BLACKLAND PRAIRIES OF SOUTHWESTERN ARKANSAS

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ABSTRACT

The Blackland Prairie community type has been described in Texas; related communities exist in Alabama and Mississippi. The Arkansas variant of the community has not been described in detail. Since the Arkansas Natural Heritage Commission began a systematic inventory of the community in 1985, more than 36 remnants have been identified that retain substantial natural character. However, all show some degree of disturbance. Based on aerial photo interpretation, aerial inspection, and ground study, an initial description of the community is presented, including original distribution, soil, vegetation and relationship to similar communities of Texas, Mississippi, and Alabama.

INTRODUCTION

The Blackland Prairie Community in Texas has been described as a belt of prairie varying in width from 70km in the north to 12km in the south, extending in a northeast to southwest direction through the eastern part of that state (Collins *et al.*, 1975; Dyksterhuis, 1946; Hill, 1901; Kuchler, 1964). The term blackland refers to the deep mantle of black soil high in organic matter which occurs over a substrate of Cretaceous chalk or marl. It is generally dominated by *Andropogon gerardii, A. scorparius, Sorghastrum nutans,* and *Tripsacum dactyloides.* Virtually all of the Texas blackland prairie has been converted to cropland and pasture.

Cretaceous deposits similar to those of Texas occur along much of the northern edge of the Gulf Coastal Plain from Arkansas to Georgia. The best-known area is in Mississippi and Alabama, where "blacklands" or a "Black Belt" have been delineated (Kuchler, 1964; Shantz and Zon, 1924). These blacklands are characterized and mapped by the presence of alkaline soils; however, the vegetation of the Black Belt has been a topic of controversy. Shantz and Zon (1924) showed the area on their map as "tallgrass prairie". Rostlund (1957) disputed this, contending that "a natural prairie belt" in the Mississippi/Alabama blackland region was a "myth". Jones and Patton (1966), in a response to Rostland, presented evidence that within the Black Belt, grassland was the characteristic vegetation on calcareous clay soil.

The vegetation of the Arkansas blacklands has never been comprehensively described. The vegetation of the Coastal Plain of southwestern Arkansas as a whole is characteristically Loblolly Pine - Hardwood Forest on the uplands and Bottomland Hardwood Forest in the floodplains of rivers. However, southwestern Arkansas was settled very early and has for over 150 years been subjected to extensive and intensive land uses that have so modified the landscape that it is difficult to find areas exhibiting a high degree of naturalness. There have also been few ecological studies within the area. This makes understanding the original character of the community difficult.

Because of the dearth of ecological information on southwestern Arkansas, the Arkansas Natural Heritage Commission determined it would increase inventory efforts within the region. The blackland prairie community was an early priority.

The purposes of this paper are to describe remnant grasslands of the Arkansas blackland region and to examine the relationship of this community to similar communities in Arkansas and elsewhere.

THE STUDY AREA

The Arkansas blackland region, that is, the region containing calcareous clay soils, lies primarily within the portion of the West Gulf Coastal Plain underlain by Cretaceous deposits (Foti, 1974). The blacklands are not one contiguous area, but instead consist of several discrete areas that are best shown on the General Soil Map of Arkansas (USDA, 1982). As shown in Fig. 1, blacklands occur within seven counties of southwestern Arkansas on both the more usual Cretaceous substrate and also on a narrow strip of land underlain by the Midway Group of Tertiary age (Haley *et al.*, 1976).

