

United States
Department of
Agriculture

Forest
Service

Washington
Office

14th & Independence SW
P.O. Box 96090
Washington, DC 20090-6090

Reply To: 4060-3

Date: February 22, 1991

Floyd J. Marita
Regional Forester
USDA Forest Service
310 W. Wisconsin Avenue
Room 500
Milwaukee, Wisconsin 53203

Dear Dr. Marita

Enclosed is the approved signed ~~Decision Notice~~/Designation Order and
Establishment Record for Ozark Hill Prairie RNA within Shawnee National
Forest, Alexander County, Illinois.

Sincerely,

/s/Russell M. Burns
Russell M. Burns
Principle Research Silviculturist
Forest Management Research

Ozark Hill Prairie

DECISION NOTICE/DESIGNATION ORDER

Decision Notice
Finding of No Significant Impact
Designation Order

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 2.42, 36 CFR 251.23, and 36 CFR Part 219, I hereby establish the Ozark Hill Prairie Research Natural Area. It shall be comprised of lands described in the section of the Establishment Record entitled "Location."

The Regional Forester has recommended the establishment of this Research Natural Area in the Record of Decision for the Shawnee National Forest Land and Resource Management Plan. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. Results of the Regional Forester's Analysis are documented in the Shawnee National Forest Land and Resource Management Plan and Final Environmental Impact Statement which are available to the public.

The Ozark Hill Prairie Research Natural Area will be managed in compliance with all relevant laws, regulations, and Forest Service Manual direction regarding Research Natural Areas. It will be administered in accordance with the management direction/prescription identified in the Establishment Record.

The Shawnee National Forest Land and Resource Management Plan is hereby amended to be consistent with the management direction identified in the Establishment Record and this Decision Notice/Designation Order. This is a non-significant amendment of the Shawnee National Forest Land and Resource Management Plan (36 CFR 219.10(f)).

The Forest Supervisor of the Shawnee National Forest shall notify the public of this decision and will mail a copy of the Decision Notice/Designation Order and amended direction to all persons on the Shawnee National Forest Land and Resource Management Plan mailing list.

Based upon the Environmental Analysis, I find that designation of the Ozark Hill Prairie Research Natural Area is not a major Federal action significantly affecting the quality of the human environment (40 CFR 1508.27).

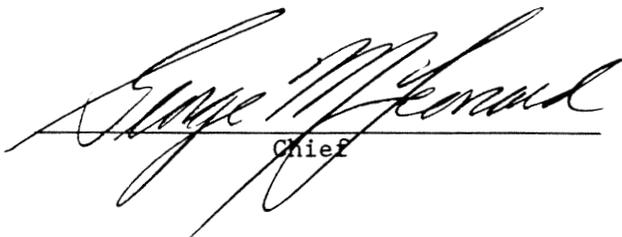
This decision is subject to appeal pursuant to 36 CFR Part 217. A Notice of Appeal must be in writing and submitted to:

The Secretary of Agriculture
14th & Independence Ave., S.W.
Washington, D.C. 20250

and simultaneously to the Deciding Officer:

Chief (1570)
USDA, Forest Service
P.O. Box 96090
Washington, D.C. 20090-6090

The Notice of Appeal prepared pursuant to 36 CFR 217.9(b) must be submitted within 45 days from the date of legal notice of this decision. Review by the Secretary is wholly discretionary. If the Secretary has not decided within 15 days of receiving the Notice of Appeal to review the Chief's decision, appellants will be notified that the Chief's decision is the final administrative decision of the U.S. Department of Agriculture (36 CFR 217.17(d)).



Chief



Date

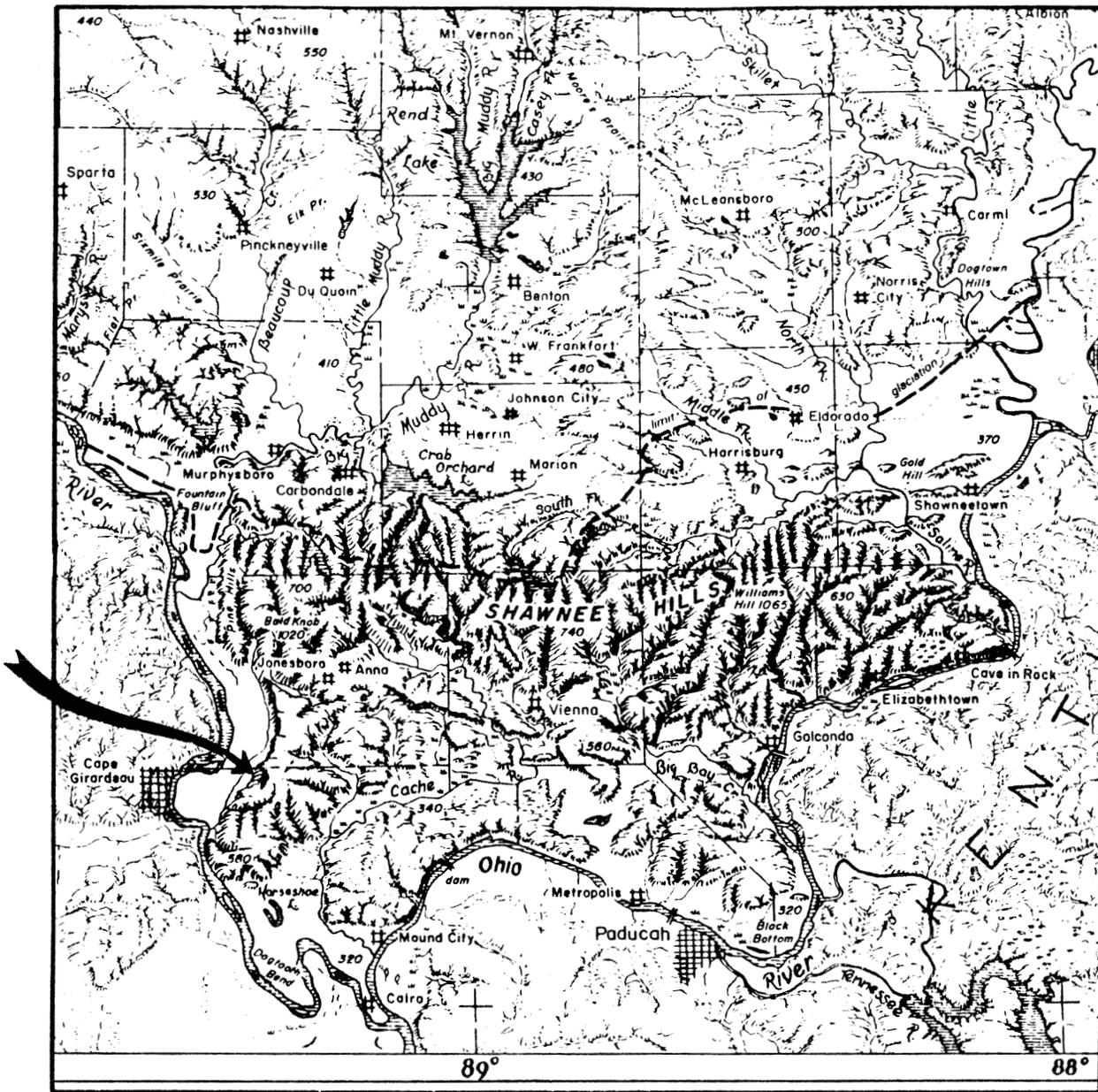


Figure 1. Location of Ozark Hill Prairie Research Natural Area shown (with arrow) on copy of J. A. Bier's Landforms of Illinois map, Ill. State Geol. Surv., Urbana, 1980

