
One population at base of landslide at east end of Coon Den Bluff			
<b><i>Scutellaria ovata</i> subsp. <i>ovata</i></b>	5	Heart-Leaved Skullcap	Rare
Few plants found among ledges of moist dolomite cliff			
<b><i>Scutellaria parvula</i> var. <i>parvula</i></b>	4	Small Skullcap	Low
Scattered in patches on dolomite glades, dry chert and dolomite woodland			
<b><i>Stachys tenuifolia</i></b>	4	Rough Hedge Nettle	Low
Restricted to moist sandy soil along slough in riverfront forests along Bryant Creek			
<b><i>Teucrium canadense</i> var. <i>canadense</i></b>	2	Germander	Moderate
Widely scattered in pastures, old fields, along logging roads and landings, Hwy ROW			
<b><i>Trichostema brachiatum</i></b>	4	False Pennyroyal	Low
Scattered on dolomite glade mostly on ash of red cedar burn pile; also dolomite ditch along Hwy N			
<b><i>Trichostema dichotomum</i></b>	6	Blue Curls	Low
Along edge of old logging road in upland flatwoods south of Hwy N			

### LAURACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Lindera benzoin</i></b>	5	Spicebush	Moderate
Mesic sandstone and dry-mesic chert forests in mid to lower slopes of valleys; occasional in dry mesic to mesic dolomite forests, dolomite talus slopes, streambanks			
<b><i>Sassafras albidum</i></b>	2	Sassafras	Moderate
Understory of dry and dry mesic woodlands, dolomite talus, pastures and old fields			

### LINACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Linum medium</i> var. <i>texanum</i></b>	5	Small Yellow Flax	Low
Widely scattered in dry chert woodlands, openings in upland flatwoods,			
<b><i>Linum sulcatum</i></b>	5	Grooved Yellow Flax	Rare
Scattered on dolomite glades			
<b><i>Linum virginianum</i></b>	10	Woodland Yellow Flax	Rare
Widely scattered in open dry chert woodlands, sandstone glade [2122]			

### LINDERNIACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Lindernia dubia</i> var. <i>anagallidea</i>	4	False Pimpernel	Rare
Isolated in muddy depressions of deep road ruts on logging roads, margins of sinkhole pond, mudflats along Bryant Creek			

### LYTHRACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Ammannia coccinea</i>	6	Common Toothcup	Moderate
Locally common on mudflats and riverbanks along Bryant Creek			
<i>Ammannia robusta</i>	8	Grand Toothcup	Moderate
Locally common on mudflats and riverbanks along Bryant Creek			
<i>Cuphea viscosissima</i>	4	Waxweed	Very Rare
Found only in one patch on dolomite glade			
LAGERSTROEMIA INDICA		Crape Myrtle	Rare
Large shrubs planted along driveway at house			
<i>Rotala ramosior</i>	4	Toothcup	High
Locally common on mudflats, moist sand along water's edge of Bryant Creek			

### MAGNOLIACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
LIRIODENDRON TULIPIFERA		Tulip Poplar	Very Rare
One tree planted in yard, introduced			

### MALVACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
SIDA SPINOSA		Prickly Sida	Very Rare
Small cluster of plants on drying mud bank of artificial pond east of house			
<i>Tilia americana</i> var. <i>americana</i>	5	American Basswood	Low
Widely scattered in mesic dolomite forests, dolomite talus, base of moist chert cliff			

### MENISPERMACEAE — 3 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Calycocarpum lyonii</i>	7	Cupseed	Low
Widely scattered in riverfront forests along Bryant Creek			
<i>Cocculus carolinus</i>	5	Carolina Snailseed	Low
In thickets along dry washes of dry-mesic bottomland woodlands of Central Hollow			
<i>Menispermum canadense</i>	4	Moonseed	Low
Isolated in red cedars on dolomite glade, in dry chert woodland, dry-mesic and mesic bottomland forests, riverfront forests			



**MOLLUGINACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
MOLLUGO VERTICILLATA Scattered on sandbars and gravel bars along Bryant Creek		Carpet Weed	Moderate

**MORACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
FATOUA VILLOSA Along steep muddy riverbank of Bryant Creek		Hairy Crabweed	Low
<i>Morus rubra</i> Locally common understory tree in mesic bottomland forests of stream terraces, along riverbanks, dolomite talus	4	Red Mulberry	Low

**NYCTAGINEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Mirabilis nyctaginea</i> Sparse in sandy openings of riverfront forests, along eroding riverbanks of Bryant Creek	0	Wild Four O’Clock	Rare

**NYMPHACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Nuphar advena</i> subsp. <i>ozarkana</i> Isolated in quiet waters of shaded sloughs, backwaters along Bryant Creek	6	Ozark Spatterdock	Rare