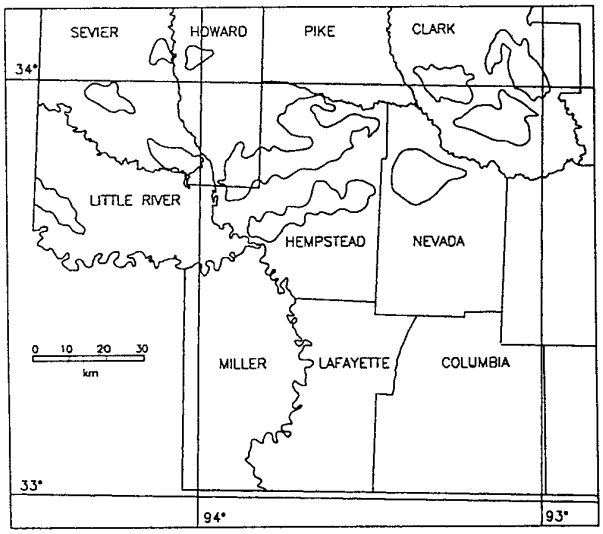

Figure 1. Blackland soil areas (USDA Soil Conservation Service, 1982).

DESCRIPTIONS OF REGIONAL VEGETATION

Most of the literature on the vegetation of the region is in the form of vegetation maps. The vegetation has been mapped by Kuchler (1964), who showed the area as Oak-Hickory-Pine forest in the uplands with Floodplain Forest in the streambottoms and a small area of upland Oak-Hickory Forest.

Many of the useful early scientific and historical descriptions were done by geologists. The earliest was provided by G.W. Featherstonhaugh (1835, 1844), who traveled the Old Military Road from Missouri to the Red River in 1834.

Featherstonhaugh (1844) described the physiognomy of the prairies near present-day Blevins in Hempstead County:

> "...a chain of prairies running westward and parallel with Red River for a great distance, until the whole country becomes one vast prairie, devoid of trees, except those which grow immediately upon the watercourses. Some

> of these prairies were mere bald spots of half an acre and more, whilst others contained several hundred acres, in every instance surrounded with a belt of timber and plants peculiar to the country...[the soil was]...black as charred wood and had a much more inky color than the rich vegetable mold usually found in low grounds...this portion of the country which had the quasi prairie character, was bottomed upon immense beds of rotten limestone, probably derived from the...remains of the mollusca I have named, since entire shells in a soft state are found embedded in the soft limestone."

Later, Owen (1860) and Dane (1929) provided increasingly detailed descriptions of the regional geology, while also touching on such relevant matters as relationship of vegetation and land-use to geology. Maps of value were produced by Langtree (1866), who compiled information from the land-survey plat sheets which included some prairies; Sargent (1884), who showed major forest cover types of Arkansas as well as the location of major prairie areas; and Branner and Hill (1888), whose geological map also showed several prairies. Sargent's map is the best known and shows two prairies along the eastern edge of the study area, and two more in Miller County just outside the blackland region.

Harper (1914) was taken to what was apparently a blackland prairie new Arkadelphia and said, "In crossing it rapidly I noticed essentially the same kind of soil and topography and treeless horizons and some of the same weeds and crops that characterize the geologically similar black belt or prairie region of Alabama and Mississippi."

The existence of the blackland prairie community was noted by Foti (1974) who recognized the Cretaceous region as a distinct section of the Coastal Plain Natural Division partly because of the presence of that community type.

The most detailed existing study of the vegetation of the region is an unpublished report in the files of the Arkansas Natural Heritage Commission, "The Arkansas Blackland Region" (Roberts, 1979). That report summarized the geology, geography, soils, origin, vegetation, flora, and the three sites known then.

METHODS

The historical and scientific literature sources, along with the known existing sites, were used to create an initial description of the blackland prairie community and other vegetation of the region. Using this initial description, aerial photography was examined to locate what were apparently the least disturbed areas within the region. These photos were examined in the county offices of the Soil Conservation Service (SCS) and Agricultural Stabilization and Conservation Service (ASCS), and in the offices of the Arkansas Highway and Transportation Department in Little Rock.

The criteria for evaluating naturalness of grassland areas on the photographs included absence of cattle trails, fences, or other obvious effects of grazing, a relatively uneven texture that would preclude the presence of improved pasture, and natural boundaries if within forest. Also, older aerial photographs, some as early as 1937, were consulted to evaluate past condition. The outlined areas were considered potential natural areas (PNA's), and made up the list of areas to be investigated in the field. The study area was examined from a light aircraft.