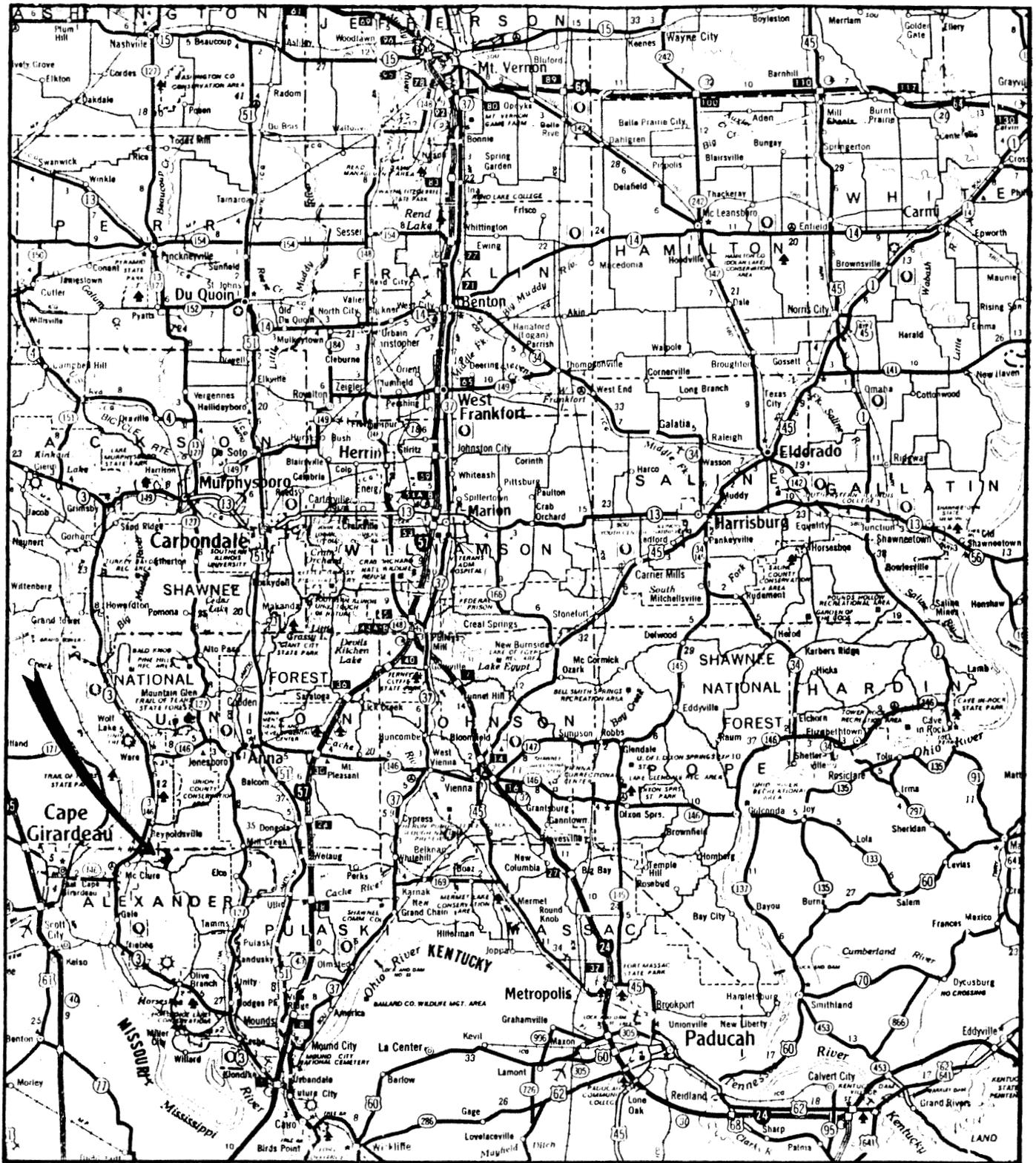


Figure 2. Location of Ozark Hill Prairie Research Natural Area shown (with arrow) on copy of Illinois Official Highway Map, 1985-86, Department of Transportation, Springfield

