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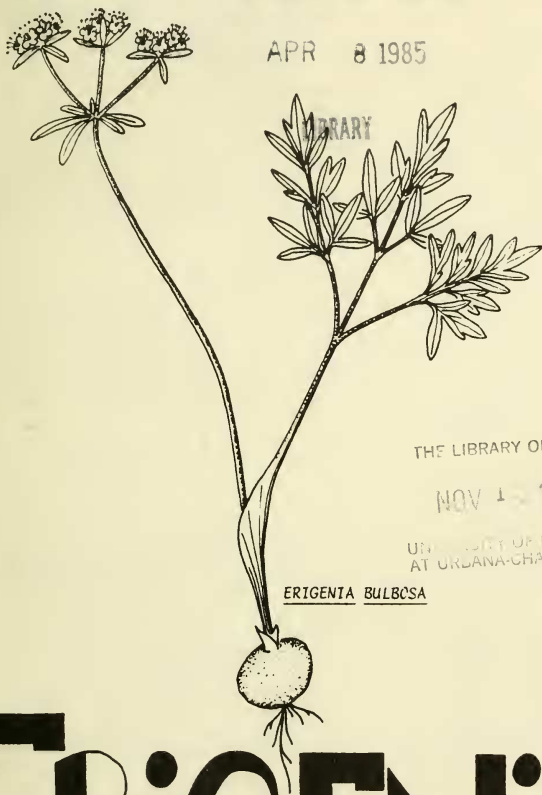
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EDITORIAL

- MARK W. MOHLENBROCK

Illinois, "The Prairie State", gained its nickname from the expansive areas of prairie vegetation historically found in the midsection to northern parts of the state. The southern region of the state, with its rolling wooded hills, is less noted for its prairies. Yet, the southern part of the state is home to many prairie taxa which occupy remnants of prairie habitat. These remnants occur commonly as hill prairies and as strips of prairie vegetation along railroad rights-of-way. Don't expect to find bison grazing in the tall stands of big blue stem, but you will find a very good representation of prairie plant life of this part of our natural heritage.

Our regular readers will notice several changes in this issue which marks the completion of the second year of publication of Erigenia. First, we are now printing the journal in larger type, a step which should allow for easier reading of our articles. Second, we have added two more referees to the Editorial Review Committee: Dr. Gerald Coorts, Professor and Chairman of the Department of Plant and Soil Science, Southern Illinois University-Carbondale, and Dr. John Ebinger, Professor of Botany, Eastern Illinois University. The addition of these new reviewers, plus the creation of one more reviewer position which is vacant at this time will help to assure quality articles on our pages. We have also redesigned the opening pages of the journal and we now offer reprints of articles to authors. Although none appear in this issue, we will also publish book reviews. These changes should enable Erigenia to start the third year of publication with even higher quality that we trust you will enjoy.

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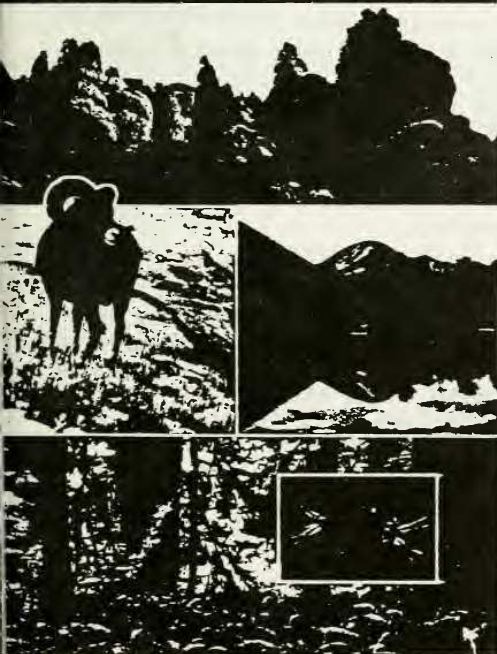
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THE MEANING, EXPERIENCE AND DIMENSIONS OF PRAIRIE

by
John W. Voigt¹

Most people living in the present have never seen prairie. Most school children think it is a land form, like a flat plain, rather than a description of vegetation. Even looking at prairie as a kind of vegetation long ignored the aspect of its many parts which function together in unified steady state economy.

It has taken ecology the better part of a century to arrive at a systems approach to the study of living organisms and environment. Most studies claiming a systems approach fall short in circumscribing or fulfilling the ecosystem. Perhaps such completeness is never possible.

The prairie, one of our seemingly more simple ecosystems, has long been a fascination. The ways in which prairie has been presented are many. Usually these studies focus upon a particular part of the system. The present essay is an attempt to circumscribe the prairie....to show its many faces and to help toward the unified view of it as an ecosystem even if only in a broad and subjective manner.

Before there were human eyes to see it and human ears to hear its sounds, or before there was human emotion to feel it, there was a great grassland in the heart of North America. This grassland was millions of years in its development. It was born out of a forest which was continent wide and which was made dry on its immediate eastern flank by the rise of the Rocky Mountains. The grass life form came into being and successfully massed itself in conditions not suited to trees. What the primal grassland was like can only be guessed from fossil animal life and extrapolations of what animals fed upon because the fossil remains of grasses are skimpy indeed.

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In the presettlement era of human life, the grasses grew, matured, and the unharvested productivity left by grazing animal life accumulated year by year. Periodically this deepening residue was burned away by naturally occurring fires or those set by the aborigines. Burning supplied mineral ash causing local new surges of growth. Grasses extended widely and billowed in an ever present breeze which swept the sky and carried wild fowl up and down their migration routes. Summer thermal currents lifted raptors to a patrol of the skies.

Below were many millions of ungulates rhythmically migrating northward in summer and back southward again in winter. Their hooves drummed upon the earth in a stacatto tattoo as they started and stampeded from danger. These grasslands were otherwise relatively quiet; only at intervals of danger or the proclamation of territories or other breeding rituals were there noises to punctuate the silence.

Almost as awesome as the ungulate numbers were the multitudes of ducks, geese, sandhill and whooping cranes. The prairie chickens and sharp tailed grouse were also of unbelievable numbers. Upland plovers, golden plovers, marbled godwits, eskimo curlew and sandpipers were common. Meadowlarks trilled over the grass; red tailed hawks, Swainson hawks and marsh hawks patrolled the skies. Bobolinks and redwing blackbirds guarded the reeds in their considerable numbers. The dickcissel, grasshopper sparrow, and Henslow's sparrows animated the scene near to the ground.

Among the insects the grasshoppers and spiders were easiest to see. Small mammals were abundant. The mice, rabbits and prairie dogs were busily cutting the grass stems and leaves and aiding decomposition as well as turning grass into a ready supply of protein for the many predators. Most of the birds were ground nesting in habit; others were adapted to either running or burrowing.

Anyone who has viewed a great expanse of grassland will agree that it is an emotional experience. Poets have described grasslands in terms of an endless sea. The movement of grasses before the wind was seen as ripples or waves. The level to rolling topography was seen as the heave and swell of the oceans. Early settlers alluded to their crossing of the grassland in "Prairie Schooners".

Upon seeing the mid-continental grasslands of North America the French explorers called them "prairie". There is nothing unusual in the French word prairie. It simply has the meaning of natural meadow (Betz, 1977). Some languages have more expressive words; such is the Hungarian word "Putsza". In human point of view it describes a grassland as an empty place, e.g., in terms of houses and towns. Emptiness in this context in North American prairie had been conceived by others.

Asahel Gridley, an early settler of the central Illinois prairie near Bloomington in McLean County saw the prairie as a blank page upon which he would write his bit of history.² Charles Dickens, visiting the Illinois prairie in 1842 near Lebanon, described "Looking Glass Prairie"....

"a vast expanse of level ground, unbroken, save by one thin line of trees which scarcely amounted to a scratch upon the great blank; until it met the glowing sky wherein it seemed to dip. There it lay, a tranquil sea or lake without water....with the day going down upon it....it was lovely and wild, but oppressive in its barren monotony."³

Ask different ones about the meaning of prairie and you will receive as many answers as the number of whom you ask the question. Some will see beauty while others see drabness. Some will find interest and change with every step forward into the prairie, but others see only sameness and feel monotony. Some will feel fear because they will not understand the prairie, but others will at once feel a kindred attachment to a special kind of

² Schlenker, Alice McCarty, 1979. The Resurrection of Asahel Gridley, Illinois, July - August, p. 11.

³ Eifert, Virginia, 1953. Picnic on Looking Glass Prairie, The Living Museum, The Illinois State Museum, Springfield, Illinois, Vol XV, No. 3, pp. 398-399.

land. Some have described the prairie as the "bottom of an ocean of sky". Others have described it as "Where the Sky Began."⁴ Prairie is indeed a boundary between heaven and earth and that is perceived by some as a heavenly place is seen in the following....