PNA's were inspected on the ground between 1985 and 1988. If an area was found to be highly disturbed, this fact was noted and the area was given no further attention. If the area appeared little disturbed, its dominant vegetation was qualitatively described, then entered into the Natural Heritage Commission database, and was used in further studies.

As field investigation provided increasingly-detailed knowledge of the distribution and character of blackland prairies in the study area, the portions that contained prairies, either high-quality or degraded, were identified and delineated. The presettlement character of these areas was examined by consulting microfilmed field notes of the Public Land Survey (PLS) of the General Land Office (GLO).

Ten of the less-disturbed prairies were selected for repeated visitation during 1986. Each was visited in April, June, and August; species lists compiled, and uncommon plants documented. In August the aerial cover of dominant species within six to 12 quadrates, 0.25m X 1.0m was estimated on each of these prairies, with data from all prairies pooled. This method was chosen to rapidly obtain data on community composition, although the sample was not adequate to compare individual prairies.

RESULTS AND DISCUSSION

POTENTIAL NATURAL AREAS

Within the study area, 295 potential natural areas (PNA's) were identified for further examination. Of these, 118 were determined to be blackland prairie remnants. An additional 49 were rocky glades or other non-blackland and openings in forest. Approximately 90% of the PNA's have been examined; the remainder are posted and permission to enter has not yet been granted. Of the blackland prairie PNA's, ground and aerial inspection showed that at least 36 retained substantial natural values; the others have been significantly altered.

DISTRIBUTION AND GEOLOGY

The distribution of blackland prairie remnants located by the inventory is shown in Fig. 2. The observed distribution of blackland prairie remnants does not coincide with that on any previous vegetation map. Most of the blackland prairie relicts lie within the blackland areas delineated on the SCS map (Fig. 1). However, a few lie outside the SCS blackland limits and some of the blackland areas shown on the SCS map contain no prairie relicts. Furthermore, relicts are not distributed uniformly over the SCS blackland areas, but rather in specific portions.

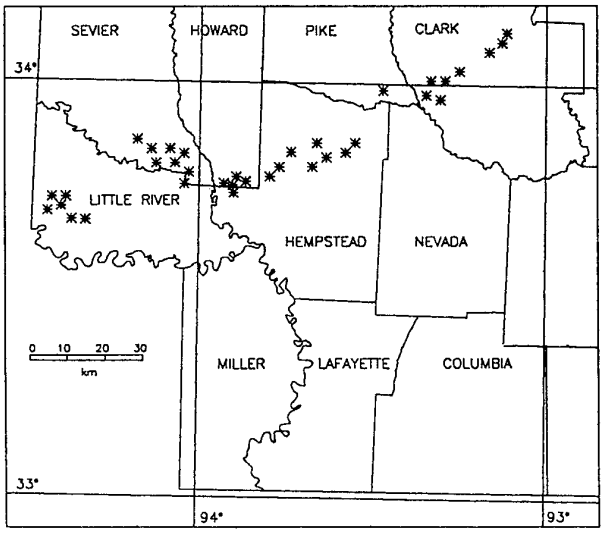

Figure 2. Locations of blackland prairie relicts.

The distribution of blackland prairies is most clearly understood in relation to geological substrates and topographic features. Numerous prairies have been located on these geologic formations: Saratoga Chalk, Marlbrook Marl, Annona Chalk and the Ozan Formation. Several have been found on Brownstown Marl. Few have been found on other formations. Distribution of the most important formations is shown in Fig. 3. Prairies have not been found on Arkadelphia Marl, a substrate

which forms deep black soils that seem to be the "classical" blackland soils. Nor have relicts been found on the Tertiary deposits where prairies were described at the time of settlement.