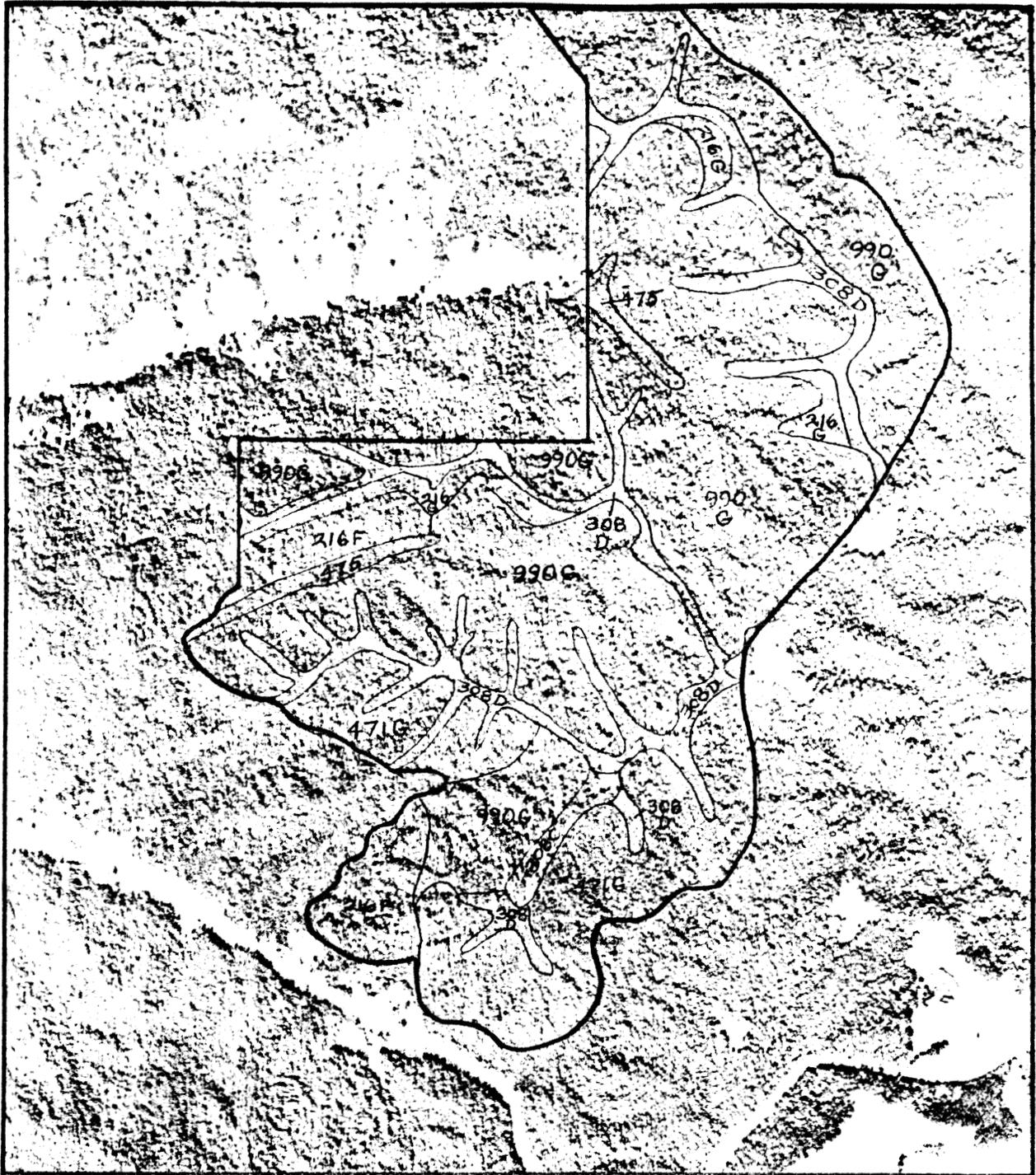


Figure 6. Location of Ozark Hill Prairie Research Natural Area shown (with bold line) on map of soils copied from Soil survey of Pulaski and Alexander counties, Illinois by W. D. Parks and J. B. Fehrenbacher, 1968 scale 4" = 1 mile

990 - Stookey-Bodine complex 216 - Stookey silt loam 475 - Elsayh silt loam
 308 - Alford silt loam 471 - Bodine cherty silt loam

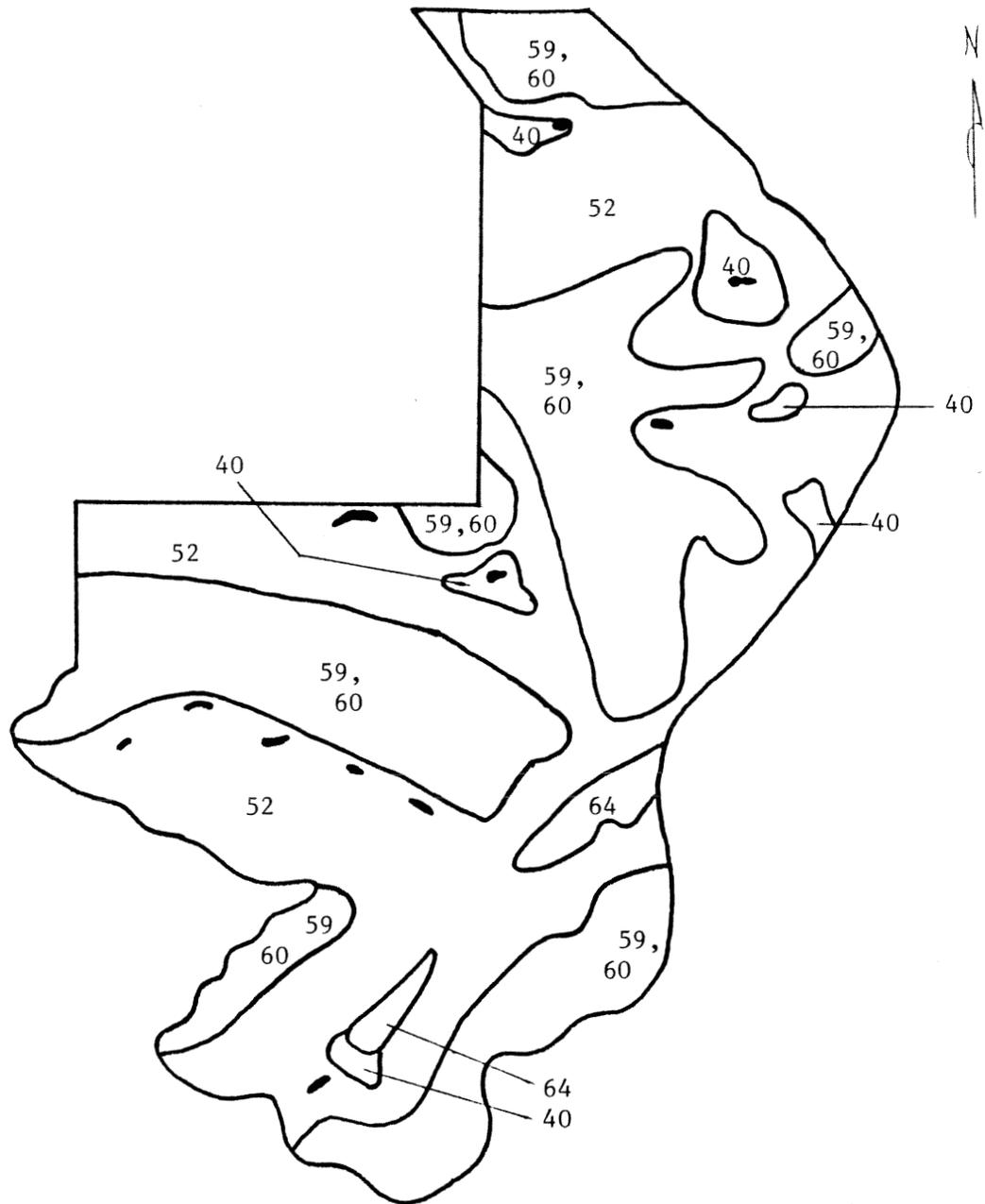


Figure 7. Society of American Foresters (SAF) Cover Types present at Ozark Hill Prairie Research Natural Area (small shaded areas are hill prairies)

Legend

Post oak-blackjack oak
(#40)

White oak-black oak-northern red oak
(#52)

Yellow poplar-white oak-northern red oak/beech-sugar maple
(#59)

(#60)

Sassafras-persimmon
(#64)

scale 4" = 1 mile

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643.52)

PHOTOGRAPHER Copy of ASCS photo
(Copy made by M. D. Hutchison)

DATE SUBMITTED:
July, 1987

HEADQUARTERS UNIT

LOCATION

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

WO RO DIV. FOREST DISTRICT PHOTOGRAPHER Date _____

INSTRUCTIONS: Submit to Washington Office in quadruplicate. Permanent numbers will be assigned and the forms will be distributed as follows: (1) Washington Office, (2) RO or Station, (3) Forest or Center and (4) Photographer.