**OLEACEAE**

**6 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Chionanthus virginicus</i> Less than 20 small trees observed hanging from top of 100 foot high dry dolomite cliff [2111]	10	Fringe Tree	Very Rare
<i>Fraxinus americana</i> Scattered on dolomite glade, dry and dry-mesic dolomite and chert woodland, dry-mesic and mesic bottomland woodlands, mesic bottomland forests, dolomite talus	4	White Ash	Low
<i>Fraxinus pennsylvanica</i> var. <i>subintegerrima</i> Scattered in mesic bottomland forests and dolomite talus along Bryant Creek	2	Green Ash	Low
<i>Fraxinus quadrangulata</i> Isolated local populations in upland flatwoods, dry and dry-mesic chert woodland, dry sandstone woodland, dry dolomite cliff	7	Blue Ash	Rare
LIGUSTRUM VULGARE Several shrubs growing on sandy riverbank along Bryant Creek		European Privet	Very Rare
SYRINGA VULGARIS One shrub persisting next to carport; planted		Lilac	Very Rare

**ONAGRACEAE — 8 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Circaea canadensis</i> Scattered in mesic dolomite forests, dolomite talus, on moist dolomite ledges	2	Enchanter's Nightshade	Moderate
<i>Ludwigia alternifolia</i> Scattered throughout low wet depressions in upland flatwoods, in wet muddy road rut depressions of old logging roads, along spring branches	4	Rattlebox	Low
<i>Ludwigia palustris</i> Isolated in mudflats along edge of slackwater pools along Bryant Creek	4	Marsh Purslane	Rare
<i>Oenothera biennis</i> Isolated on gravel bars of Bryant Creek	0	Common Evening Primrose	Low
<i>Oenothera filiformis</i> Widely scattered along highway roadsides	1	Biennial Gaura	Rare
<i>Oenothera linifolia</i> On barren sand-clay lichen-covered soil of upland flatwoods in ROW	4	Thread-Leaved Sundrops	Rare
<i>Oenothera macrocarpa</i> subsp. <i>macrocarpa</i> Limited to less than ten observed non-flowering plants scattered on dolomite glade	7	Missouri Primrose	Very Rare
<i>Oenothera villosa</i> var. <i>villosa</i> Two plants observed along edge of gravel road to house	2	Hairy Evening Primrose	Very Rare

**OXALIDACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Oxalis dillenii</i> Present in most natural communities; scattered in dry and dry-mesic woodlands, upland flatwoods, pastures, roadsides, yard, gravel washes, riverfront forests	0	Yellow Wood Sorrel	Moderate
<i>Oxalis violacea</i> Scattered on dolomite glades, dry dolomite woodlands, dry-mesic bottomland woodlands	5	Violet Wood Sorrel	Moderate

**PAPAPERACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Sanguinaria canadensis</i> Scattered in mesic dolomite forests, dolomite talus	5	Bloodroot	Low

**PARNASSIACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Parnassia grandiflora</i> Several plants isolated in Ozark fen along spring-fed stream	10	Grass-Of-Parnassus	Very Rare

**PASSIFLORACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Passiflora incarnata</i> Edge of eroded riverbank along Bryant Creek	2	Passion Flower	Low

*Passiflora lutea* var. *glabriflora* 4 Yellow Passion Flower Low  
Isolated along riverbank in mesic dolomite forest, thicket in dolomite glade, sandbar

### PHYLLANTHACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Phyllanthus caroliniensis</i>	5	Carolina Leaf-Flower	Very Rare

Small population in wet mud depression of open upland flatwoods

### PHYTOLACACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Phytolacca americana</i> var. <i>american</i>	2	Pokeweed	Low

In disturbed gravelly soil piles from logging operations near log landings south of Hwy N, displaced rocky exposed soil of small landslide below Coon Den Bluff, disturbed gravel roadsides

### PLANTAGINACEAE — 6 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Callitriche terrestris</i> subsp. <i>terrestris</i>	3	Terrestrial Starwort	Low

On barren compacted soil of dirt roads in upland flatwoods and level ridges

<i>Plantago aristata</i>	1	Bracted Plantain	Low
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Scattered in isolated patches of disturbed gravel in pastures, old fields

<i>Plantago elongata</i>	1	Slender Plantain	Low
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Scattered in upland flatwoods and dry sandstone woodlands

PLANTAGO LANCEOLATA		English Plantain	Moderate
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Locally common in yard, pastures, along roadsides, log landings, logging roads

<i>Plantago rugelii</i>	0	Red-Stalked Plantain	Rare
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Confined to disturbed soil around house, along gravel in driveway

<i>Plantago virginica</i>	1	Dwarf Plantain	Low
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Widely scattered on dolomite glade

### PLATANACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Platanus occidentalis</i>	3	Sycamore	Moderate

Locally common in riverfront forests, gravel bars, riverbanks, mesic bottomland forests, gravel washes, disturbed soil of log landings, along gravel roads, landslides

### POLEMONIACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Phlox divaricata</i>	4	Blue Phlox	Moderate

Locally common in dry-mesic and mesic bottomland forests, riverfront forests, mesic dolomite forests, dolomite talus, riverbanks

<i>Phlox paniculata</i>	3	Garden Phlox	Low
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Widely scattered along stable forested edges of riverbanks along Bryant Creek; riverfront forests