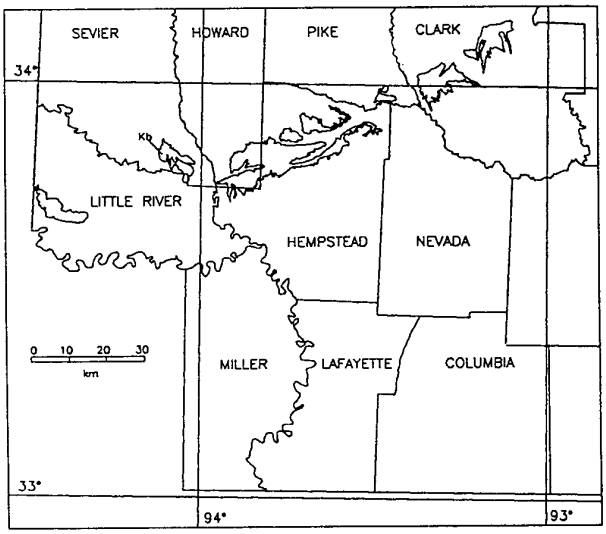

Figure 3. Distribution of geologic formations on which blackland prairie remnants occur. Outlined areas include Saratoga Chalk, Marlbrook Marl, Annona Chalk, and Ozan Formation, with a small area of Brownstone Marl (Kb) on which several prairies occur.

Prairies do not occur over the full exposure of the appropriate formations. They occur on the steep faces of ridges known as cuestas that are characteristic features of the study area. Cuestas are asymmetrical ridges with a steep slope and a shallow slope. On these steep slopes the underlying chalk or marl outcrops are mantled with only a thin layer of soil (Fig. 4). In the GLO land survey notes, it appears that the prairies originally occurred primarily on the steep slopes, but extended for a distance into the gentle slopes at the foot of a ridge. However, they were usually replaced by forest within a short distance of the foot of the slope. In all the existing prairie relicts, the base of the slope and the adjacent valley have been plowed.

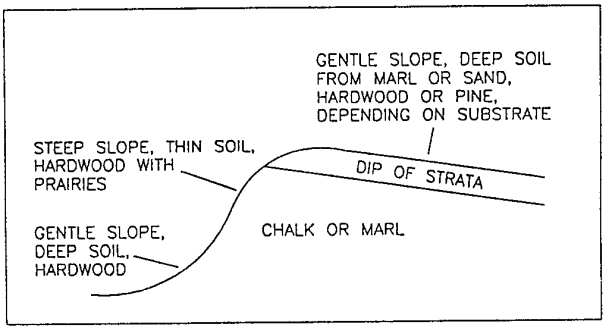

Figure 4. Relationship of forest and prairie to slope, substrate, and soil depth on cuestas.

Based on these geologic and topographic site factors a map of the original distribution of blackland prairies is presented in Fig. 5. Forests covered much of even these limited areas. However, those portions of the Brownstown Marl and the Ozan Formation that apparently supported no prairies have been eliminated from this map. The two prairies on the eastern edge of the study area that frequently have been shown on other maps are not delineated in Fig. 5 because no relicts have been located and there are major differences in site between those areas and the prairies described here.

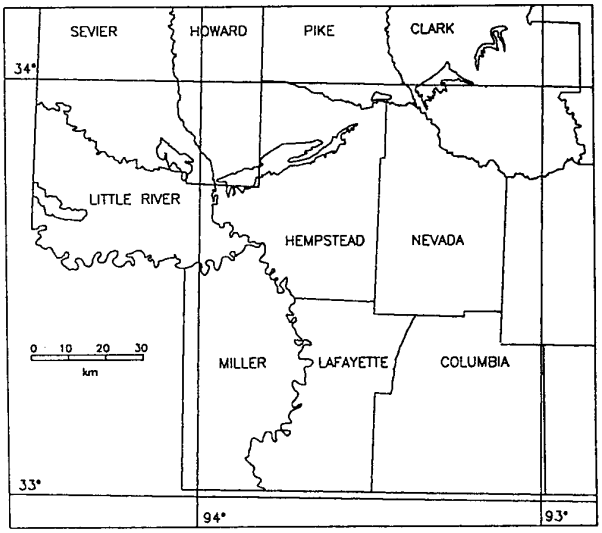

Figure 5. Original distribution of blackland prairies, based on geology, topography, and distribution of relicts.