"The beholder strains his eyes to take in the extent, until the effort becomes painful, while its beauty and richness fail the powers of expression. It is a new and wonderful revelation. Strange sights and sounds greet the senses on every side. The piping note of the prairie squirrel, as he drops from his erect posture, and seeks the protection of his hole on his first alarm; the shrill notes of the plover, scattered about in countless numbers, fitfully starting and running over the meadow; the booming of the prairie cock; the mad scream of the crooked-bill curlew as you approach its nest; the distant whoop of the crane; the pump-sounding note of the bittern; the lithe and graceful form of the deer in companies of three to five, lightly bounding over the swells of the prairie; the beautiful harmony of color and rich profusion of flowers....it all seems like a new creation, an earthly paradise."⁵

With nothing to see but endless grass and sky all manner of dread crept into the mind. As there were no markers by which one could navigate in the sea of grass it was almost a certainty that one would lose his way. The general directions given to prairie travelers was that you should keep the northeast wind in your face. "The wind was like old uncle Jack's compass....no matter how he held it; it would diddle-daddle to the southwest everytime."⁶ The wind however could usually be depended upon to blow in all directions.

⁴ Madson, John, 1982. Where the Sky Began: The Land of the Tallgrass Prairie, Houghton Mifflin Co., New York & Boston.

⁵ Battle, J. H. 1884. First Sight of Prairie, History of Douglass County, Illinois, F.A. Battey & Co., Chicago, Ill. p.81.

⁶ Niles, H.C., 1884. "Ancient Prairie Travel" in History of Douglas County, Ill., F.A. Battey & Co., Chicago, p. 293.

There were other terrifying aspects of early prairie life. There was the threat of uncontrolled fires. The incessant blowing of the wind rubbed the nerves raw. The loneliness to man, a social animal, was so great as to be nearly unbearable, and even total strangers were eagerly welcomed.

The attack upon the prairie sod with the plow embodied both conquest and fear. The destruction of the prairie created a deepening uncertainty and uneasiness. It ran counterwise to thousands of years of evolution and it made one feel strangely alone and on one's own entirely. It was something final, like burning a bridge behind you.

When viewing a prairie landscape, one is hauntingly reminded of its age. Prairie is an entity with a very long history. It has undergone many changes in time. It is comprised of many parts which have been sorted by the environment and improved upon through time. The present set of parts of the prairie represent those which "learned" best to cope with the problems of a harsh environment, and thus prairie plants and animals do indeed represent an accumulated biological wisdom of the ages.

One can quickly learn the important prairie grasses for there are only about a dozen which are of greatest importance. These along with a few dozen forbs in any of the seasons affords one a quick recognition of a remnant of prairie. Bluestems, Indian grass, wildrye, needlegrass, dropseeds, side-oats grama, Junegrass, cone-flowers, prairie clovers, bush lespedeza, resinweeds, or blazing stars to name a few, are enough to force a closer examination. Upon making such an examination and upon finding the exclusion of the common Eurasian weeds, one can realize that he is viewing a piece of prairie. When only native species are present, the prairie integrity has been emphasized by the term "closed community," a connotation that the environmental resources are efficiently and effectively used so as to leave nothing for the nurture or sustenance of foreign, invading species (Weaver 1954).

One develops a deep feeling for the small, enduring, isolated prairie remnants. A friend called them "little pieces of America." They could as appropriately be termed "little pieces of Illinois" depending upon our level of political organization. One certainly cannot look upon them without being transcended in

time. It is as if in some way the ghosts of the prairie past.... the Indians, the bison, the early settlers are being passed through ones being. There is a feeling that one has been there before and yet it is for the first time.

Early naturalists saw relationships between climate, the grass life form, protracted seasonal dryness and a vulnerability to naturally occurring fires and fires set by the aborigines. The prairie was seen in terms of a simple and characteristic grass flora dominated by the bluestem grasses. The prairie was seen in terms of scores of wildflowers whose appearance was geared to blooming in season at the general height level of the grasses. The bulk of the wildflowers were found in the families of legumes, composites, mints and roses (Weaver 1954). The total flora was generally below 300 species.

There is a feeling of closeness for the elements of the present. The emotions are gripped by the great vault of blue sky, the pervading quietness, the whisper of the wind, the immensity, and the emphasis in the landscape of the horizontal. It invokes a sense of reverence. One cannot fully comprehend the prairie, but one can feel it and draw some of its strength into one's own being. Prairie people seem to have a quality of strength, health, honesty and integrity that parallels the land in which they live.

The essence of the prairie is its spaciousness and its quietude. One is able to collect one's thoughts and to reason well in such a place. One is able to listen closely, to notice the slightest motion on the still horizon, and yet to focus well upon the things which are close at hand. The motion of the prairie is swaying, rolling and rustling. The animals show grace and economy in their movement. One of the most graceful and beautiful of these movements is a landing of the upland plover. The wings are momentarily lifted after landing and then gently folded.

Some personal feelings about the prairie are deserving of mention. There is the ever present and abundant sunshine and heat, the breezes, dry air, distance, solitude and the motion of the waves of grass before the wind. One will always feel the isolation in Willa Cather's words.... "I had the feeling that the world was left behind, that we had got over the edge of it."

⁷ Willa Cather, 1954. My Antonia, Houghton-Mifflin Co., New York & Boston, 266 p.

Prairie has been written about from many points of view. There were many historical and literary accounts of life on the prairie frontier. These chronicled such things as doctors visits to patients, circuit riding lawyers, homesteading, cattle drives, crop failures, prairie fires, drought, and insect epidemics or "cowboys and Indians". The rigor and flavor of prairie life and environment were richly presented in My Antonia; April twilights; The Buffalo Hunters; Old Jules; The Home Place; The Buffalo Wallow: A Prairie Boyhood; Deserts on the March; Grapes of Wrath, among others.

The history, literature, art, music, and architecture all contribute to the ecological fulfillment of the prairie ecosystem. Woody Guthrie's songs of the thirties captures an element of prairie life in pieces such as "Dust Bowl Refugees" and in "Dust Pneumonia Blues (Brewer, 1979). An enduring strength and simplicity is shown in the prairie school of architecture by Frank Lloyd Wright. Iowa artist Grant Woods' well known painting entitled "American Gothic" portrays the simplicity of landscape, of structures, plain life and people.

One did not have to await the quadrat studies of ecology to realize, though in less quantitative ways, that the bluestems dominated the prairies or that wild strawberries were probably the most abundant herb on most lowland prairies. Early descriptive accounts told of the massed, endless bluestem sod and that the fetlocks were stained red by wild strawberries as horses were ridden through the low prairies. The frequency, abundance, dominance or other structural, qualities of prairie were often revealed though not in statistical or quantitative numerical ways. The more quantitative measurements which came later strengthened science, but did little more toward improvement upon the "minds eye" view provided by the subjective description.

The original prairie covered nearly two-thirds of Illinois. It spread over the land like a giant tapestry. The warp of this tapestry was created from a north to south temperature gradient, and the weft by a moisture gradient which declined in an east-west direction. The prairie tapestry included several patterns or variations. The patterns changed with the interplay of several factors such as topography, soils, fires and others. Along the eastern, northern and southern edges the prairie interfingered with the forest to give the effect of a tattered edge.

Two main forces unravelled the prairie tapestry. The railroads cut into the prairie sward. The gashes the rail lines made crossed many times, dividing the main body into pieces and patches of prairie. Points of thousands of steel plow shares wielded by energetic farmers picked at the prairie fabric. The patches were made threadbare by the overgrazing of livestock. The unravelling of the prairie was speeded with each passing year. It never stopped until the barest of threads were left. Hardly a trace of the prairie is left in an amount which would suggest what it was once like can now be found.

In our newfound ecological awareness we now seek to locate and preserve bits of our prairie heritage for future generations. Our greatest success in locating these has been in places inaccessible to farming and in neglected cemeteries. A few remnants have come from old unsettled estates. A perusal of old county histories has been useful in gaining general information about the place and extent of prairies in southern Illinois. An organized statewide effort to reconstruct the presettlement vegetation from the original land surveys county by county will be valuable and may possibly provide leads to still other present day remnants.

The preservation of our prairie heritage is of great value. Prairie has made those of us in the heartland what we are, and we owe it to those who follow that they should also know this heritage.

Prairie is more than grass-covered land. It is a lot of things. It is a place, a type of vegetation, a condition, and an emotional experience. It is a unique kind of landscape, and a valuable resource of stored biological experience and information. It has been said that "one cannot confine its whole meaning...one can describe it, but no one could circumscribe it".⁸

Prairie is an entity of special quality and mood which appeals strongly to certain kinds of people. Once smitten with love of the prairie, the feeling probably endures forever. It is a voice which calls to some as the mountains, the forest or the sea or shore does for others.

⁸ Rose, Elsie, 1975. What is Prairie (in Prairie, a Multiple View) Ed. M.K. Wali, University of North Dakota Press pp., 3-6.