PHOTOGRAPH NUMBER		SELECTED FOR W.O. PHOTO LIBRARY	DATE OF EXPOSURE	LOCATION (State, Forest, District and County)	CONCISE DESCRIPTION OF VIEW	NEGATIVE (Show size and BW for black and white or C for color)
TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 8			Aug. 24, 1938	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	vertical aerial view of Ozark Hill Prairie Research Natural Area	35 mm. BW



Figure 8. Copy of ASCS aerial photograph
taken August 24, 1938 showing Ozark Hill
Prairie Research Natural Area

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643,52)

PHOTOGRAPHER Copy of ASCS photo
(Copy made by M. D. Hutchison)

DATE SUBMITTED.
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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 9			Aug. 22, 1980	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	vertical aerial view of Ozark Hill Prairie Research Natural Area	35 mm. BW

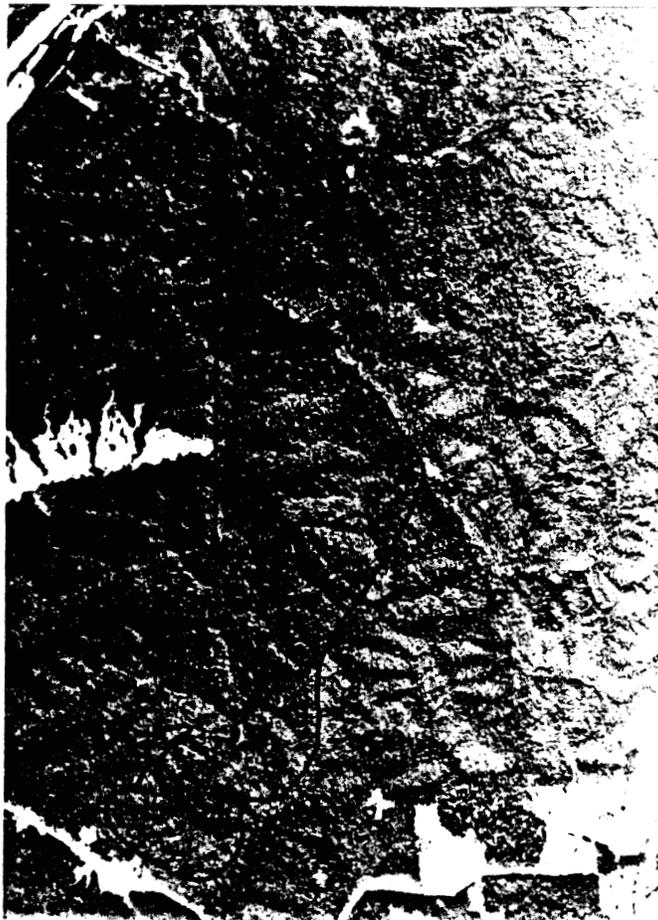


Figure 9. Copy of ASCS aerial photograph
taken August 22, 1980 showing Ozark Hill
Prairie Research Natural Area

USDA-FOREST SERVICE

PHOTOGRAPHER

DATE SUBMITTED

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

M. D. Hutchison

July, 1987

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TEMP.	PERMANENT (To be filled in by the WO)						(1)	(2)
			Feb., 1976	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	aerial view of Ozark Hill Prairie Research Natural Area showing rugged terrain	35 mm. C		

Fig. 10

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER

M. D. Hutchison

DATE SUBMITTED.

July, 1987

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 11			Oct., 1979	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	aerial view of Ozark Hill Prairie Research Natural Area showing small hill prairies (NW 1/4. NE 1/4 of sec. 7)	35 mm. C



Figure 10. Aerial view of Ozark Hill Prairie Research Natural Area looking north showing rugged terrain
-photo by M. D. Hutchison, Feb., 1976



Figure 11. Aerial view of Ozark Hill Prairie Research Natural Area looking northwest showing small hill prairie openings on ridge in west part of area (NW 1/4, NE 1/4 of sec. 7)
-photo by M. D. Hutchison, Oct., 1979

USDA-FOREST SERVICE		PHOTOGRAPHER M. D. Hutchison	DATE SUBMITTED July, 1987
PHOTOGRAPHIC RECORD <i>(See FSM 1643.52)</i>		HEADQUARTERS UNIT	LOCATION

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 12			July, 1977	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	hill prairie on mound of deep loess at Ozark Hill Prairie Research Natural Area (SE 1/4, NE 1/4 of sec. sec. 6)	35 mm. C

USDA-FOREST SERVICE PHOTOGRAPHIC RECORD <i>(See FSM 1643.52)</i>	PHOTOGRAPHER M. D. Hutchison	DATE SUBMITTED July, 1987
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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 13			June 15, 1983	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	hill prairie on south-facing slope at Ozark Hill Prairie Research Natural Area (NW 1/4, SE 1/4 of sec. 7)	35 mm. C



Figure 12. A hill prairie on mound of deep loess at Ozark Hill Prairie Research Natural Area (SE 1/4, NE 1/4 of sec. 6); small trees and shrubs are scattered, but the groundcover is prairie grasses and forbs
-photo by M. D. Hutchison, July, 1977



Figure 13. A hill prairie on deep loess along south-facing slope at Ozark Hill Prairie Research Natural Area; big bluestem, Indian grass, and prairie dock are common species (NW 1/4, SE 1/4 of sec. 7)
-photo by M. D. Hutchison, June 15, 1983)

USDA-FOREST SERVICE PHOTOGRAPHIC RECORD <i>(See FSM 1643.52)</i>	PHOTOGRAPHER M. D. Hutchison	DATE SUBMITTED July, 1987

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-11

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 14			Oct., 1986	Illinois, Shawnee National Forest, Jonesboro District, Alexander County	sassafras-persimmon stand at Ozark Hill Prairie Research Natural Area	35 mm. C

USDA-FOREST SERVICE PHOTOGRAPHIC RECORD <i>(See FSM 1643.52)</i>	PHOTOGRAPHER M. D. Hutchison	DATE SUBMITTED July, 1987
	HEADQUARTERS UNIT	LOCATION

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 15			June 15, 1983	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	view of deep loess in hill prairie at Ozark Hill Prairie Research Natural Area (NW 1/4, SE 1/4 of sec. 7)	35 mm. C



Figure 14. View of sassafras-persimmon stand on upper slope at Ozark Hill Prairie Research Natural Area; these sapling and pole stands on south-facing slopes were probably hill prairie sites prior to the exclusion of natural fires -photo by M. D. Hutchison, Oct., 1986



Figure 15. Deep loess at lower edge of hill prairie in Ozark Hill Prairie RNA -photo by M. D. Hutchison, June 15, 1983

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643.52)