PHYSIOGNOMY

As noted by Featherstonhaugh (1835) and verified by examinations of the GLO field notes and field observation of relicts, these prairies were typically small, ranging from less than an acre to a few hundred acres in size, separated by fringes of trees, shrubs and vines along watercourses.

In the GLO field notes, there were usually trees to mark the section corners, so the areas were not treeless. However, the distances to witness trees were typically rather long (often 15-20m), indicating the landscape was open. Prairie notations often took the form "2 prairies" or "4 small prairies". However, just north of present-day Columbus, several mile notes indicated "mostly prairie" and at two corners no trees occurred. This may therefore have been a prairie of several hundred acres.

SOIL

Blackland prairie remnants occur primarily on Sumter and Demopolis soil series. Some occur on Oktibbeha soils, but in these areas the soil appears to be one of the other two soils. Therefore, it is assumed that these are inclusions of the other soils within Oktibbeha. The descriptions of these two soils are summarized from USDA (1979).

Sumter clay soil occurs on slopes of three to 12 percent. It is classified as fine-silty, carbonatic, thermic Rendollic Eutrocrepts. It is moderately deep, well-drained, and gently to moderately sloping on hilltops and hillsides. Erosion has removed most of the topsoil. Typically, the surface layer is olive clay about 10 cm thick. The upper part of the subsoil is olive clay to a depth of about 45 cm, with pale olive mottled clay to 67 cm and light olive gray soft chalk to a depth of about a meter. Hard rippable chalk lies below. The soil is moderate in natural fertility and in organic matter. It is moderately alkaline throughout, and erosion hazard is severe.

Demopolis silty clay loam (gullied soil) occurs on slopes of three to 12 percent. It is classified as loamy-skeletal, carbonatic, thermic, shallow Typic Udorthents. It is shallow, well drained, and gently sloping to moderately sloping on hilltops and hillsides. Erosion has removed most of the topsoil; a few rills, shallow gullies, and deep gullies occur. Typically, the surface layer is grayish brown silty clay loam about 10 cm thick. Underlying material is light brownish gray very gravelly silty clay loam with chalk fragments, and extends to a depth of about 25 cm. Below that is rippable chalk. The soil is moderate in natural fertility and organic matter. It is moderately alkaline throughout, and may have a gravelly surface texture.

These soils are both shallow, in contrast to the deep soils that typify the Texas blackland prairies. Houston soil, that is a typical deep soil of Texas prairies, occurs in Arkansas and probably supported prairies at the time of settlement. However, all areas observed have been converted to other vegetation. The Houston Series is classified as very-fine, montmorillonitic, thermic Typic Chromudert. It is deep, moderately well drained, slowly permeable, nearly level to gently sloping. Depth to chalk is 1.5-2m.

PLANT COMMUNITY

A list of the flora is presented in Table 1. This list is compiled from the frequently-inventoried sites. It only lists those species that occur within the higher-quality grassland remnants. However, the list includes

Table 1. Flora of 10 prairie relicts. Nomenclature follows Smith, 1988.