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THE PRAIRIES OF SOUTHERN ILLINOIS

by
John W. Voigt¹

The origin of the grass life form in North America has generally been held to be related to the rise of the Rocky Mountains and the induced climatic dryness which followed. The influence of climate on the origin and development of grasslands was strongly held for many years.

Early students of prairie vegetation also postulated that the wet prairies originated on old lake bottoms and that the soils of such places were important in the development of the prairie (Woodard, 1923). Others pointed out that fire of natural occurrence or those set deliberately by the aborigines was also important in maintaining the tallgrass prairies in humid areas along the forest border. Prairies are usually presented as having migrated from the dry climatic rain shadow area of the east slope of the Rockies to the edge of the Eastern Deciduous forest and that coevolution of grasses and grazing types took place in the Eocene period. Animal fossils from western areas showed animals with low crowned teeth were replaced by those with high crowned teeth and that the later characterized the grazing types (Clements and Chaney, 1938).

The main body of the prairie in Illinois was north of a line beyond its borders from Terre Haute, Indiana toward St. Louis, Missouri to the southwest. The prairies south of this line show an increased interfingering with the forest and finally the prairie becomes islands within the forest which grow smaller and smaller in the extreme south of Illinois (Fig. 1). Prairie plants are found in virtually all of the 102 counties of Illinois and prairie remnants of varying size may have also existed in all the Illinois Counties (Schwegman, 1983).

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Fig. 1. Prairie border in southern Illinois



Adapted from Guide to the Vascular Flora of Illinois,
R.H. Mohlenbrock, 1975.



Adapted from Anderson, 1972

The Eastern Deciduous forest of the present still harbors many species of plants which are common in prairies. The bluestem grasses particularly may be mentioned. They dominate in many prairie types today; they had their origin and dispersal from Central America and southeast United States. Among others the following species which are characteristic of prairies are found also in the eastern forest of the United States: Ruellia humilis, Rhus aromatica, R. copallina, R. glabra, Toxicodendron radicans, Asclepias tuberosa, Lobelia syphilitica, Specularia perfoliata, Tradescantia aspera, Antennaria campestris, Aster ericoides, Coreopsis tripteris, Erigeron strigosus, E. annuus, Helianthus grosseserratus, H. tuberosa, Rudbeckia hirta, Silphium terebinthinaceum, S. perfoliatum, Solidago canadensis, Vernonia missourica, Cornus drummondii, Carex vulpinoidea, Carex pennsylvanica, Equisetum arvense, Euphorbia corollata, Sisyrinchium angustifolium, S. albidum, Hedeoma pulegioides, Monarda fistulosa, Pycnanthemum tenuifolium, P. pilosum, Teucrium canadense, Cassia fasciculata, Lespedeza virginica, Psoralea psoralioides, Tephrosia virginiana, Oxalis stricta, O. violacea, Agrostis alba, Andropogon gerardii, Schizachyrium scoparium, Aristida oligantha, Cinna arundinacea, Elymus villosus, Eragrostis spectabilis, Leersia oryzoides, Muhlenbergia racemosa, Panicum capillare, P. virgatum, Poa pratensis, Sphenopholis obtusata, Vulpia octoflora, Phlox pilosa, Lysimachia ciliata, Ceanothus americana, Fragaria virginiana, Malus ioensis, Rosa setigera, R. carolina, Gerardia tenuifolia, Zizia aurea, Polytaenia nuttallii, Viola pedatifida, and Vitis vulpina.

The prairies of southern Illinois were increasingly smaller as one progressed southward. Mostly these smaller prairies were upland situations. On the extreme upland these have become known as hill prairies. These prairies are characterized by steep slopes or bluffs abutting floodplains. The bedrock is of limestone, dolomite, sandstone or shale ranging in age from Ordovician to Pennsylvanian. Bluffs are frequently 200 feet above the valley floors. Often the soil covering is loess over the bedrock; sometimes the soil is gravelly or cherty with a slope aspect which is mostly south and southwest. The exposure of the hill prairie results in high temperatures in summer, lowered humidity, and a drainage made extreme by the steep slopes and sometimes the cracks in the bedrock.

The presence of only a few dominant species and an increased number of forbs has given some of the thin soil areas a somewhat different look than the hill prairies generally. A thinner compositional look is manifested by a lower basal area than the more grassy looking hill prairie. This has resulted in the term glade sometimes being applied though the typical hill prairie species are usually present. It becomes a matter of emphasis and purpose as to what terminology one chooses to designate such areas.

The dominants of the hill prairies are usually little bluestem, side-oats-grama, big bluestem, Indiangrass, and sometimes, Junegrass. In sandy or cherty places will be found sand dropseed, and tall dropseed. A wide variety of forbs may be found on different prairies. The forb societies change from one hill prairie location to another. Thus each prairie has a subtle difference of look due to the variation in composition.

The invention of the steel plow by John Deere in 1837 followed by the building of the railroads in the next few decades facilitated marketing of agricultural produce. These events caused an expansion of agriculture and fore-doomed the prairies. Today less than 2,352 acres of prairie found in a recent natural areas inventory compares to 21 million acres of original prairie in Illinois. This is 0.01 of a percent of the original prairie (Schwegman, 1983).

An enumeration of the Illinois Native Prairie Preserves may be found in Schwegman, 1983; thirty eight prairie preserves are listed in 27 counties. This paper presents a brief account of those preserves in southern Illinois. Included is information on location, size, ownership, and main features.

Cave Creek Prairie

Location: (Sec 28, T 13 S, R 3 E, NE 1/4) Mermet
Quadrangle, Johnson County.

Origin of Name: After Cave Creek which flows at the south foot
of prairie area.

Size: Two acres within a twenty acre Natural Area.

Ownership: State of Illinois Department of Conservation.

Features: An upland prairie over cherty limestone. The flora consists of Andropogon gerardii, Sorghastrum nutans, Schizachyrium scoparium, Bouteloua curtipendula, Silphium terebinthinaceum, Physostegia virginiana, Onosmodium occidentale, and Salvia azurea among others.



Wildcat Bluff Glade (left dot)
Cave Creek Prairie (right dot)

Wildcat Bluff Glade (Prairie)

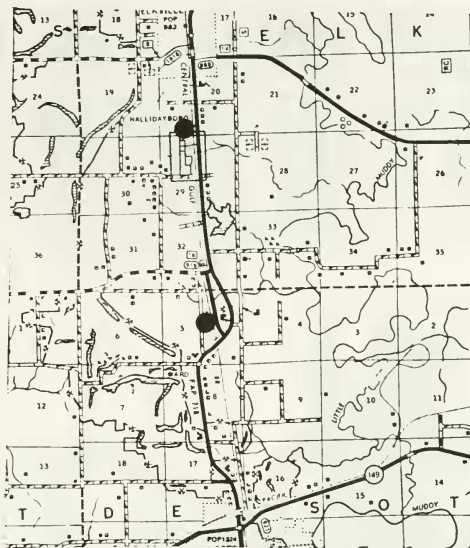
Location: (Sec 24, T 13 S, R 3 E, 4 miles southwest of Vienna), Mermet Quadrangle, Johnson County.

Origin of Name: Presumed from presence of bobcat in the area in the early days.

- Size:** Five and nine tenths of an acre (within 1861 acre nature preserve known as the Heron Pond-Little Black Slough Nature Preserve).
- Ownership:** State of Illinois Department of Conservation.
- Features:** Cherty gentle dry hilltop. Often called a glade in preference to a designation of prairie. Andropogon scoparius, Bouteloua Curtipendula, Silphium terebinthinaceum, Liatris aspera among others. Somewhat similar to the Cave Creek area above.

DeSoto-Hallidayboro Railroad Strip Prairie

- Location:** (Parts of Sec 5, T 8 S, R 1 W, DeSoto Quadrangle; Sec 32, Sec 29, 20, T 7 S, R 1 W, Elkhville Quadrangle). North of DeSoto, but south of Elkhville. Near an old highway route 51 cut-off.
- Origin of Name:** After the town of DeSoto, and an old mining town of Hallidayboro which is virtually gone. The area is a highway-railroad right-of-way strip.
- Size:** A right-of-way strip 3.2 miles long.
- Ownership:** Illinois Central Gulf Railroad...leased to Southern Illinois University Botany Department for study purposes.
- Features:** Tallgrass dominants on lowland somewhat disturbed habitat. Soils are poorly drained, acid reaction and belong to the Bonnie Silt Loam series. Common plants include: Sisyrinchium albidum, Tradescantia virginiana, Parthenium integrifolium, Polytaenia nuttallii, Asclepias tuberosa, Petalostemon candidum, Psoralea psoralioides, Liatris aspera, Liatris pycnostachya, Helianthus mollis, Silphium terebinthinaceum, Lepedeza capitata, Eryngium yuccifolia, among others. Uncommon species include: Habenaria lacera, Rhexia virginica, Gaura longiflora (Thompson and Heinecke, 1977). A typical composition is shown in Table 1.