PHOTOGRAPHER

M. D. Hutchison

DATE SUBMITTED

July, 1987

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 16.			July, 1977	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	timber rattlesnake in hill prairie at Ozark Hill Prairie Research Natural Area	35 mm. C

USDA-FOREST SERVICE PHOTOGRAPHIC RECORD <i>(See FSM 1643.52)</i>	PHOTOGRAPHER M. D. Hutchison		DATE SUBMITTED July, 1987
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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 17			Oct., 1986	Illinois, Shawnee National Forest, Jonesboro District, Alexander Co.	dry upland forest and bedrock outcrop at Ozark Hill Prairie Research Natural Area (NW 1/4, SE 1/4 of sec. 7)	35 mm. C



Figure 16. A timber rattlesnake (*Crotalis horridus*) in a hill prairie at Ozark Hill Prairie Research Natural Area -photo by M. D. Hutchison, July, 1977



Figure 17. Dry upland forest on upper slope at Ozark Hill Prairie RNA; trees are post oaks; bedrock is Grassy Knob chert -photo by M. D. Hutchison, Oct. 1986

Fig. 8 - Ozark Hill Prairie
Research Natural Area - Alexander Co., Illinois

Fig. 8 - Ozark Hill Prairie
Research Natural Area - Alexander Co., Illinois

Fig. 9 - Ozark Hill Prairie
Research Natural Area - Alexander Co., Illinois

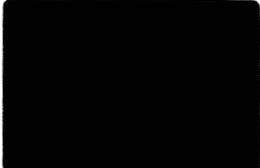
Fig. 10 - Ozark Hill Prairie RNA -

Alexander Co., Ill.

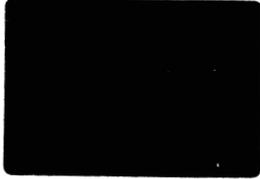
Fig. 11 - Ozark Hill Prairie RNA -

Alexander Co., Ill.

Fig. 12 - Ozark Hill Prairie RNA

Alexander Co., Ill.

Fig. 13 - Ozark Hill Prairie RNA

Alexander Co., Ill.

Fig. 14 - Ozark Hill Prairie RNA

Alexander Co., Ill.

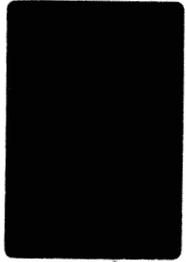
Fig. 15 - Ozark Hill Prairie RNA

Alexander Co., Ill.

Fig. 16 - Ozark Hill Prairie RNA

Alexander Co., Ill.

Fig. 17 - Ozark Hill Prairie RNA

Alexander Co., Ill.

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Ozark Hill Prairie Research Natural Area

Shawnee National Forest

Alexander County, Illinois

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met in arriving at this recommendation.

Prepared by Max D. Hutchison, Field Representative, Natural Land Institute; Steven Olson, Technical Assistant, Natural Land Institute; and Stanley Harris, Jr., Ph.D., Professor Emeritus, Department of Geology, Southern Illinois University

Recommended by Joe Newcomb Date 3/24/88
Joe Newcomb, District Ranger,
Jonesboro District

Recommended by Kenneth Henderson Date 4/13/88
Kenneth Henderson, Forest
Supervisor, Shawnee National
Forest

Recommended by Floyd Marita Date 9/22/88
Floyd Marita, Regional Forester,
Eastern Region

Recommended by Ronald D. Lindmark Date 7/9/90
Ronald D. Lindmark, Station
Director, North Central Station

✓ and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation and FSM 4063.41 5.e (3)

PJE

TITLE PAGE

Establishment Record for the Ozark Hill Prairie
Research Natural Area within the Shawnee
National Forest, Alexander County, Illinois

ESTABLISHMENT RECORD FOR THE OZARK HILL PRAIRIE
RESEARCH NATURAL AREA WITHIN THE SHAWNEE NATIONAL FOREST
ALEXANDER COUNTY, ILLINOIS

INTRODUCTION

The Ozark Hill Prairie Research Natural Area (RNA) is a 535-acre (216.6-hectare) tract owned by the federal government and managed by the U. S. Forest Service, Shawnee National Forest (Figures 3 and 4). It contains relatively undisturbed natural community types, i.e. hill prairie, dry upland forest, dry-mesic upland forest, and mesic upland forest. Outstanding geological features are also present.

The RNA boundaries include the major part of the Ozark Hill Prairies Natural Area identified by the Illinois Natural Areas Inventory (1978) as being of significance because of its very high quality loess hill prairie natural community and the presence of the uncommon timber rattlesnake (Crotalis horridus), (INAI, 1978; see Appendix I).

There are no Federally Threatened or Endangered Species, Candidate Species Recommended for Regional Sensitive Status, or Shawnee National Forest Listed Species known to occur within the RNA boundaries at Ozark Hill Prairie. There is one rare plant that was first found in Illinois at this area in 1982: a blazing star (Liatris squarrulosa). It will probably be listed as Illinois Endangered and as a Forest Listed Species.

Five Society of American Foresters (SAF) cover types are present: Type 40 (post oak-blackjack oak), Type 52 (white oak-black oak-northern red oak), Type 59 (yellow poplar-white oak-red oak), Type 60 (beech-sugar maple), and Type 64 (sassafras-persimmon). Types 40, 52, and 64 are indicated as needed in the RNA system (Shawnee National Forest, Land and Resource Management Plan, 1986). Several variants and small stands with other dominants are also present.

The Ozark Hill Prairie RNA is geologically significant. It is a high prominent ridge, a section of the rugged upland bluffs that border the east edge of the Mississippi River valley. The east side of the main ridge drains to the east and north into the Mississippi bottomland by means of Ripple Hollow. The Ripple Hollow stream empties into Clear Creek Ditch just north of the RNA. The west and south parts of the RNA drain into the Mississippi bottomland and Clear Creek Ditch by means of small streams in Happy Hollow and Dongola Hollow. Clear Creek Ditch flows southwest along the east edge of the bottomland (just west of the RNA) to enter the Mississippi River at a point near Gale, some 5 miles (8.0 kilometers) to the southwest. The entire area is maturely dissected with narrow ridges, steep slopes, and V-

shaped valleys. The Devonian age rocks have been heavily silicified, and chert-fragment scree covers slopes where loess is thick. Mass wasting is very active. Stream gradients are very steep, and great blocks of rock are moved by water during storm periods. The RNA is in the Southern Section of the Ozark Natural Division and is a part of the Ozark Plateaus Physiographic Province (Schwegman, 1973).

The Public Land Survey surveyors described the area in 1807, prior to settlement in the region. They noted the "high, steep, hilly [land]; unfit for cultivation." The line between sections 5 and 8 (T. 14 S., R. 2 W.) was described as "almost impassable; high, steep, rocky, flint hills." "Oak timber" is mentioned, and one line in the vicinity had "huckelberry bushes" (probably Vaccinium sp.). Beech, "sugartree" (Acer saccharum), and walnut were common in the ravines.