DICOTS	
ACANTHACEAE	
Ruellia humilis Nutt.	
ANACARDIACEAE	
Rhus aromatica Ait.	
R. coppallina L.	
R. glabra L.	
Toxicodendron radicans (L.) Kuntze	
AQUIFOLIACEAE	
Ilex decidua Walt.	abundant invader
ASCLEPIADACEAE	
Asclepias tuberosa L.	
A. viridis Walt.	
BORAGINACEAE	
Heliotropum tenellum (Nutt.) Torr.	
Lithospermum tuberosum Rugel ex DC.	rare
Onosmodium molle Michx.	common
CAMPANULACEAE	
Lobelia spicata Lam.	
CAPRIFOLIACEAE	
Lonicera sempervirens Ait.	
Viburnum rufidulum Raf.	common invader
CARYOPHYLLACEAE	
Arenaria drummondii Shinners	rare
COMPOSITAE	
Aster laevis L.	
Brickellia eupatorioides (L.) Shinners	
Cacalia plantaginea (Raf.) Shinners	early Spring dominant
Cirsium altissimum (L.) Spreng.	
Coreopsis lanceolata L.	
Echinacea pallida (Nutt.) Nutt.	common
E. purpurea (L.) Moench	uncommon
Erigeron philadelphicus L.	uncommon
E. strigosus Muhl. ex Willd.	abundant
Eupatorium altissimum L.	
Gaillardia pulchella Foug.	
Grindelia lanceolata Nutt.	Fall dominant
Lactuca canadensis L.	
Liatris aspera Michx.	common
L. elegans (Walt.) Michx.	common
L. pycnostachya Michx.	common
L. squarrosa (L.) Michx.	common
Ratibida columnifera (Nutt.) Woot. and Standl.	in disturbed areas
Rudbeckia hirta L.	abundant in grazed areas
Silphium integrifolium Michx.	uncommon
S. laciniatum L.	abundant in grazed areas
Solidago rigida L.	
Thelesperma filifolium (Hook.) A. Gray	
Vernonia sp.	
CONVOLVULACEAE	
Cuscuta sp.	
CORNACEAE	
Cornus drummondii Meyer	common invader
C. florida L.	common invader
EBENACEAE	
Diospyros virginiana L.	common invader
EUPHORBIACEAE	
Crotonopsis elliptica Willd.	
Euphorbia bicolor Englem. and Gray	common in grazed areas
E. corollata L.	
E. marginata Pursh	
Tragia urticifolia Michx.	
FAGACEAE	
Quercus muehlenbergii Engelm.	common, often large
Q. stellata Wang.	dry sites
GENTIANACEAE	
Sabatia angularis (L.) Pursh	
HAMAMELIDACEAE	
Liquidambar styraciflua L.	
HYPERICACEAE	
Hypericum punctatum Lam.	
JUGLANDACEAE	
Carya myristicaeformis (Michx. f.) Nutt.	common
LABIATAE	
Prunella vulgaris L.	
Salvia lyrata L.	
LEGUMINOSAE	
Acacia angustissima (P. Mill.) Kuntze	common
Astragalus crassicarpus Nutt. var. *crassicarpus*	common in thin soil
Cercis canadensis L.	
Chamaecrista fasiculata (Michx.) Greene	
Dalea candida Michx. ex Willd.	common; occ. dominant
D. purpurea Vent.	dominant
Desmanthus illinoensis (Michx.) MacM. ex Rob. and Fern.	dominant
Desmodium sp.	
Gleditsia triacanthos L.	
Lespedeza sp.	
Melilotus alba Medic.	exotic; abun.-disturbance
M. officinalis (L.) Pall.	exotic; abun.-disturbance
Neptunia lutea (Leav.) Benth.	dominant
Robinia pseudo-acacia L.	
Schrankia nuttallii (DC. ex Britt. and Rose) Standl.	common; seldom dominant
LINACEAE	
Linum medium (Planch.) Britt.	
MENISPERMACEAE	
Cocculus carolinus (L.) DC.	
MORACEAE	
Maclura pomifera (Raf.) Schneid.	native; common
OLEACEAE	
Fraxinus americana L.	common invader
F. pennsylvanica Marsh.	
ONAGRACEAE	
Gaura demareei Raven and Gregory	common
G. longiflora Spach	common
Oenothera laciniata Hill.	
O. speciosa Nutt.	
OXALIDACEAE	
Oxalis violacea L.	
PLATANACEAE	
Platanus occidentalis L.	
POLEMONIACEAE	
Phlox pilosa L.	
RANUNCULACEAE	
Anemone berlandieri Pritzel	early Spring dominant
Delphinium carolinianum Walt.	common
RHAMNACEAE	
Berchemia scandens (Hill) K. Koch	abundant invader
Ceanothus herbaceus Raf.	
Rhamnus caroliniana Walt.	abundant invader
ROSACEAE	
Crataegus sp.	
Fragaria virginiana P. Miller	
Rosa sp.	
RUBIACEAE	
Hedyotis nigricans (Lam.) Fosberg	common
SALICACEAE	
Populus deltoides Marsh	
SAPOTACEAE	
Bumelia lanuginosa (Michx.) Pers.	common
SCROPHULARIACEAE	
Penstemon cobaea Nutt.	common in thin soil
P. tubiflorus Nutt.	
Tomanthera auriculata (Michx.) Raf.	rare
ULMACEAE	
Celtis laevigata Willd.	common; moist areas
Ulmus alata Michx.	
U. rubra Muhl.	
UMBELLIFERAE	
Daucus carota L.	disturbed areas
Eryngium yuccifolium Michx.	uncommon
VALERIANACEAE	
Valerianella radiata (L.) Dufr.	common
VERBENACEAE	
Glandularia bipinnatifida (Nutt.) Nutt.	
G. canadensis L. Nutt.	
VITACEAE	
Ampelopsis arborea (L.) Koehne	common invader
Parthenocissus quinquefolia (L.) Planchon	occasional invader
Vitis rotundifolia Michx.	