<i>Phlox pilosa</i> subsp. <i>ozarkana</i>	6	Prairie Phlox	Low
Widely scattered in open dry chert and sandstone woodlands, upland flatwoods, Hwy ROW			
<i>Phlox pilosa</i> subsp. <i>pilosa</i>	6	Prairie Phlox	Low
Scattered in open dry chert woodlands, especially along roadsides			
<i>Polemonium reptans</i>	6	Jacob's Ladder	Low
Scattered on stream terraces of mesic bottomland forests, mesic dolomite forests			

**POLYGALACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Polygala senega</i>	6	Seneca Snakeroot	Rare
Scattered on ledges of dry dolomite cliffs, dry dolomite woodlands			
<i>Polygala verticillata</i>	4	Whorled Milkwort	Rare
Widely scattered on dolomite glade, disturbed exposed chert along logging road			

**POLYGONACEAE — 15 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Fallopia scandens</i>	3	Climbing False Buckwheat	Low
Scattered in openings and thickets of riverfront forests, thickets on gravel bars, upland pastures			
<i>Persicaria bicornis</i>	5	Pink Smartweed	Rare (SU)
Isolated occurrences on gravel bars and sandbars along edge of riverfront forests, and riverbanks of Bryant Creek			
<i>Persicaria hydropiperoides</i>	4	Mild Water Pepper	Low
Moist sand and gravel in streambed scours, edge of sloughs, sandbars			
<i>Persicaria lapathifolia</i>	0	Heartsease	Low
On sand and gravel bars along edge of riverfront forests, gravel bars			
PERSICARIA LONGISETA		Creeping Smartweed	Low
Locally common and scattered in yard around house, edge of gravel roads			
PERSICARIA MACULOSA		Lady's Thumb	Low
Isolated occurrences on gravel bars			
<i>Persicaria pensylvanica</i>	1	Pennsylvania Knotweed	Moderate
Locally common in riverfront forests, gravel bars, riverbanks, gravel washes, pond edges			
<i>Persicaria punctata</i>	3	Dotted Smartweed	Low
Scattered in low drainage of dry-mesic bottomland woodlands, riverbanks, edge of artificial pond			
<i>Persicaria virginiana</i>	1	Virginia Knotweed	Moderate
Locally common in deep valleys and bottomland forests, scattered in spicebush terrace seeps, along permanent streambanks			
POLYGONUM AVICULARE subsp. AVICULARE		Common Knotweed	Rare
Isolated occurrences on sandbar, edge of highway			
<i>Polygonum aviculare</i> subsp. <i>buxiforme</i>	2	Box Knotweed	Rare
Few plants confined to sandy opening in riverfront forests along Bryant Creek			
<i>Polygonum erectum</i>	1	Erect Knotweed	Rare
On sandbar along Bryant Creek			

<i>Polygonum ramosissimum</i> var. <i>prolificum</i>	5	Bushy Knotweed	Rare
Low sandy soil of riverfront forests, thicket in sandy soil along old slough			
RUMEX ACETOSELLA		Field Sorrel	Low
Scattered in patches in upland pasture			
RUMEX CRISPUS		Curly Dock	Low
Widely scattered to isolated in upland pastures, yard, edge of gravel roads, log landings			

### PORTULACACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Claytonia virginica</i>	4	Spring Beauty	High
Widespread in dry-mesic woodlands, dry-mesic and mesic forests, bottomland forests, dolomite glades, sandstone and dolomite ledges, roadsides, yard			
<i>PheMERANTHUS calycinus</i>	8	Fame Flower	Very Rare
Around 90 plants restricted to fine gravel and sand in an ephemeral wet flatrock slab on a dolomite glade			

### PRIMULACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Lysimachia lanceolata</i>	4	Lance-Leaved Loosestrife	Low
Widely scattered in dry chert and sandstone woodland, upland flatwoods			
LYSIMACHIA NUMMULARIA		Moneywort	Moderate
Locally common along moist sandy shoreline of Bryant Creek, and seepy dolomite riverbanks			
<i>Lysimachia quadriflora</i>	8	Narrow-Leaved Loosestrife	Rare
Restricted to Ozark fens, seepy dolomite ledges along streambanks in lower valleys			
<i>Primula meadii</i>	7	Shooting Star	Moderate
Scattered on dolomite glades, openings in dry dolomite woodlands, moist dolomite ledges of cliffs			
<i>Samolus parviflorus</i>	5	Water Pimpernel	Low
Edges of permanent stream pools in upland headwater valleys, base of waterfalls, dolomite springs, along seepy dolomite ledges of riverbanks along Bryant Creek			

### RANUNCULACEAE — 23 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Actaea pachypoda</i>	8	White Baneberry	Rare
Widely isolated on moist dolomite talus			
<i>Actaea racemosa</i>	7	Black Cohosh	Low
Scattered sporadically in dry-mesic chert woodlands and forests, dry-mesic dolomite forests, mesic dolomite forests, dolomite talus			
<i>Anemone virginiana</i> var. <i>virginiana</i>	4	Tall Anemone	Low
Widely scattered in dry-mesic and mesic dolomite forests, moist dolomite cliff ledges, gravel washes, dry stream terraces			
<i>Aquilegia canadensis</i>	6	Columbine	Moderate
Locally common growing in crevices and ledges of dry to moist dolomite cliffs			