DeSoto-Hallidayboro Railroad
Strip Prairie (dots)

Government Rock Hill Prairie

Location: (Sec 9, T 11 S, R 2 W, ME 1/4), Union County, about 1 1/2 miles south of McCann Spring along the bluff-top road.

Origin of Name: Presumed to be from the rocky headland upon which the prairie rests and the government ownership.

Size: A fraction of an acre.

Features: An upland hill prairie over limestone bedrock; the soil thickness is a foot more or less; the slope aspect is south and west making for a dry environment. Surrounding the hill prairie are various oaks and hickories. The Southern Yellow

Table 1.
Percentage Composition of species in meaic prairie at Hallidayboro Railroad Prairie Strip. Data
from seven meter² quadrats.

<i>Acalypha virginiana</i>	0.01	0.01	2.76		3.4		0.6
<i>Aster pillosus</i>				0.10			
<i>Baptista leucantha</i>	0.75	0.8					
<i>Cassia fasciculata</i>			3.06		3.0		
<i>Carex sp</i>	1.41	1.7					
<i>Cirsium discolor</i>	0.50	0.55					
<i>Crotalaria sagittalis</i>			0.31		0.3		1.35
<i>Euphorbia corollata</i>	1.10	1.2	1.22	0.20	1.2	0.22	
<i>Eryngium yuccifolium</i>	2.55	2.8					
<i>Helianthus mollis</i>	4.64	5.1		11.75		12.52	6.4
<i>Juncus tenuis</i>	0.50	0.55	1.53		1.5		
<i>Kuhnia eupatorioides</i>	0.30	0.30	0.66		0.6		0.31
<i>Leopedeza virginica</i>							0.05
<i>Meibomia alba</i>							
<i>Oenothera biennis</i>			1.53	3.0	1.5		
<i>Oxalis</i>							
<i>Panicum scribnerianum</i>	0.36	0.4	1.07	0.31	1.0	0.32	
<i>Pycnanthemum tenuifolium</i>	9.72	10.7	11.92	0.36	11.9		1.3
<i>Physalis pubescens</i>	0.25	0.27	8.94	1.95	8.9	2.11	
<i>Potentilla simplex</i>	0.02	0.02					
<i>Rosa carolina</i>							
<i>Ruellia humilis</i>	0.01	0.01					
<i>Rubus allegheniensis</i>		1.1					
<i>Schizachyrium</i>	1.00		4.29	6.00	4.2	1.24	3.1
<i>Solidago canadensis</i>	57.94	63.3	53.46	46.69	53.3	52.98	38.9
<i>Sorghastrum nutans</i>	7.94	8.9		1.85		2.11	15.3
<i>Verbesina alternifolia</i>			9.26	22.54	9.2	23.55	33.0
				4.01			

Pine (*Pinus echinata*) is found on the south slopes to near the crest. Immediately surrounding the hill prairie are *Malus ioensis*, *Rhus aromatica*, *Rhus glabra*, and *Cornus drummondii*. The prairie flora consists of the following; *Andropogon gerardii*, *Sorghastrum nutans*, *Bouteloua curtipendula*, *Verbena canadensis*, *Aster oblongifolius*, *Petalostemon purpureum*, *Ruellia humilis*, *Pycnanthemum tenuifolium*, *Euphorbia corollata*, and *Echinacea*

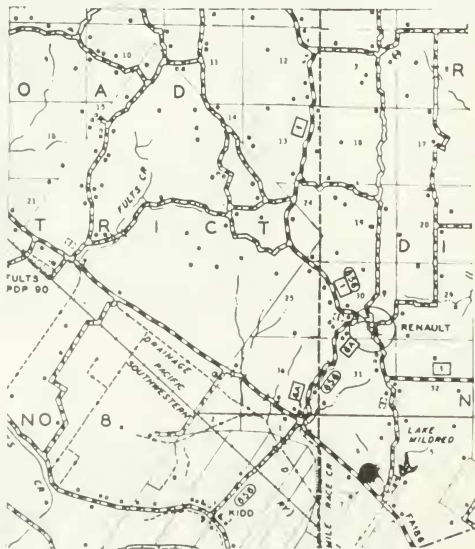


Government Rock Hill Prairie (dot)

pallida, among others. In recent years the prairie has become overrun by the sumac. Infrequent burning of the area has failed to maintain the prairie aspect of this vegetation.

Lake Mildred Road Prairie

- Location:** (Sec 32, T 5 S, R 9 W) about 3 miles north of the village of Prairie Du Rocher at the Lake Mildred Road. Randolph County.
- Origin of Name:** From the bluff road along the floodplain at the foot of the limestone bluff where the road is intersected by the road east to Lake Mildred.
- Ownership:** Private and now posted.
- Features:** Massive limestone bluff with a height above the valley floor exceeding 200 feet. The bedrock is covered with loess. The slope aspect is west and southwest. Ravines dissect the slopes and these ravines run in an east-west direction. Such ravines harbor Cornus drumondii, Fraxinus spp., Rhus glabra, R. copallina, R. aromatica, Ptelia trifoliata. Surrounding the prairie at the crest are Cornus drumondii, Juniperus



Lake Mildred Road Prairie (dot)

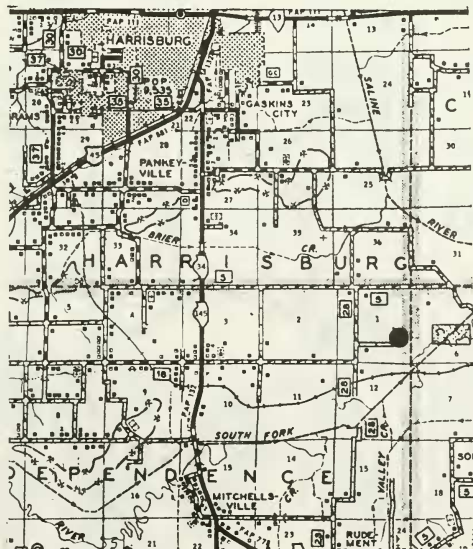
Features:

A limestone bluff-top with a deposit of loess, steep slopes which face mostly west or southwest. The flora features Schizachyrium scoparium, Andropogon gerardii, Sorghastrum nutans, Bouteloua curtipendula, Sporobolus cryptandrus, S. asper, Senecio platensis, Echinacea pallida, Psoralea tenuifolia, Petalostemon purpureum, P. candidum, Liatris aspera, Solidago drumondii, Solidago speciosa, Aster azureus, Aster sericea, Aster oblongifolius, and Buchnera americana, among others. The general composition is indicated in table 3.

Old Stone Face

Location:

(Sec 16, T 10 S, R 7 E), Harrisburg Quadrangle, Saline County.



Old Stone Face (dot)

virginiana, and Carya buckleyi. Schizachyrium scoparium makes up about 70 percent of the composition. Bouteloua curtipendula, Andropogon gerardii and Sorghastrum nutans are conspicuous. Muhlenbergia capillaris and Muhlenbergia cuspidata are present here along with Koeleria macrantha. A good variety of forbs is present. The composition is shown in table 2.

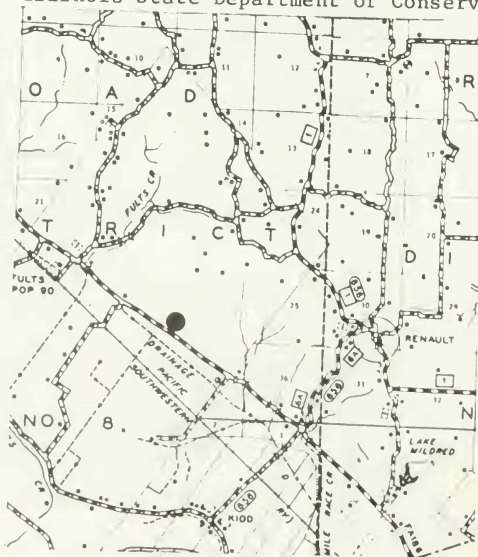
Fults Hill Prairie

Location: (Sec 9, T 5 S, R 9 W), about 3 miles north of Prairie Du Rocher; about 1 mile south of Fults along the bluff Road, atop a high limestone bluff.

Origin of Name: From the proximity to the village of Fults.

Size: 532 acres

Ownership: Illinois State Department of Conservation.



Fults Hill Prairie (dot)

Table 2.
Percentage Composition of Species in a Hill Prairie located between Folts and Prairie Du Rocher.
Data from 10 meter square quadrats.