GYMNOSPERMS	
CUPRESSACEAE	
Juniperus virginiana L.	abundant invader
MONOCOTS	
AMARYLLIDACEAE	
Agave virginica L.	uncommon
Hypoxis hirsuta L. Coville	common
CYPERACEAE	
Carex cherokeensis Schwein.	Spring dominant
GRAMINEAE	
Andropogon gerardii Vitman	dominant moist areas
A. glomeratus (Walt.) B.S.P.	uncommon
A. saccharoides Swartz	common disturbed areas
A. scoparius Michx.	dominant
A. virginicus L.	uncommon disturbed areas
Aristida longispica Poir.	common thin soil
Bouteloua curtipendula (Michx.) Torr. in Marcy	uncommon thin soil
Erianthus sp.	
Panicum virgatum L.	uncommon
Setaria sp.	
Sorghastrum nutans (L.) Nash	common
Sporobolus asper (Michx.) Kunth	uncommon
Tridens flavus (L.) Hitchc.	common disturbed areas
Tripsacum dactyloides (L.) L.	dominant deep moist soil
IRIDACEAE	
Nemastylis geminiflora Nutt.	common
Sisyrinchium sp.	
LILIACEAE	
Nothoscordum bivalve (L.) Britt.	early Spring dominant
Smilax bona-nox L.	
Zigadenus nuttallii A. Gray	uncommon
ORCHIDACEAE	
Spiranthes lacera (Raf.) Raf.	

species that tolerate disturbances, as well as those that are found only on undisturbed sites. Notes in the list indicate aspect dominance, abundance, statewide rarity, observed response to disturbance, etc.

Species dominance of the blackland prairie community is presented in Table 2, and is based on estimated aerial cover within 113 plots on the 10 remnants of relatively high quality. As can be seen in this table, *Andropogon scoparius* is the overwhelming dominant on the prairies. It is more dominant on these prairies than on any other prairies in Arkansas. *Panicum virgatum,* a co-dominant on most of the other prairies in Arkansas, is uncommon on the blackland sites that remain. The status of these species indicate the extreme dryness of these sites.

Table 2. Percent cover of major species on 10 prairie relicts, August, 1986. Data obtained from visual estimates of areal cover within 113 plots, 0.25m x 1.0m.