Most of the RNA has never been cultivated or significantly disturbed by livestock. There are a few small sites on the main upland ridge that may have been agricultural fields prior to 1920. These have now mostly reverted to forest. There has been some selective logging (primarily for white oaks) in the area, but most occurred during the 1940's and 1950's. There is now little direct evidence of cutting disturbance. Due to the rugged terrain, most of the area has never been suitable for either cropland or pasture.

Access to the RNA is not easy. Walking is difficult in the rugged terrain, and the area has received little public use in the past. Occasionally, squirrel, turkey, and deer hunters enter the area and walk the ravine bottoms or ridge crests.

The Ozark Hill Prairie RNA was in private ownership prior to its acquisition by the federal government to become a part of the Shawnee National Forest. The property was purchased during the period 1935-1936.

Ozark Hill Prairie was recognized as a significant natural area in the early 1970's by the staff of the Illinois Nature Preserves Commission because of its undisturbed hill prairies on loess. During the Illinois Natural Areas Inventory of 1976-78, the area was identified as being of state-wide significance for its very high quality loess hill prairies and its high population of the uncommon timber rattlesnake.

The Ozark Hill Prairie area was first recommended for designation as a research natural area by the Illinois Nature Preserves Commission in 1980 (Hutchison, 1980). It was recommended for designation as a research natural area in a report by the Illinois Department of Conservation (West, 1980). The area was recommended for RNA designation (subject to the acceptability of prescribed burning as a management tool) by the

North Central Forest Experiment Station in 1981 (Rink, 1981). It was recommended for designation as a National Natural Landmark by R. S. Irving and Associates, Inc., in 1982.

LAND MANAGEMENT PLANNING

The Ozark Hill Prairie natural area is recommended for designation as a research natural area in the Land and Resource Management Plan, Shawnee National Forest, approved November 24, 1986 (see SNF, Forest Plan, IV-3, Special Feature Management). The environmental analysis as a part of the planning process supports the recommendation to establish the RNA (SNF, Final EIS, 2-66, Identification and Management of Special Features). It is currently being protected under Management Prescription 8.2.

OBJECTIVES

The objectives of establishing the Ozark Hill Prairie Research Natural Area are to:

- 1) preserve pristine forest, grassland, and geological natural situations for research, study, observation, monitoring, and educational activities that maintain unmodified conditions,
- 2) preserve and maintain genetic diversity,
- 3) protect against serious environmental disruptions,
- 4) serve as reference area for studies of succession and for measuring long-term ecological changes,
- 5) provide onsite and extension educational activities,
- 6) serve as control area for manipulative research,
- 7) monitor effects of resource management techniques and practices.

JUSTIFICATION

Natural communities of high and very high quality are present at the Ozark Hill Prairie Research Natural Area. Scattered dry, dry-mesic, and mesic upland forest stands appear essentially undisturbed. The hill prairies are open sites with a mixture of woody shrubs and prairie species (Figure 11). They are on ridge crests and upper slopes in this area. Prior to

settlement, the prairies were more common and widespread in the region. According to early descriptions of the area, the ridges were open and grassy with brushy thickets and scattered trees. Today, it is difficult to distinguish the dry forest sites from the original hill prairie communities, but good examples of each are present. The hill prairies are now almost all gone from the southern part of the Ozark Hills region in Illinois, nearly completely shaded by invading woody vegetation. The best remnants left are here in the Ozark Hill Prairie RNA. They have good assemblages of prairie species that are rare elsewhere in the region. It is probable that the exclusion of natural fires has been a factor in allowing trees to shade and replace the original grassy vegetation on the loess covered ridge crests (Figure 14).

Ozark Hill Prairie is significant for its excellent examples of geomorphic features and processes. The area is on the high part of a prominent ridge along the east edge of the Mississippi River valley (Figure 1). The bluffs here are an eastward extension of the Ozark Physiographic region. The upland has been deeply dissected, exposing cherty and siliceous limestones of Devonian age formations. Thick loess caps the ridge crests and covers some of the cherty gravelly slopes (Figure 15). The RNA illustrates the changes that take place in the evolution of landforms. The processes of mass wasting, sheet and rill erosion, and stream channel scour are particularly well represented. This area is an outstanding site to illustrate the contrast due to north versus south slope orientation in erosion, soil thickness, and vegetation (Figure 6).

The Ozark Hill Prairie RNA includes SAF types 40, 52, and 64 that are listed as needed in the RNA system (Shawnee National Forest, Appendix E, Final Environmental Impact Statement, Land and Resource Management Plan, 1986). There is a diversity of SAF variants, smaller natural community types, and uncommon species present, particularly disjunct relics, that add to the value of the area for research purposes.

A rare plant, Liatris squarrulosa, occurs here that has recently been discovered. It is at the northwestern edge of its range and will probably soon be listed as a State Endangered Species and as a Forest Listed Species.

There are assemblages of plant species in the hill prairies and dry forests that are usually considered to be more characteristic of the prairies further to the north and west.

The RNA is well-buffered by forested land on all sides, and this adds to the diversity of species and enhances the area's value and research significance.

A few of the hill prairie sites were studied by ecologists

at Southern Illinois University during the late 1970's and early 1980's. Base line data have been collected that will be valuable for later comparative studies.

This area is suitable for research, demonstration, and/or learning experience opportunities. Conditions are ideal for research on prairie-forest successional and interface questions, for studies of rock weathering and pedological research dependent upon the presettlement quality of the site, and for studies of vegetational history and geography of plant species migrations.

PRINCIPAL DISTINGUISHING FEATURES

The Ozark Hill Prairie Research Natural Area is a part of a high ridge near the east wall of the Mississippi River valley. It is at the eastern edge of the Ozark Physiographic Province. Devonian age rocks outcrop.

The entire area is maturely dissected and characterized by narrow-crested ridges, steep slopes, and V-shaped valleys (Figure 4). The ridge tops are capped with deep silty loess, and gravels of chert and siliceous limestone are exposed on slopes. Elevation ranges from 420 feet (128.0 meters) above mean sea level at the north edge of the area to 820 feet (249.9 meters) at the east edge.

Almost all of the RNA is forested with a diversity of plant species and community types (Figure 7). There are small openings where prairie grasses and forbs occur (Figure 12). These are remnants of the hill prairie community, and they occur on the ridge crests where the loess is thickest. They are of very high natural quality and reflect no unnatural disturbance.

The dry upland forest stands are dominated by post oak (Quercus stellata), blackjack oak (Q. marilandica), black oak (Quercus velutina), and black hickories (Carya texana) (Figure 17). Sassafras (Sassafras albidum) poles and farkleberry (Vaccinium arboreum) thickets are common in the understory. Groundcover species are few; primarily sparse clumps of poverty oats grass (Danthonia spicata). Mosses and lichens are common where the ground is bare of leaf litter.