<b><i>Clematis virginiana</i></b>	3	Virgin's Bower	Low
Scattered on sandstone ledges, mesic dolomite forests, in gravel washes			
<b><i>Delphinium carolinianum</i></b> subsp. <b><i>carolinianum</i></b>	7	Carolina Larkspur	Very Rare
Several plants isolated on one small dolomite glade opening			
<b><i>Delphinium treleasei</i></b>	10	Trelease's Larkspur	Very Rare
One flowering plant found near dolomite glade on bald hill			
<b><i>Delphinium tricorne</i></b>	6	Dwarf Larkspur	Low
Isolated occurrences in mesic dolomite forests along Bryant Creek			
<b><i>Hepatica acutiloba</i></b>	6	Sharp-lobed Hepatica	Low
Widely scattered on moist dolomite talus slopes and mesic dolomite forest; reported by Chris Crabtree			
<b><i>Hydrastis canadensis</i></b>	6	Goldenseal	Low
Isolated small colonies in dry-mesic chert forests, mesic dolomite and sandstone forests, dolomite talus			
<b><i>Isopyrum biternatum</i></b>	5	False Rue Anemone	Moderate
Moist dolomite cliff ledges, mesic dolomite and bottomland forests, dolomite talus			
<b><i>Ranunculus abortivus</i></b>	1	Small-Flowered Buttercup	Moderate
Dry-mesic to mesic chert and dolomite forests, mesic bottomland forests, riverfront forests, yard, upland pastures			
<b><i>Ranunculus harveyi</i></b> var. <b><i>harveyi</i></b>	7	Harvey's Buttercup	Low
Widely scattered in dry chert and sandstone woodlands, dry to moist sandstone ledges			
<b><i>Ranunculus hispidus</i></b> var. <b><i>hispidus</i></b>	6	Hispid Buttercup	Moderate
Scattered in dry to dry-mesic chert and dolomite woodlands and forests, dolomite talus			
<b><i>Ranunculus hispidus</i></b> var. <b><i>nitidus</i></b>	4	Swamp Buttercup	Low
Scattered in dry-mesic to mesic bottomland forests, riverfront forests			
<b><i>Ranunculus micranthus</i></b>	3	Rock Crowfoot	Low
Isolated in dry to dry-mesic chert and sandstone woodlands, riverfront forests			
RANUNCULUS PARVIFLORUS		Small-Flowered Crowfoot	Very Rare
Few plants in lawn between pond and stable			
<b><i>Ranunculus recurvatus</i></b> var. <b><i>recurvatus</i></b>	5	Hooked Buttercup	Moderate
Scattered along moist edges of headwater streams fed by seepage, low slopes of mesic sandstone and dolomite forests, Ozark fen, seep ledges			
RANUNCULUS SARDOUS		Hairy Buttercup	Very Rare
Confined to moist low depressions in fescue pasture behind house [2106]			
RANUNCULUS SCCELERATUS var. SCCELERATUS		Cursed Buttercup	Rare
Scattered in moist depression of pasture near stable			
<b><i>Thalictrum dioicum</i></b>	8	Early Meadow Rue	Low
Few plants along moist to wet dolomite ledges at base of dolomite cliffs			
<b><i>Thalictrum revolutum</i></b>	8	Waxy Meadow Rue	Rare
Isolated in mesic bottomland forests			
<b><i>Thalictrum thalictroides</i></b>	5	Rue Anemone	High
Widespread to scattered in most woodlands, forests, rock ledges, talus slopes			



**RHAMNACEAE — 3 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Berchemia scandens</i> Isolated occurrences in gravel wash and dry dolomite woodland	6	Supple Jack	Very Rare
<i>Ceanothus americanus</i> Widely scattered in open dry chert and sandstone woodlands in previously logged uplands south of Hwy N	7	New Jersey Tea	Low
<i>Rhamnus caroliniana</i> Scattered among red cedar on dolomite glades and dry dolomite woodlands; also dry-mesic sandstone and chert woodlands	6	Carolina Buckthorn	Moderate