SPECIES	PERCENT COVER
Andropogon scoparius	50.2
Sorghastrum nutans	4.0
Dalea sp.	3.6
Neptunia lutea	1.9
Desmanthus illoensis	1.4
Ratibida columnaris	1.4
Panicum virgatum	1.2
Hedyotis sp.	1.1
Rudbeckia hirta	1.0
Miscellaneous species	11.7
Bare Ground	21.9

Miscellaneous species are those having a cover value less than 1 percent. Included are Aristida sp., Juniperus virginiana, Rosa sp., Carex sp., Cacalia plantaginea, and others.

A substantially different community, dominated by *Tripsacum dactyloides,* existed on the gentler, moister slopes at the bases of the ridges. No extensive example of this community has been found. A few small areas exist at the transition between the steep hill slopes and the gentler valley floors. In this transition zone and in mesic pockets higher on the slopes, *Sorghastrum nutans* and/or *Andropogon gerardii* also become dominant.

CONDITION AND MANAGEMENT

Almost all relicts that have been located to date show evidence of grazing, either at present or on older photographs. Many are abandoned pastures. The only exceptions are probably some small prairies within forest. Nevertheless, the lack of weedy invaders on some of the formerly grazed prairies, and the presence of species that are rare statewide, provide evidence that grazing does not necessarily destroy the prairie. In many cases, however, grazing has been excessive and the prairie has probably been permanently damaged. Even on the prairies of higher quality, questions remain as to long-term impacts of past grazing.

Evidence of disturbance includes exotic species such as *Melilotus* sp. and woody species such as *Ilex decidua* and *Juniperus virginiana.* Of great concern is the presence of eroded spots on all the prairies. These spots may be smaller than a square meter to hundreds of square meters, even in the higher-quality prairies. The underlying chalk and marl, and hence the sites, are very erosion-prone and occur on sometimes-steep slopes. Overgrazing obviously can aggravate erosion problems. However, it is uncertain whether grazing has been the cause of the erosion problems of these sites, noted as early as Owen, 1860. The GLO notes do not contain specific references to erosion. There is no past history of conscientious management of this community, e.g., no prairies have been found that are being managed using fire or other standard prairie management techniques. Few native prairies have been found that are mowed for hay.

COMPARISON WITH THE TEXAS AND MISSISSIPPI BLACKLANDS

Because of their geographical proximity and alkaline soils, the Arkansas and Texas blackland prairies share many species. Species such as *Astragalus crassicarpus, Hypoxis hirsuta, Neptunia lutea, Dalea purpurea, Salvia azurae,* along with the dominant grasses, are typical of both areas. However, the prairies are quite different in overall character. The Texas prairies are (or were) expanses of prairie over deep fertile soil. The relatively high rainfall (75-115 cm/yr) and the high water-retention capability of the soil, give the prairie a "lowland grassland appearance even on upland, well-drained situations" (Collins *et al.,* 1975, p. 86). The Arkansas blackland receives as much precipitation as the Texas maximum, but the soils are thinner, well drained, and less fertile. These prairies are notably drier and smaller than other prairies in Arkansas and certainly do not have a lowland grassland appearance. It is probable that communities similar to those described here occur on comparable sites in Texas. Further study should be devoted to finding, describing, and relating these communities.

There may be more similarity between the blacklands of Arkansas and those of Mississippi and Alabama, even though the areas are geographically separated. The prairies there are small, located on thin soils over chalk on cuestas, and they occur on the same soil series as those in Arkansas. The descriptions of physiognomy and distribution of the Black Belt prairies cited before, are very similar to the patterns encountered in Arkansas. Since there are no floristic or ecological studies of those eastern blackland prairies, it is not possible at this time to determine how similar the plant communities are.

ACKNOWLEDGMENTS

William M. Shepherd and Jerry Roberts assisted with assembling the species lists. Max D. Hutchison, working under contract with the ANHC, assisted with photointerpretation.

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