The dry-mesic upland forest is mostly dominated by white oaks (Quercus alba). The cherrybark oak (Quercus falcata pagodaefolia) and various hickories (Carya glabra and C. ovalis) are common associates. Scattered, large, wide-crowned magnolia trees (Magnolia acuminata) are occasional on the upper slopes in this community. Dogwood (Cornus florida) and sassafras are common understory shrubs. Greenbriers (Smilax spp.) are common vines. The canopy is mostly complete.

The mesic upland forest community has taller trees than

those that grow on dry-mesic sites. It also has a greater diversity of species and age classes. Dominants include (Fagus grandiflora), red oak (Quercus rubra), white oak (alba), sugar maple (Acer saccharum), and tuliptree (Liriodendron tulipifera). The mesic sites are primarily in ravine shading is dense and complete. Shrubs include pawpaw (Asimina triloba) and spicebush (Lindera benzoin). There is an assemblage of spring ephemerals, including many ferns.

Rock outcrops with small shelters and cliffs provide for plants and animals with specialized habitat needs (17).

This RNA is within the largest contiguous forest region in Illinois. It is a large area (in relation to forested areas left in the Midwest), and is suitable for management protection as a natural area.

LOCATION

The Ozark Hill Prairie Research Natural Area is on the Jonesboro Ranger District of the Shawnee National Forest. It is in Alexander County, in the extreme southwestern tip of Illinois. Latitude is 37° 20' N. and longitude is 89° 22' W. The area is in sections 5, 6, 7, and 8, T. 14 S., R. 2 W. of the 3rd P. M.

The RNA boundaries are described as follows:

Beginning at a point on the north line of section 6 at 33 chains west of the northeast section corner of section 6, thence;

East along the north line of section 6 to base of bluff about 15 chains west of the northeast section corner of section 6, thence;

Southeasterly along the base of the bluff to a point on the east line of section 6 about 11 chains south of the northeast section corner of section 6, thence;

Continuing southeasterly along the base of the bluff about 40 chains to the mouth of a small ravine to the west, thence;

Southwesterly along bottom of the ravine about 22 chains to a point near top of high ridge and intersection with Forest Road No. 2068, thence;

Southwesterly along the west edge of Forest Road No. 2068 about 16 chains to the section line to sections 5 and 8, thence;

Continuing southwesterly along the west edge of Forest Road No. 2068 about 9 chains to the section line to sections 7 and 8, thence;

Continuing southwesterly along the west edge of Forest Road No. 2068 about 3 chains to a point on crest of ridge, thence;

Crossing and leaving Forest Road No. 2068 southerly about 17 chains along bottom of ravine, thence;

Southwesterly and westerly along lower edge of steep slope to a point on the north-south center line of section 7 and being about 22 chains north of the south quarter corner of section 7, thence;

North along north-south centerline to a point 33.5 chains north of the south quarter corner of section 7, thence;

S. 55° W about 7 chains to a point at the base of the steep part of the slope, thence;

Westerly and northeasterly along the base of the steep part of the slope to the bottom of a ravine about 22 chains south of the north line of section 7, thence;

N. 88° W 10 chains, N 40° W 4 chains, N 86° W 4 chains, N 33° W 5 chains, N 66° W 12 chains, N 18° W 5 chains, and northeasterly about 10 chains to a point on the north line of section 7 at 14 chains west of the north quarter corner of section 7, thence;

North to a point on south sixteenth line of section 6 at 14 chains west of the center south sixteenth corner of section 6, thence;

East on south sixteenth line of section 6 to the southeast sixteenth corner, thence;

North along east sixteenth line of section 6, 44 chains to a point, thence;

Northwesterly to point of beginning containing approximately 535 acres (216.6 hectares)

Elevation ranges from 420 feet (128.0 meters) to 820 feet (249.9 meters) above mean sea level.

The RNA is about 3 miles (4.8 kilometers) east of the village of McClure and about 24 miles (38.6 kilometers) northwest of Cairo, the county seat of Alexander County. Access is from Illinois Rt. 3 at McClure on County Highway 4. One can park at the junction of Forest Road 205 and County Highway 4, 1.5 miles (2.4 kilometers) east of the Lindsey Cemetery, and walk a short distance north to the south boundary of the RNA (Figures 3 and 4).

AREA BY COVER TYPES

The Ozark Hill Prairie Research Natural Area is nearly all forested. The following are SAF and Kuchler cover types represented within the RNA (Figure 7):

SAF Cover Type	Kuchler PNV Type	Acres	Hectares
=====			
#40 post oak- blackjack oak	#91 oak-hickory forest	25	10.1
#52 white oak- black oak- northern red oak	#91 oak-hickory forest	290	117.4
#59 yellow poplar- white oak-red oak	#94 mixed mesophytic forest	200 190	81.0 76.9
#60 beech-sugar maple	#93 beech-maple forest	10	4.0
#64 sassafras- persimmon	----	20	8.1

According to the Illinois Natural Areas Inventory (1978) data for the Ozark Hill Prairies Natural Area, the following types (that clearly occur within the RNA) were described:

Natural Community	Plant Community
Loess hill prairie	Indian grass-little bluestem
Loess hill prairie	Indian grass-big bluestem
Loess hill prairie	little bluestem-Indian grass
Loess hill prairie	big bluestem-little bluestem-Indian grass
Dry-mesic upland forest	white oak-post oak-black oak
Dry-mesic upland forest	white oak-black oak-hickories
Mesic ravine forest	red oak-white oak-tuliptree
Mesic ravine forest	beech-sugar maple-sweetgum
Successional field	grasses/forbs/saplings

The following natural community types are recognized and mapped by the authors of this report (see descriptions under Flora):

loess hill prairie
dry upland forest
dry-mesic upland forest
mesic upland forest

PHYSICAL AND CLIMATIC CONDITIONS

The Ozark Hill Prairie Research Natural Area is on the high bluffs that form the east wall of the Mississippi valley in southern Illinois. It is a narrow main ridge with long lateral ridges and spurs extending in all directions, especially to the west. Closely spaced and steep-sided canyons extend from the floodplains up to the crest.

Relief is great with the ridge top rising over 400 feet (121.9 meters) above the valley of Ripple Hollow, only 990 feet (301.8 meters) away at one point.

Cliffs occur at the south end, and valley slopes are commonly 60°.

The steepest valleys are deepening, and cataracts occur over the Bailey limestone ledges. Scree slopes are common on the

Grassy Knob Formation where the aspect is toward the south and west.

The drainage pattern is grossly reticulate, though each lateral valley has a dendritic tributary pattern.

Climatological information is taken from the collection station at Anna which has records dating from 1951. It is 10.8 miles (17.4 kilometers) to the northeast of the RNA.