**ROSACEAE — 28 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Agrimonia parviflora</i> Moist to wet soils in spicebush terrace seeps, mesic bottomland forests, gravel washes	5	Tall Agrimony	Low
<i>Agrimonia pubescens</i> Scattered in dry-mesic chert and dolomite woodlands, dry-mesic sandstone forests, along banks of valley streambeds	4	Soft Agrimony	Low
<i>Amelanchier arborea</i> Scattered in open, dry rocky chert and sandstone woodlands, top of dry dolomite cliffs	6	Shadbush	Low
<i>Aruncus dioicus</i> var. <i>pubescens</i> Isolated on moist to seepy dolomite ledges, seeps along sandstone ravines, in spicebush terrace seeps	6	Goat's Beard	Rare
<i>Crataegus crus-galli</i> Occasional in dry-mesic bottomland woodlands	3	Cockspur Hawthorn	Low
<i>Crataegus uniflora</i> Scattered shrubs and small trees on dolomite glades, dry chert woodlands, dry-mesic bottomland forests, in Simpson Pasture	7	One-Flower Hawthorn	Low
<i>Fragaria virginiana</i> Widely scattered patches in upland flatwoods, dry chert and dolomite woodlands, along logging roads	3	Wild Strawberry	Low
<i>Geum canadense</i> Scattered in dry-mesic sandstone woodlands, dry-mesic to mesic sandstone forests, mesic bottomland forests, dry-mesic bottomland woodlands	2	White Avens	Moderate
<i>Geum vernum</i> Locally common in dry-mesic chert woodlands and forests, dry-mesic to mesic dolomite forests, mesic bottomland forests, edges of old fields and pastures, log landings, yard	3	Spring Avens	Moderate
<i>Gillenia stipulata</i> Scattered in upland flatwoods, dry and dry-mesic chert and sandstone woodlands	5	American Ipecac	Low
<i>Physocarpus opulifolius</i> var. <i>intermedius</i> Scattered on ledges of moist dolomite cliffs, gravel washes, gravel bars	5	Ninebark	Moderate
POTENTILLA RECTA Isolated occurrences along highway ROW		Sulphur Cinquefoil	Rare

<b><i>Potentilla simplex</i></b>	3	Common Cinquefoil	Moderate
Locally common in grown-over open log landings, along logging roads, roadsides, dry chert woodlands, upland flatwoods, pastures			
<b><i>Prunus americana</i></b>	4	Wild Plum	Low
Large thicket in Simpson Pasture, widely scattered in open dry sandstone and chert woodlands south of Hwy N			
PRUNUS ARMENIACA		Apricot	Very Rare
Planted near house			
PRUNUS CERASUS		Sour Cherry	Very Rare
Planted near house			
<b><i>Prunus mexicana</i></b>	3	Mexican Plum	Low
Widely scattered in dry chert and sandstone woodlands, upland flatwoods			
<b><i>Prunus serotina</i> subsp. <i>serotina</i></b>	3	Wild Black Cherry	Low
Isolated occurrences in dry sandstone woodlands, dry-mesic dolomite woodlands, dry-mesic bottomland woodlands			
PYRUS CALLERYANA		Bradford Pear	Very Rare
Few scattered small trees along logging road next to west gate to glade			
PYRUS COMMUNIS		Pear	Very Rare
Few old trees in field next to house			
<b><i>Rosa carolina</i> subsp. <i>carolina</i></b>	4	Pasture Rose	Moderate
Widely scattered on dolomite glade, upland flatwoods, dry to dry-mesic chert, sandstone and dolomite woodlands, highway ROW			
ROSA MULTIFLORA		Multiflora Rose	Moderate
Locally common in disturbed soils of logged areas, along gravel washes and streambeds, pastures, riverfront forests; scattered in mesic bottomland forests, along gravel roads			
<b><i>Rosa setigera</i></b>	4	Prairie Rose	Low
Isolated along riverbanks, dry sandstone woodland, dolomite glades, stream edges			
<b><i>Rubus ablatus</i></b>	2	Plains Blackberry	Moderate
Locally common in previously logged portions of dry chert and sandstone woodland s. of Hwy N			
<b><i>Rubus enslenii</i></b>	5	One-Flowered Dewberry	Moderate
Widely scattered in upland flatwoods, dry and dry-mesic chert and sandstone woodlands, along gravel washes			
<b><i>Rubus flagellaris</i></b>	3	Common Dewberry	Low
Scattered in open dry chert and sandstone woodlands, old fields, edge of pastures, along logging roads			
<b><i>Rubus mollior</i></b>	5	Soft Blackberry	Low
Widely scattered in dry-mesic chert and sandstone woodlands and forests			
<b><i>Rubus occidentalis</i></b>	3	Black Raspberry	Low
Local patches in disturbed soil of logged areas, log landings, openings in riverfront forests, old fields			