Species	Percentage Composition				
<i>Andropogon gerardii</i>	4.46	3.30		21.6	
<i>Aristida dichotoma</i>					
<i>Aster oblongifolius</i>	2.00		0.02		1.43
<i>Cassia fasciculata</i>	2.00				
<i>Cercis canadensis</i>	1.70				
<i>Crotalaria sagittalis</i>		2.70		1.74	
<i>Cunilla origanoides</i>			0.29		
<i>Dodecatheon meadia</i>			1.40		0.85
<i>Diodia terres</i>					
<i>Elymus villosus</i>	3.47				
<i>Fragaria virginiana</i>	0.87				
<i>Gerardia aspera</i>	0.30	5.02	0.38	1.38	
<i>Helianthus divaricata</i>	0.53			11.50	
<i>Koeleria macrantha</i>	1.60	3.50	22.60	30.32	70.40 9.22
<i>Heuchera</i>			1.79		0.05
<i>Lechia tenuifolia</i>	0.90				
<i>Lespedeza virginica</i>	4.20		8.51	0.43	
<i>Liatris aspera</i>			0.89		8.16 0.13 6.18
<i>Muhlenbergia capillaris</i>					
<i>Muhlenbergia sobolifera</i>					
<i>Petalostemon candidum</i>	1.09	4.59	7.14	10.00	0.85
<i>Petalostemon purpureum</i>				7.37	3.41
<i>Rosa carolina</i>					
<i>Solidago speciosa</i>	0.30	1.22	3.19	2.92	
			5.15		
<i>Sporobolus asper</i>	1.04				0.20
<i>Sporobolus vaginiflorus</i>			0.71		
<i>Sorghastrum nutans</i>	22.70	4.04	2.14		
<i>Schizachyrium scoparium</i>	36.30	87.00	90.00	51.13	48.00 77.90 46.6 27.90 84.30
<i>Tephrosia virginica</i>					22.50
<i>Verbesina alternifolia</i>	32.10				

Origin of Name: After the unusual rock formation which bears the resemblance of a human head and face.

Size: A fraction of an acre.

Ownership: A part of the Shawnee National Forest.

Features: An upland hill prairie over sandstone bedrock; shallow soil, gently sloping to the north. The flora consists of Koeleria micrantha, Andropogon gerardii, Sorghastrum nutans, Petalostemon candidum, Tephrosia virginiana, Liatris spicata, Asclepias meadii, Lespedeza virginica, Muhlenbergia capillaris, Aster oblongifolius, and Polytaenia nuttallii, among others.

Twelve Mile Prairie (Kinmundy Prairie)

Location: (Between State Highway 37 and the ICG Railroad between Kinmundy and Watson in Marion, Effingham, and Fayette Counties.



Twelve Mile Prairie (dot)

- Origin of Name: First called "Kinmundy Prairie" when first visited by the author over thirty years ago. It has since been called "Twelve Mile Prairie" because of the 12 mile distance of the prairie vegetation on the right-of-way between Kinmundy and Watson.
- Size: As described above.
- Ownership: ICG Railroad and the Illinois Department of Transportation for maintenance.
- Features: Twelve Mile Prairie is a mesic black-soil prairie remnant. Plants found here include the following, among others: Sporobolus heterolepis, Koeleria macrantha, Elymus canadensis, Sorghastrum nutans, Andropogon gerardii, Schizachyrium scoparium, Gentiana puberula, Liatris pycnostachya, Veronicastrum virginianum, Baptisia leucophaea, Baptisia leucantha, and Camassia scilloides.

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ON THE ORIGIN AND MAINTENANCE OF LA GRANDE PRAIRIE OF ILLINOIS

By Lewis J. Stannard

First recorded knowledge of the Illinois prairie, La Grande Prairie, dates back to 1672-1673 when Joliet and Jesuit Father Jacques Marquette and later in 1679 when LaSalle and Father Hennepin entered Illinois and wrote on their observations. Parts of their journals were lost and rewritten from memory (Thwaites, 1896-1901).

According to Father Hennepin, in 1679, Illinois was composed of "boundless prairies interspersed with forests of tall trees..... The fields were covered with very good hemp, which grows there naturally to a height of six or seven feet." Where the Illinois prairie was the principal element, bison were dominant, and as many as a herd of 400 were seen by Father Marquette in June 1673.

Within 20 or so years after the French made contact with the Illinois Indians, these tribes began using guns to kill bison, probably for the first time in Illinois. Despite the new hunting pressure on bison by Indians, bison continued to be present on the Illinois prairie for over 100 years more (Imlay, 1793). By 1818, however, as Illinois began to be settled by European man, cattle and horses had replaced the bison and the prairie was being frequently burned by man (Flower, 1882).

The rate of destruction of the Illinois prairie accelerated when the railroads were built, circa 1855, and the major part of the Grande Prairie was destroyed by the early 1900s when the land was tiled, ditched, drained and plowed.

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Unfortunately, there are no good accounts of the composition of the original prairie. V. E. Shelford, University of Illinois, Urbana, once told me that big bluestem, *Andropogon gerardii* Vitman, usually considered to be one of the dominant grasses of the mesic prairie, was early called the "settler's grass". It is a grass that is purported to be particularly able to withstand fire and possibly when the settlers began to burn the prairie on a regular basis, this grass increased to earn the name "settler's grass".

It has been noted by others that most, if not all, of the plants and animals of the Grande Prairie also occur elsewhere in the eastern United States. All are adapted to moist conditions; certainly none could be considered "xeric" forms. Whenever these mesic species of the Grande Prairie extend westward to the drier Plains, they retreat to the wetter northsides of slopes or along streams as can be seen, for example, in the distribution of *Andropogon gerardii* in North Dakota (Stevens, 1963) and from my own observations in Nebraska.

Several theories on the origin and maintenance of the mesic prairie have been proposed.

One of the most incongruous theories is that the Grande Prairie was part of a "dry tolerant" grassland. Transeau in 1935 proposed that the Grande Prairie of Illinois was part of a prairie peninsula that resulted from past and present xerothermic conditions. He suggested that the Rocky Mountains cast a rain shadow, causing decreased rainfall, over the mid-continent, permitting only grasses to grow where otherwise trees might have prevailed.

As is clearly apparent from our daily, televised, weather forecasts, the ample rain that falls on Illinois does not come from over the Rocky Mountains but comes up from the Gulf of Mexico. Dr. Douglas Jones, Illinois Water Survey, Urbana, recently pointed out to me that weathermen have an axiom: "When the Gulf opens up we get rain". The Rocky Mountain rain shadow influence is inapplicable to the Illinois climate.

Transeau further suggested that there was reduced atmospheric moisture in the Prairie Peninsula compared to that in the eastern forests. His calculations failed, however, to take into account

the high humidity surrounding the numerous sloughs in the Grande Prairie before these sloughs were drained.

An equally improbable theory on the origin and maintenance of our Illinois prairie is that fire was the principal factor.

It is often said, but not documented, that the Illinois Indian burned these prairies to obtain game for food. To the contrary, Illinois Indians, prior to the arrival of European man, rarely took prairie animals, except occasionally prairie chickens, for food (Roper, 1979). Analysis of Indian kitchen middens, deposited over thousands of years, by Parmelee (1962), Struve and Holton (1979), and others indicate that no bison bones were found at any Illinois archaeological site predating A. D. 1500. Lightning fires were probably rare on the Grande Prairie before the prairie was drained, or even now anywhere east of the Mississippi River. The USDA Forest Service (Main and Haines, 1974) list man as causing most of the fires in the eastern forests. At any rate, fires in areas of our natural prairie, densely interspersed with standing sloughs, would not spread far, except perhaps in winter when all the water was frozen, at a time when lightning would be extremely rare.

A number of investigators (Steyermark, 1959, Whitford and Whitford, 1971, Edwards, 1974, and Roper, 1979, and others) have downplayed fire as the natural cause of savannas and mesic prairies in Missouri, Wisconsin and Illinois and the reasons for their conclusions have much merit and should be weighted against the arguments for fire.

In my years of collecting (1946 to present), I have found that certain species of wingless, duff-inhabiting arthropods, namely species of thrips, pseudoscorpions, japygids, Collembola, etc. that live and overwinter in clumps of *Andropogon* and other plants or in hollow stems and galls of herbs and forbes are destroyed by fire. If unburnt prairie is absent around "prescribed" burnt prairie from which these wingless arthropods could repopulate the burnt site, integral and original components of the prairie are eliminated. Furthermore we have no knowledge on how long it takes for specific wingless organisms, at least not certain species of thrips, to return to burnt prairie areas. (Studies on the repopulation of animals, i.e., insects, back into burnt areas done at the familial or ordinal level, instead of species by species, are not meaningful.)

An early theory, and the best in my opinion, on the origin and maintenance of the Grande Prairie was advanced by Lesqueroux (1866).

Lesqueroux suggested that our prairie was the result of poorly drained, wet, juvenile soils unsuitable for trees, best suited for certain grasses and herbs.