**RUBIACEAE — 12 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Cephalanthus occidentalis</i> Occasional along riverbanks of Bryant Creek	3	Buttonbush	Rare
<i>Diodia teres</i> Scattered locally on dolomite glades, sandstone glade, open dry chert woodlands, gravelly areas along logging roads, pastures, ROWs	2	Buttonweed	Moderate
<i>Galium aparine</i> Scattered in mesic bottomland forests, riverfront forests, dry-mesic bottomland woodlands, upland pastures, yard	0	Annual Bedstraw	Moderate
<i>Galium arkansanum</i> Scattered in open rocky dry and dry-mesic woodlands	6	Arkansas Bedstraw	Low
<i>Galium circaezans</i> Scattered on dolomite glades, upland flatwoods, dry chert and sandstone woodlands	4	Licorice Bedstraw	Low
<i>Galium concinnum</i> Widely scattered in dry-mesic to mesic forests, mesic bottomland forests	4	Shining Bedstraw	Low
GALIUM PEDEMONTANUM Isolated in patches of open wet broad depression in upland flatwoods south of Hwy N		Piedmont Bedstraw	Low
<i>Galium triflorum</i> Isolated occurrences among ledges and boulders of upper headwater ravines in dry-mesic sandstone and dolomite forests	4	Sweet-Scented Bedstraw	Rare
<i>Galium virgatum</i> Isolated patches on dolomite glade, also yard and upland pastures	4	Dwarf Bedstraw	Low
<i>Hedyotis longifolia</i> var. <i>tenuifolia</i> Exposed cherty soil in upland chert dry chert woodlands, upland flatwoods, along edges of dry sandstone ledges	5	Long-Leaved Bluets	Low
<i>Hedyotis nigricans</i> var. <i>nigricans</i> Locally common on dolomite glades, openings in dry dolomite woodlands, along ledges and crevices of dry dolomite cliffs	5	Narrow-Leaved Bluets	Moderate
<i>Hedyotis pusilla</i> Isolated in barren exposed areas of dirt road in pasture, yard, and exposed barren chert clay of ROWs in upland flatwoods	3	Least Bluets	Very Rare

**RUTACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Ptelea trifoliata</i> subsp. <i>trifoliata</i> Widely scattered in open chert woodlands along Hwy N near roadside glade	5	Hop Tree	Very Rare

**SALICACEAE — 3 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Salix caroliniana</i> Scattered on gravel bars along Bryant Creek	4	Ward's Willow	Moderate



<i>Salix interior</i> Confined to sandbars along Bryant Creek	3	Sandbar Willow	Low
<i>Salix nigra</i> Isolated along pond edge in front of house	2	Black Willow	Very Rare

**SANTALACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Comandra umbellata</i> subsp. <i>umbellata</i> Widely scattered in upland flatwoods, dry chert and sandstone woodland	7	False Toadflax	Low

**SAPINDACEAE — 5 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Acer negundo</i> Scattered in riverfront forests, riverbanks, mesic bottomland forests, gravel bars	1	Box Elder	Moderate
<i>Acer rubrum</i> var. <i>rubrum</i> Scattered locally in dry chert and sandstone woodlands, dry-mesic sandstone woodlands, upland flatwoods, dolomite talus slopes	5	Red Maple	Moderate
<i>Acer saccharinum</i> One tree planted by house; considered introduced	2	Silver Maple	Very Rare
<i>Acer saccharum</i> subsp. <i>saccharum</i> Scattered to isolated border of dolomite glades, dry dolomite woodland, dry-mesic chert forests, mesic bottomland forests, dry-mesic sandstone woodlands, dolomite talus	5	Sugar Maple	Moderate
<i>Aesculus glabra</i> var. <i>glabra</i> 5 One small tree found on mesic dolomite forest slope above Bryant Creek	5	Ohio Buckeye	Very Rare

**SAPOTACEAE — 1 Taxon**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Sideroxylon lanuginosum</i> var. <i>oblongifolium</i> Scattered on dolomite glades and dry dolomite woodland	5	Gum Bumelia	Low

**SAURURACEAE — 2 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
HOTTUYNIA CORDATA Confined to planted and escaped plants around lawn near carport; potentially a serious escape		Chameleon Plant	Very Rare
<i>Saururus cernuus</i> Locally common along muddy edges of streambanks, bordering sloughs along Bryant Creek	6	Lizard's Tail	Low

**SAXIFRAGACEAE — 4 Taxa**

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Heuchera parviflora</i> var. <i>puberula</i> Locally common on dry to moist sandstone cliffs and ledges	10	Small-Flowered Alum Root	Moderate
<i>Heuchera richardsonii</i> Widely scattered on moist to dry sandstone and dolomite ledges, cliffs, and boulders	6	Prairie Alum Root	Low

<b><i>Micranthes palmeri</i></b>	10	Palmer's Saxifrage	Low (S1)
Possible new state record under genetic study; scattered on moist to wet sandstone ledges and waterfalls			
<b><i>Penthorum sedoides</i></b>	3	Ditch Stonecrop	Moderate
Scattered on wet mudflats, edges of riverbanks, along sloughs, and pond borders			

### SCROPHULARIACEAE — 20 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Agalinus tenuifolia</i></b>	4	Slender False Foxglove	Low
Isolated small patches on dolomite glades, barren openings in chert and sandstone woodlands, and open clayey soils of upland flatwoods			
<b><i>Aureolaria grandiflora</i> var. <i>pulchra</i></b>	6	Yellow False Foxglove	Low
Isolated occurrences in open dry chert and sandstone woodlands, dry-mesic chert woodlands, dry sandstone ledges, dry dolomite cliff ledges, upland flatwoods			
<b><i>Aureolaria pectinata</i></b>	7	Clammy False Foxglove	Very Rare
Small patch of flowering plants found in open sterile dry chert woodlands			
<b><i>Castilleja coccinea</i></b>	6	Indian Paintbrush	Rare
Widely scattered in open dolomite glades, Ozark fen			
<b><i>Dasistoma macrophylla</i></b>	5	Mullein Foxglove	Rare
Isolated occurrences along streambanks of mesic bottomland terrace forests, riverbanks			
<b><i>Gratiola neglecta</i></b>	4	Clammy Hedge Hyssop	Rare
Locally in wet depressions in open upland flatwoods south of Hwy N, wet to muddy dirt roadcuts of old logging roads, edges of artificial ponds, around sinkhole pond, and on mudflats			
<b><i>Leucospora multifida</i></b>	3	Obe-Wan-Conobea	High
Locally common on dolomite flatrock depressions of dolomite glades, widespread on mudflats, moist sandy edges of Bryant Creek, gravel bars, eroded riverbanks			
<b><i>Mimulus alatus</i></b>	5	Winged Monkey Flower	Low
Scattered along permanent headwater streams, seepy sandstone ledges in mesic sandstone ravines, spicebush terrace seeps, seepy dolomite ledges and boulders of Bryant Creek riverbanks, dolomite springs			
<b><i>Nuttallanthus canadensis</i></b>	3	Small Blue Toadflax	Very Rare
Isolated occurrence in open dry chert woodland			
<b><i>Pedicularis canadensis</i></b>	5	Lousewort	Low
Locally common along open mesic bottomland forests on stream terraces, lower slopes of dry-mesic sandstone woodlands, dry-mesic bottomland woodlands, mesic dolomite forests			
<b><i>Penstemon digitalis</i></b>	3	Foxglove Beard Tongue	Rare
Few plants found along seepy sandstone ledges			
<b><i>Penstemon pallidus</i></b>	5	Pale Beard Tongue	Low
Locally scattered in open dry chert and sandstone woodlands mostly south of Hwy N, along cherty open roadsides			
<b><i>Penstemon tubaeflorus</i></b>	6	Funnel-Form Beard Tongue	Low
Widely scattered on dolomite glades, open chert woodlands, along roadsides, openings in dry dolomite woodlands			

<b><i>Scrophularia marilandica</i></b>	3	Late Figwort	Low
Locally common in open dry-mesic bottomland woodlands, especially along dry gravel washes; rivebanks of Bryant Creek			
VERBASCUM BLATTARIA		Moth Mullein	Rare
Isolated occurrences along roadsides, pastures			
VERBASCUM THAPSUS		Common Mullein	Low
Disturbed gravelly openings in log landings, along logging roads, gravel roads, in pastures, utility ROWs			
VERONICA ANAGALIS-AQUATICA		Blue Water Speedwell	Very Rare
Few isolated occurrences on mudflats of Bryant Creek			
VERONICA ARVENSIS		Corn Speedwell	Low
Scattered in yard, around stable, roadsides			
VERONICA HEDERIFOLIA		Ivy-Leaved Speedwell	Moderate
Locally common in riverfront forests and mesic bottomland forests of Bryant Creek [2101]			
VERONICA POLITA		Wayside Speedwell	Rare
Sporadic in pastures and yard			

### SOLANACEAE — 8 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
DATURA STRAMONIUM		Jimson Weed	Very Rare
Isolated occurrences on sandbars and gravel bars on Bryant Creek			
<b><i>Physalis angulata</i></b>	3	Cutleaf Ground Cherry	Rare
Widely scattered on sandbars along Bryant Creek			
<b><i>Physalis pubescens</i></b>	4	Downy Ground Cherry	Low
Widely scattered in old fields of upland flatwoods south side of park, upland flatwoods, pastures, roadsides.			
<b><i>Physalis virginiana</i></b>	3	Lance-Leaved Ground Cherry	Low
Scattered on dolomite glades			
<b><i>Solanum carolinense</i> var. <i>carolinense</i></b>	0	Horse Nettle	Low
Scattered in pastures, old fields, around stable			
SOLANUM LYCOPERSICUM		Tomato	Very Rare
Few young plants next to old fire ring on gravel bar along Bryant Creek			
<b><i>Solanum ptycanthum</i></b>	1	West Indian Nightshade	Rare
Few scattered plants along dry open gravel wash			
SOLANUM SARRACHOIDES		Viscid Nightshade	Rare
One isolated scattered patch in upland flatwoods south of Hwy N [2129]			

### STAPHYLEACEAE — 1 Taxon

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<b><i>Staphylea trifolia</i></b>	5	Bladdernut	Moderate
Isolated in dry dolomite woodland, dry dolomite cliff (ledges), dry-mesic dolomite forest, locally common in mesic dolomite forest and dolomite talus below Coon Den Bluff			



### ULMACEAE — 6 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Celtis occidentalis</i> Widely scattered in dry-mesic to mesic bottomland forests, along stream terraces in valleys; occasional in dry woodlands and dolomite glades	3	Hackberry	Low
<i>Celtis pumila</i> Widely scattered on dolomite glades	6	Dwarf Hackberry	Low
<i>Ulmus alata</i> Widely scattered on dolomite glades, dry open sandstone and chert woodlands	4	Winged Elm	Low
<i>Ulmus americana</i> Isolated occurrences along riverbanks, mesic bottomland forests, edge of pond	4	American Elm	Low
ULMUS PARVIFLORA Single large tree in front of house; difficult to determine		Chinese Elm	Very Rare
<i>Ulmus rubra</i> Scattered in dry-mesic dolomite woodlands, dry-mesic to mesic dolomite forests, mesic bottomland forests, dolomite talus, mesic bottomland forests on stream terraces. Thickets of shrubby diseased sprouts	5	Slippery Elm	Moderate