Soil maps of Illinois, prepared by the Illinois Agricultural Experiment Station in cooperation with the Soil Conservation Service, USDA, University of Illinois, Urbana, support this theory. These soil maps show that the Grande Prairie was composed of low lying regions surrounding myriads of sloughs. Using these maps as guides, I have gone to areas where former sloughs occurred and found in the now drained, ploughed fields thousands of pieces of *Physa* snail shells. These sloughs must have contained permanent standing water for these snails to have survived and reproduced in times past. These soil maps also show that the forests, interspersed in the Grande Prairie, were confined to bands along the rivers and streams or on the tops of some moraines, where drainage was the best in the region. G. E. Ekblaw, Illinois Geological Survey, Urbana, once told me that after heavy rains on the prairie near Rantoul and Flatville, Illinois, his boyhood home, the sloughs overflowed to form extensive lakes that often persisted for several weeks. Even floodplain trees could not survive such standing water and swamp and bog trees (bald cypress, tupelo gum, tamarack, etc.) do not range into the Grande Prairie.

Flooding of the poorly drained prairie was a condition to which some prairie insects are well adapted. For example, chinch bugs, especially while in hibernation, can survive up to several weeks under standing water (Decker and Andre, 1938). Other insects (thrips) live off the ground in the accumulated duff of grass clumps and other insects (ants) build mounds and thus escape some flooding. Insects having larvae that inhabit wet areas, such as horse flies, were noted to be abundant and a scourge on the original prairie. It was said by Father Hennepin in 1679 that the bison retreated to the prairie groves to ruminate, presumably to escape the horse flies and deer flies as well as for shade. Also, many of the birds recorded to be on the early prairie in Illinois were water-oriented: cranes, swans, geese, ducks and shore birds. Clearly the Grande Prairie was a moist, often very wet habitat, not a dry region, some authors to the contrary notwithstanding.

Now that most of our remaining wet prairies have been reduced to very small relics surrounded by drainage ditches, alien floras and faunas, ploughed fields or paved roads, it is difficult to maintain any of them as natural sanctuaries. Many methods to care for our prairie preserves can be employed. These would include raising the water table around them, mowing the areas in the fall, and individually removing invading trees and non-native plants and animals. If fire is continued to be used as the principal management technique for our prairie sanctuaries, then these sanctuaries will become even more depauperate and will eventually become gardens of fire resistant plants and animals, lacking many of the less vagile, wingless organisms, perhaps a loss only a few entomologists or naturalists will notice, but a real loss, nevertheless, to the biota we are trying to save.

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Notice to future contributors

This issue marks the first time in which we have printed the journal in 12-point type. Future contributors to the journal are asked to please read the guidelines for manuscripts submitted to the journal located on the inside back cover of this issue. SEVERAL CHANGES IN GUIDELINES HAVE BEEN MADE IN ORDER TO ACCOMMODATE OUR NEW PRINTING FORMAT.

In addition, this issue also marks the first time in which reprints are provided to authors. Five free reprints will be sent to each author. Additional reprints are available to the author at a charge (write the editor for details and prices). ADDITIONAL REPRINTS MAY BE ORDERED ONLY AT THE TIME THE MANUSCRIPT IS SUBMITTED.

ORIGINAL PRAIRIES IN SOUTHERN ILLINOIS

AS ENUMERATED IN COUNTY

AND OTHER HISTORICAL AND GEOGRAPHIC SOURCES

by
John W. Voigt

County histories, written before the turn of the century, recorded specific prairies in southern Illinois. Often maps and exact locations were presented. This information could be useful in the continuing search for present day prairie remnants. It is worthwhile to bring this information together in one place for the person who is interested in prairie vegetation. The histories which were available include the following: Perry, Williamson, White, Hamilton, Wayne, and Clay. These counties all feature the prairie forest border in southern Illinois.

Perry County: (from a New Geography of Perry County, Illinois, Aug-Sept., 1975, pp 19-44). Grand de Cote Prairie; Round Prairie; Hutchings Prairie; Mud Prairie; Upper Paradise Prairie; Lost Prairie; Brush Prairie; Burnt Prairie; Upper Holt's Prairie; Johnson's Prairie (a part of Paradise Prairie); Six Mile Prairie; Eaton's Prairie; Conant's Prairie; Galum Prairie; Four Mile Prairie; Lower Holt's Prairie; Nine Mile Prairie; Lower Paradise County.

Williamson County (from Williamson County Centennial Pictorial map by Nannie Gray Parks in Illinois, p. 25, Summer, 1982), also The Presettlement Vegetation of Williamson County by Roger C. Anderson & Rebecca Anderson, Castanea 40:345-363, 1975, also A New Geography of Williamson County by R. H. Mohlenbrock, Illinois Jan., 1976, pp. 13-45. Prairies enumerated as follows: Six Mile Prairie; Herrin's Prairie (also Herring's Prairie, after Jonathan Herring); Scoharrie Prairie (on Jordan's Trail from Williams Prairie to Jonathan Herring's Mill); Eight Mile Prairie near Fredonia; Phelps Prairie (NW of Marion); Poor Prairie (NE of Marion); Davis Prairie (W. of Crab Orchard); Prairie Hill (NE Williamson Co).

White County (from A History of White County, Interstate Publishing Co., Chicago, 1883): Boltinhouse Prairie (near Albion); Burnt Prairie (central and northern part of Burnt Prairie Township); Herold's Prairie; Seven Mile Prairie; Big Prairie (Hawthorne Township); Little Prairie (near center of Emma Township).

Hamilton County (from a New Geography of Hamilton County, Illinois, February, 1978) Map on page 14): Elk Prairie (central, N. part of the county, T3, R6); Little Prairie (T4, R5, north of Big Creek); Moore's Prairie (T4, R5, south of Big Creek); Belle Prairie (T4, R6); Auxier Prairie (T4, R6, NE part of township); Brushy or Eel's Prairie (T4, R6, SW part of township); Knight's Prairie (T5, R5, SW part of township); Hogg Prairie (T5, R6, East part of the township above Ten Mile Creek); Parker's Prairie (T6, R6, NE part of township north of Contrary Creek).

Wayne County (from History of Wayne County, Globe Publishing Co., Chicago, Illinois 1884): "A dividing line between the heavily timbered belt of Southern Illinois and the great prairie ranges of the central and northern parts of the State. The true prairie is found here, but in small patches and the whole extent in the county is only about 20 percent of the area," p. 15. Prairies enumerated as follows: Big Mound Prairie (near Fairfield); Seven Mile Prairie (present location of Enfield); Burnt Prairie (near township of Liberty); Turney's Prairie (about 6 miles south of Fairfield); Tom's Prairie; Brushy Prairie (Sec. 24, T25, R9E, in Leach Township); Six Mile Prairie (in Four Mile Township); Long Prairie (Four Mile Township); Round Prairie; Arrington Prairie (a church name, and also a large and beautiful prairie 10 miles long and 3 miles wide); Johnson Prairie (church location); Bear Prairie (Sec. 4, Jasper Township); Indian Prairie Township; Big Mud Prairie (Arrington Township); Garden Prairie (a small prairie in Sec. 4); Hickory Hill Prairie (about 3 miles X 2 miles); Locust Prairie (NW part of Wayne Co., Hickory Hill Township).

Clay County (from History of Wayne County, Globe Publishing Co., Chicago, Illinois 1884). "You could, by jumping up and down at times and in numerous places, shake the sod for a rod all around," p. 307. Prairie enumerated as follows: Little Prairie (west of Little Muddy Creek in Sec. 2); Hoosier Prairie (west of Little Muddy Creek, and occupies the greater portion of Hoosier Township, T4N, R7E, present site of Louisville); Lovitt's Prairie (east of Little Muddy between Cottonwood Creek and Big Muddy Creek).

THE SELECTION OF APPROPRIATE SPECIES FOR PRAIRIE LANDSCAPING OF THE HOME

by Rene Frasher, Gerald D. Coorts and Mevlut Canagir¹

The benefits of landscaping with prairie plants are many. These include the natural beauty of the grasses and forbs, the attraction of wildlife, the relatively low maintenance requirements after the plants have established themselves, and the personal satisfaction that the homeowner receives as they see their prairie come to life and mature through the seasons.

In designing for such benefits the landscape professional cannot haphazardly place the prairie grasses and forbs into the home landscape. It must be carefully planned to achieve the desired effect based on the purpose of the design. One of many design considerations to achieve the desired effect is the selection of appropriate species.

Appropriate species of grasses and forbs should be selected for each residential landscape area to be developed into a prairie. There are several species of grasses and forbs that can be selected not only on how effectively they will function in the landscape, (based on the purpose of the design), but on how well they relate in form, texture, and color to other prairie species and design elements near and around them.

There are certain restrictions to be considered, that will affect plant selection, the final design solution, and the satisfaction of the homeowner. These restrictions are as follows: local ordinances, length of time and amount of money needed for establishing the prairie setting, site suitability or adaptability, and geographical location as it relates to the environment.

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First, among those should be consideration of local ordinances. This may seem unnecessary at the time. However, many local governments have height restrictions on weeds, grasses, and other plant materials growing in the lawn. For example, the city of Carbon-dale, Illinois, has an ordinance which forbids the growth of plant material in open areas within city limits over the height of 6 inches. This type of local control may eliminate from consideration the establishment of a prairie in the lawn, particularly in the public area.