### URTICACEAE — 4 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Boehmeria cylindrica</i> Moist to wet depressions of upland flatwoods, border of sinkhole pond, border of sloughs in riverfront forests, seepy dolomite ledges along riverbank at base of talus	4	False Nettle	Low
<i>Laportea canadensis</i> Locally common to dense in mesic bottomland forests and riverfront forests along Bryant Creek	4	Wood Nettle	Moderate
<i>Parietaria pensylvanica</i> Dry-mesic dolomite forests, mesic bottomland forests, moist dolomite ledges, dolomite talus, disturbed log landings, shaded moist clayey soil beneath sandstone overhangs	3	Pellitory	Low
<i>Pilea pumila</i> Scattered on shaded wet overhanging sandstone ledges of waterfalls, seepy dolomite ledges of moist dolomite cliffs, moist sandstone ledges, spicebush terrace seeps, seep ledges along sandstone ravine	4	Clearweed	Low

### VALERIANACEAE — 2 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
VALERIANELLA LOCUSTA Isolated in grassy thicket above pond by house; only known location [2114]		Cornsalad	Very Rare
<i>Valerianella radiata</i> Locally common on disturbed soil around log landings, old skid ditches, yard, pastures, dry chert woodlands, along dirt logging roads	0	Beaked Corn Salad	Moderate

### VERBENACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Glandularia canadensis</i> Isolated along Hwy ROW near glades, burn pile ash on dolomite glade, crest of dry dolomite cliffs	5	Rose Vervain	Very Rare

<i>Lippia lanceolata</i>	3	Fog Fruit	Moderate
Wet depressions and borders of old sloughs, mudflats, riverbanks along Bryant Creek			
<i>Phryma leptostachya</i> var. <i>leptostachya</i>	2	Lopseed	Low
Widely scattered in dry sandstone woodland, dry-mesic dolomite woodland, dolomite talus			
<i>Verbena simplex</i>	3	Narrow-Leaved Vervain	Low
Widely scattered on dolomite glades, exposed dolomite in ditches along Hwy ROW			
<i>Verbena urticifolia</i>	2	White Vervain	Moderate
Wet open depressions in upland flatwoods, dry-mesic bottomland woodlands, mesic bottomland forests, riverfront forests			

### VIOLACEAE — 8 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Cubelium concolor</i>	7	Green Violet	Low
Widely scattered in well-drained steep shaded dry dolomite woodlands			
<i>Viola bicolor</i>	0	Johnny Jump Up	Very Rare
Scattered sparingly in yard			
<i>Viola missouriensis</i>	6	Missouri Violet	Low
Scattered in dry chert woodland edge of dolomite glade, dry-mesic and mesic bottomland forests			
<i>Viola palmata</i>	5	Three-Leaved Violet	Low
Widely scattered in dry to dry-mesic chert, sandstone, and dolomite woodlands and forests			
<i>Viola pedata</i>	5	Bird's Foot Violet	Low
Scattered on dolomite glades, dry dolomite woodlands, exposed open chert woodlands			
<i>Viola pubescens</i>	5	Smooth Yellow Violet	Moderate
Scattered in mesic dolomite forests, dolomite talus, mesic bottomland forests			
<i>Viola sororia</i>	2	Hairy Wood Violet	High
Locally common in most dry-mesic woodlands and forests, upland flatwoods			
<i>Viola striata</i>	3	Cream Violet	Moderate
Locally common in mesic bottomland forests and riverfront forests			

### VITACEAE — 5 Taxa

<u>Scientific Name</u>	<u>C-value</u>	<u>Common Name</u>	<u>Abundance</u>
<i>Ampelopsis cordata</i>	3	Raccoon Grape	Moderate
Scattered covering small trees and shrubs along riverbanks of Bryant Creek			
<i>Parthenocissus quinquefolia</i>	3	Virginia Creeper	Low
Scattered on ground and climbing trees in dry-mesic sandstone and dolomite woodlands and forests, mesic bottomland forests, along riverbanks, climbing on dry dolomite cliffs			
<i>Vitis aestivalis</i> var. <i>aestivalis</i>	5	Summer Grape	Low
Widely scattered in open dry and dry-mesic sandstone, chert and dolomite woodlands			
<i>Vitis cinerea</i> var. <i>cinerea</i>	3	Winter Grape	Low
Scattered in mesic bottomland forests, riverfront forests, along open gravel washes, riverbanks			
<i>Vitis vulpina</i>	5	Frost Grape	Low
Isolated occurrences in dry chert and sandstone woodlands, dry-mesic and mesic bottomland forests			