However, there may be some alternatives worth considering which will meet the local ordinances. It is possible to select prairie grasses and/or forbs that grow to less than 6 inches in height. For example, one may use the following species: buffalo grass (Buchloe dactyloides), pasqueflower (Anemone patens), wild strawberry (Fragaria virginiana) and birdsfoot violet (Viola pedata). Another alternative may be to screen the proposed area from public view with shrubs and trees, perhaps even using prairie shrubs such as lead plant (Amorpha canescens), New Jersey tea (Ceanothus americanus), Carolina rose (Rosa carolina), or prairie willow (Salix discolor).

Second, the decision by the homeowner to establish a prairie in the home landscape is no small undertaking and should not be treated as such. At least three to four years is required with as much time and effort as the typical establishment of a lawn or garden (Smith and Smith, 1980). The real beauty of the prairie will not be fully realized until well after the plants have established themselves; even then, occasional maintenance will be required to keep the desired effect.

As the first step in establishing a prairie, site selection and its preparation should begin in August with a complete turning over of the soil to eliminate existing vegetation on the site, in particular, weeds. Seed may be sown that fall or the next spring. However, it is very difficult to make specific recommendations for the amount of seed needed to establish a prairie landscape. Seeds vary greatly in germinability from year to year, particularly if collected from the wild. There is considerable variation in rainfall from year to year. Some growing seasons are dry, others are wet. All of these variables affect germination and plant survival (Smith and Smith, 1980). Table I is a list of seeding rate recommendations from several sources.

Table II is a cost comparison of establishing prairie and bluegrass sod. It is important to remember that to attain the most natural

Table 1

RECOMMENDED SEEDING RATES OF PRAIRIE GRASSES AND

FORBS FROM VARIOUS SOURCES

Recommended seeding rates of prairie grasses and forbs^z

10 lbs. bulk grass seed yields about 30 live seeds per sq. ft. spread over 1 acre

15 lbs. bulk grass seed yields about 45 live seeds per sq. ft. over 1 acre

20 lbs. bulk grass seed yields about 60 to 70 live seeds per sq. ft. over 1 acre

Grass Seed Mixture	12 - 15 lbs. per acre
big bluestem, Indian grass, Junegrass	bulk weight
little bluestem, needlegrass, prairie	
dropseed, side-oats grama, switchgrass	

Cover Crop Seed	1 - 2 lbs. per acre
perennial or wild rye or oats	bulk weight

Forb Seed Mixture	6 - 15 lbs. per acre
	bulk weight

Recommended application rate for prairie grass species planted alone^y

Big bluestem - Broadcast	20 - 30 lbs. per acre
Big bluestem - Suitable Drill	14 - 20 lbs. per acre

Blue grama - Broadcast	60 - 80 lbs. per acre
Blue grama - Suitable Drill	40 - 60 lbs. per acre

Buffalo grass - Broadcast	25 - 38 lbs. per acre
Buffalo grass - Suitable Drill	17 - 24 lbs. per acre

Indian grass - Broadcast	20 - 30 lbs. per acre
Indian grass - Suitable Drill	14 - 20 lbs. per acre

Little bluestem - Broadcast	14 - 20 lbs. per acre
Little bluestem - Suitable Drill	8 - 15 lbs. per acre

Side-oats grama - Broadcast	23 - 33 lbs. per acre
Side-oats grama - Suitable Drill	15 - 22 lbs. per acre

Switchgrass - Broadcast	10 - 20 lbs. per acre
Switchgrass - Suitable Drill	7 - 14 lbs. per acre

^yAfter Ingels, Lafayette Home Nursery, Inc., 1980 Wholesale Prairie

^zAfter Rock, Prairie Propagation Handbook.
Milwaukee County Park
System, Milwaukee, WI. Fourth Edition. 1975.

Recommended application rate of forbs planted in Illinois

1. With native Illinois strains of prairie grasses and applied with suitable drill (Nesbit): 1 lb. per acre.
2. With native Illinois strains of prairie grasses and applied with Hydro-seeder: 2 lbs. per acre
3. With more aggressive Nebraska grasses and applied with suitable drill (Nesbit): 3 lbs. per acre.
4. With more aggressive Nebraska grasses and applied with Hydro-seeder: 4 lbs. per acre.
5. With native Illinois strains of prairie grasses and applied by hand broadcasting: 8 lbs. per acre.
6. With more aggressive Nebraska grasses and applied by hand broadcasting: 16 lbs. per acre.

Recommendations for seed rates of prairie grasses^x

Big bluestem	1 lb. per 2,200 sq. ft.
Blue grama	1 lb. per 4,000 sq. ft.
Buffalo grass	1 lb. per 1,000 sq. ft.
Indian grass	1 lb. per 2,300 sq. ft.
Little bluestem	1 lb. per 3,400 sq. ft.
Side-oats grama	1 lb. per 2,000 sq. ft.
Switchgrass	1 lb. per 4,200 sq. ft.

Recommended seeding rates for prairie grasses^w

Big bluestem	4 lbs. per acre
Junegrass	0.5 lbs. per acre
Little bluestem	5 lbs. per acre
Needlegrass	2 lbs. per acre
Prairie dropseed	1 lbs. per acre
Side-oats grama	4 lbs. per acre
Switchgrass	1 lb. per acre

^xAfter Prairie Home Seeds, 1981 Price List, Prairie Home, NB. 1981

^wAfter Smith, The Prairie Garden. Univ. of Wisconsin Press, Madison, WI. 1980.

Table 2

COST COMPARISON CHART OF ESTABLISHING

PRAIRIE AND BLUEGRASS SOD

Initial Cost^zNative*

Site preparation	\$400
Prairie grass seed and seeding	300
Wildflowers (2,000 seedlings plus planting)	2,500
First year watering and mowing	90

Total per acre \$3,290

Maintenance Costs

Mowing or burning (including cost of equipment rental)	\$100
--------------------------------------------------------	-------

Total per acre \$100

*General estimate based on 5- to 10-acre project with 2,000 seedlings of wildflowers @ \$.80 each average cost plus \$.45 for planting. Wildflower planting may vary from 500 to 5,000 seedlings per acre depending on desired effect and cost. Site preparation will vary widely from site to site.

Initial CostBluegrass sod:

Site preparation	\$500
Sod (\$1.00 sq. yd. installed)	4,840
First year watering	100
First year mowing (8 times)	200

Total per acre \$5,640

Maintenance Costs

Mowing	\$400
Watering	200
Fertilizing (2 applications)	100
Equipment, maintenance, fuel	250

Total per acre \$950

^zAfter Smith, The Prairie Garden. Univ. of Wisconsin Press, Madison, WI. 1980.

effect in a prairie landscape based on local remnants, it is recommended to order or collect seed locally. Dormant plants may be transplanted on the site in autumn or spring. Transplanting in autumn (October or November) usually is more successful because a plant is fully dormant and will not be ready to grow until exposed to winter cold and spring warmth.

During establishment years competition in the newly planted prairie will occur either from invaders or among the prairie plants themselves. Annual weeds prove to be the biggest problem in the first few years, thus requiring special attention. Such weeds and other invaders can be lessened by handpulling, burning, or the use of a companion crop.

Weeding by hand is one of the most effective but time consuming methods, requiring a thorough knowledge of plant species of both the weed and prairie plants since an over-zealous weeder may remove the wrong plant!

Mowing can be done with a rotary mower set at its highest setting (4 to 6 inches), or high enough so that it will not injure the prairie species. Mowing may have to be done two or three times during the first growing season or whenever the weeds appear to be taking over. Mowing shreds the tops of the weeds, removes shade allowing the prairie plants a chance to grow, and destroys the weed seed crop if done early enough (Smith and Smith, 1980).

Burning is used as a tool of maintenance with non-residential prairie plantings as it is one of nature's forces that has acted upon the prairie for thousands of years and to which the prairie has become accustomed through evolution. Burning is recommended every 3 to 4 years, from mid-March to mid-April with a wind velocity of not greater than 25 mph. Burning serves to kill cool-season and woody invaders, release nutrients for plant uptake, and heats the soil for germination of prairie seed (Rock, 1975; Smith and Smith, 1980). This maintenance tool has severe limitations in residential situations. Firebreaks may be required on the site, and no prairie plantings should be located dangerously near the home if burning is to be used. It is also imperative that the homeowner and the landscape professional know the local ordinances governing the burning out-of-doors within the city limits. Where burning is not permitted by law, mowing in the early spring and raking the clippings is a suggested alternative (Smith and Smith, 1980). Obviously, many consider mowing a preferable alternative due to the hazards involved with burning.

Some prairie species are aggressive and will take over where sown, but they can be isolated and companion planted with equally aggressive species. The dominant grasses of the prairie, as their name implies, are quite competitive and aggressive. This characteristic should be kept in mind when determining the forb to grass ratio for planting, because the ratio will, over a period of years, shift in favor of the grasses. Recommendations for forbs to grass ratio are 70 to 30 and 80 to 20 (Smith and Smith, 1980), but this may be reduced as determined by the purpose of the design and the homeowner's preference for extensive forb plantings.

Third, site suitability or adaptability is based on the amount of sunlight, type of soil, topography, and size of area to be landscaped as factors which might affect the individual species or group of habitat-related species to be used.

Most species of prairie grass or forbs require 70 to 100 percent exposure to sunlight for adequate growth (Smith and Smith, 1980). This growth requirement may alone determine whether the site can accommodate prairie plants and where on the site they can be placed. It does not, however, preclude planting shrubs and trees in conjunction with the prairie plantings to add variety and contrast to the home landscape.

Prairie plants are found growing on a variety of soils from the fertile soils of America's agricultural lands to infertile sandy ridges and rocky bluffs. Therefore, it is difficult to make recommendations about soil requirements for the individual prairie species or related species. It is important that the landscape professional determine under what soil conditions local ecotypes grow.

Variations in the slope of the home landscape are most desirable because they provide the opportunity to use a wide variety of prairie plants. If, for example, a low-lying area exists where water collects after a rain, the landscape professional would suggest lowland or wet prairie species, and, conversely, if a hilltop or a swell is in the landscape, species of mesic (moderately moist) or upland (dry) environments may be suggested. Of course, for the greatest variety and enjoyment, a combination of lowland, mesic, and upland species is ideal (See Fig. 1).

In addition to knowing the amount of sunlight, soil type and slope, the size of the area to be landscaped is also of importance in determining site suitability and adaptability. It should be no less than 2,500 square feet. If the complete lawn is being considered, larger and more coarse species of prairie grasses and forbs

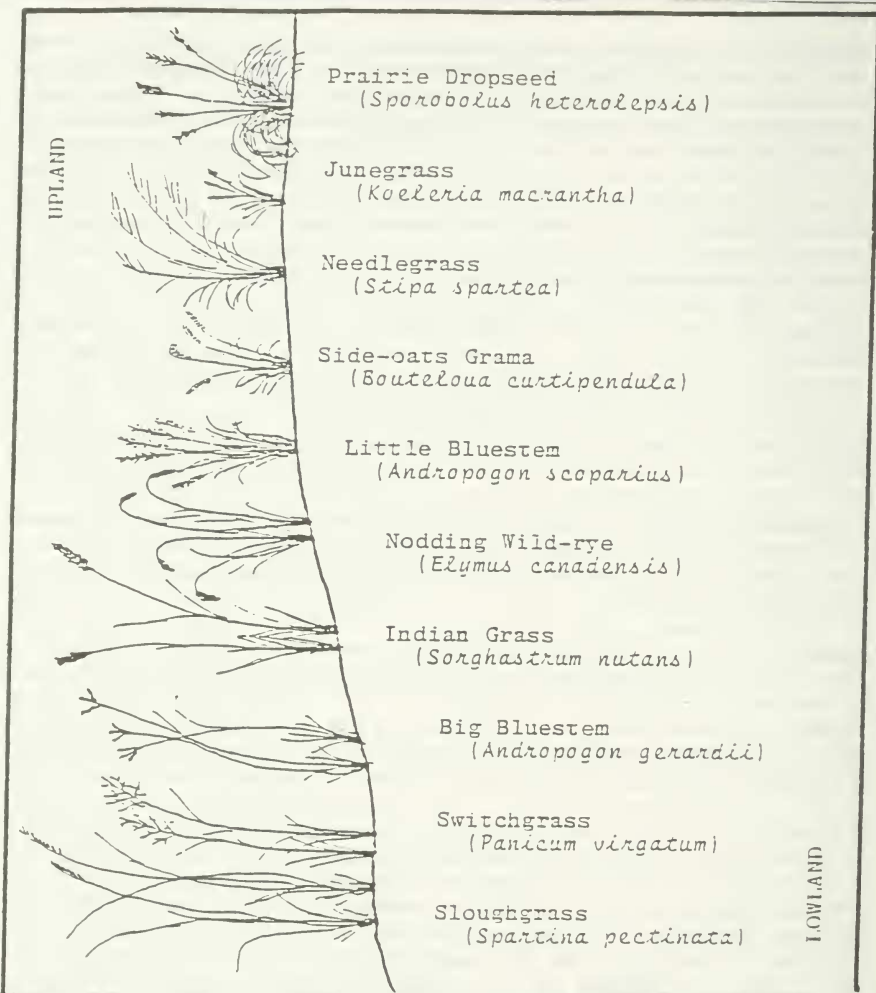


Figure 1. The Major Dominants

[After Voigt and Mohlenbrock, *Prairie Plants of Illinois*.
Department of Conservation, State of Illinois, 1980.]

may be considered as long as the planting will not dwarf the site resulting in an unbalanced composition. Species of smaller size and finer texture are suggested for the smaller site, with judicious and sparse use of the larger prairie species in the design composition.

Fourth, geographical location is most readily understood as the range of a plant, that is, in what geographical area or region can the plant species be found growing successfully. Prairie plants originally inhabited a vast area of the United States differing greatly in topography, soils, climate, etc. However, no real information exists as to the true limit of their ability to grow "anywhere" in the United States. It is quite possible that prairie grasses and forbs can grow, or perhaps did grow, in many more areas than have been recognized. For example, little bluestem has been occupying space in a "natural area", where it was planted, in the Mattheis Tract of the Connecticut Arboretum in New London, Connecticut, for a number of years (Gotthrer, 1978). This is out of its native range. Therefore, it is difficult to state precisely the geographical region best suited to any individual species or group of habitat-related species. There is evidence suggested by the survival of little bluestem in Connecticut that the range of prairie forbs and grasses has not been fully realized.

To conclude, establishing a prairie landscape requires time and a great deal of patience to appreciate its long-term effects. A sense of self-satisfaction is eminent for the homeowner and the landscape professional as they realize the accomplishment of their efforts. It is hoped that this brief discussion of prairie landscaping will provide the necessary information and encouragement to be daring with a new and fresh approach.

The homeowner wanting a prairie in the residential landscape places a great deal of responsibility upon the landscape professional. And, if indeed, the landscape professional wants to be a "purist" in this endeavor, it requires a mastery of the ecology of the prairie and the principles of design. Furthermore, a thorough knowledge of the materials and methods of establishing a prairie are also required.

Prairie landscaping is still a very new practice and much remains to be seen of its potential in residential landscaping. It continues to present itself as a challenge to the landscape professional, but it is a challenge with many worthwhile rewards.

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Continued from p. 38

Jefferson County (from A New Geography of Jefferson County, by L. A. Dearing, Illinois, pp 15-38, Oct., 1974) Elk Prairie Township (T4S, R2E); Moores Prairie Township (T4S, R4E); Grand Prairie Township (T1S, R1E).

SNP

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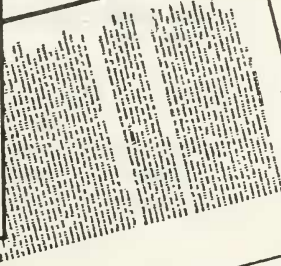
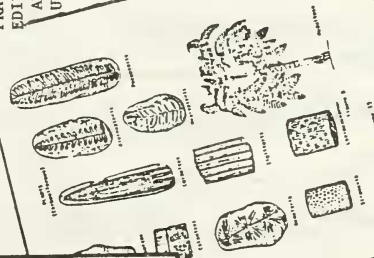
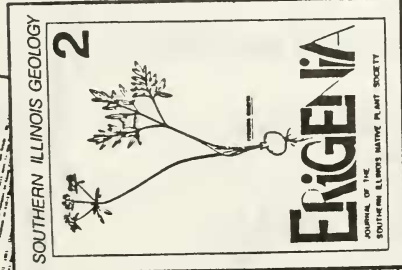
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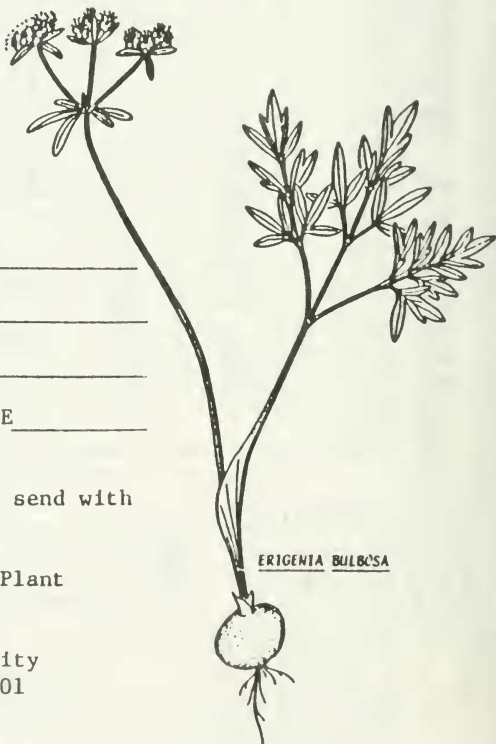
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