The following description is copied from the Soil Survey of Pulaski and Alexander counties, Illinois (1968):

Alexander County has the continental climate typical of southern Illinois. Temperatures of 100° F. or higher occur during nearly half the summers. Below-zero temperatures occur about twice in 5 years in the northern part. Low-pressure areas and their associated weather fronts bring frequent changes in temperature, humidity, cloudiness, and wind direction during much of the year, although such changes are considerably less frequent in summer.

The annual precipitation averages slightly more than 45 inches but has varied from less than 30 inches to more than 70 inches. Precipitation is fairly uniformly distributed throughout the year. The variation is about 3 inches for months having the highest average.

In July and August, the average precipitation is between 3 and 3 1/2 inches per month. Major droughts are infrequent, but rather prolonged dry periods during part of the growing season are not unusual.

Precipitation in summer occurs mostly as showers of brief duration or as brief thunderstorms. A single thunderstorm often produces more than an inch of rain and occasionally is accompanied by hail and damaging winds. More than 7 1/2 inches of rain has fallen within a 24-hour period, and more than 15 inches has fallen during a month. Thunderstorms occur on about 50 days each year; less than half occur during the critical growing period.

During an average winter, there will be about 15 days when the ground is covered with 1 inch or more of snow. The average annual snowfall is about 9 inches, but a third of the winters will have less than 5 inches.

Winter months are the cloudiest, with only about 45 percent of possible sunshine in January. From June through October, sunshine increases to an average of 75 percent of the possible, the maximum of near 80 percent occurring in August.

Temperatures of 100° or higher have occurred only during the months of June, July, August, and September. July normally is the warmest month, with an average maximum temperature of about 90°.

January normally is the coldest month. Although there are days in February when the temperature falls as low as it does in January, the cold spells generally are shorter.

In Alexander County the period between the last freezing temperature in spring and the first freezing temperature in fall is approximately 208 days. Temperatures can vary widely between ridges and valleys during radiation freezes, the type most common in Illinois.

The microclimatic patterns are similar to those throughout the more hilly portions of the Shawnee Forest, yet here they are exaggerated by the steepness of slope and relief of the area.

The topography provides significant contrasts in orientation. The south-facing slopes have thin soils and extensive areas of scree slopes. In summer they are hot and dry, and in winter, diurnal temperature changes cause frequent freeze-thaw. Thin soil, unstable slopes, severe microclimates, and relatively low moisture availability during the growing season result in relatively sparse vegetation adapted to dry and xeric conditions.

North-facing slopes are protected from the severity of the summer insolation, and in winter, experience a more moderate diurnal temperature change. The loess cover remains, providing a better root medium and moisture reservoir. The vegetation is, therefore, more abundant and more mesic. The ravine bottom and lower slope vegetation flourish even more. More moderate temperature changes and better moisture retention is clearly reflected in the vegetation.

DESCRIPTION OF VALUES

Flora

The following natural community types are identified by the authors of this report as occurring within the Ozark Hill Prairie Research Natural Area: hill prairie, dry upland forest, dry-mesic upland forest, and mesic upland forest. It is mainly the substrate and degree of drouthiness (determined by such factors as depth of soil, stoniness, aspect, slope, etc.) that influence the structure and species composition of the different plant community types.

The hill prairie remnants are on the loess-capped ridge crests scattered throughout the area (Figure 11). Much of what was originally prairie has almost disappeared in recent years from shading and encroachment of woody vegetation, especially sassafras. Here, in relatively small disjunct openings, are species such as big bluestem (A. gerardii), Indian grass (Sorghastrum nutans), rosinweed (Silphium integrifolium), prairie dock (S. terebinthinaceum), and slender bush clover (Lespedeza virginica) (Figure 13).

The dry upland forest sites are primarily on the drouthy, rocky slopes (Figure 17). Post oak, blackjack oak, pignut hickory (Carya glabra) and black hickory (C. texana) are locally dominant. A black hickory measured here in 1974 was 5 feet (1.5 meters) in circumference and is listed as the largest individual of that species in Illinois. At these sites there are few other species, the undergrowth is sparse, and the ground is bare of leaf litter much of the year. Mosses and lichens are common. Cherty bedrock outcrops form small cliffs in scattered sites on high knobs, and stunted blackjack oaks and black hickories are most common. Other dry forest sites have post oaks and black oaks as codominants. These sites have more undergrowth and leaf litter on the ground.

The dry-mesic upland forest has a greater variety of canopy species including red and white oaks, hickories, ashes (Fraxinus spp.), and occasional cucumber magnolias. The shrub layer is relatively dense and includes dogwood, redbud (Cercis canadensis), and greenbriers. Poison ivy (Rhus radicans) is an abundant groundcover species.

The mesic forests in the deep ravines have beech, sugar maple, tuliptree, red oak, and cucumber magnolias. Pawpaw, spicebush, and dogwood are common in the understory. The spring ephemeral wildflowers are abundant, and there is a diversity of species including trilliums (Trillium gleasonii), violets (Viola spp.), ginger (Asarum reflexum), bloodroot (Sanguinaria canadensis), Dutchman's breeches (Dicentra cucullaria), and columbine (Aquilegia canadensis). Ferns include Christmas fern (Polystichum acrosticoides), bracken (Pteridium aquilinum), and walking fern (Camptosorus rhizophyllus). The ravine bottoms have boulders, ledges, and small waterfalls with a diversity of ferns, mosses, and forbs characteristic of mesic shaded forests in the region.

Fauna

The pileated woodpecker (Dryocopus pileatus) and wild turkey (Meleagris gallopavo) are occasionally seen in the area.

The green frog (Rana clamitans) is common in the intermittent streams.

The timber rattlesnake (Crotalis horridus), eastern garter snake (Thamnophis sirtalis), eastern box turtle (Terrapene carolina), and five-lined skink (Eumeces fasciatus) are common reptiles. The rattlesnakes appear to prefer the grassy hill prairies, and are commonly seen there in the spring and fall.

The bobcat (Lynx rufus) is occasionally seen in the vicinity and probably passes through the area. This is a Forest Listed Species and is a Threatened Species in Illinois.

Most of the animals common to the region probably occur in, or occasionally use, the RNA, especially the larger mammals such as the white-tailed deer (Odocoileus virginianus), coyote (Canus latrans), gray fox (Urocyon cinereoargenteus), raccoon (Procyon lotor), opossum (Didelphis marsupialis), and gray squirrel (Sciurus carolinensis).

Geology (Figure 5)

The area is a maturely dissected ridge with a generally northerly trend along the east wall of the Mississippi River valley. Two major westerly-trending ridge bifurcations subdivide the associated drainages. The boundaries exclude the valley floors on the east and south. The northern portion of the ridge descends steeply to Ripple Hollow with relatively little dissection. Dissection on the west is severe; two somewhat longer valleys with narrow bottomlands originate from the main ridge and extend for about a half mile (0.8 kilometers) to the boundary.

Total relief is about 400 feet (121.9 meters). Lowest elevations are along Dongola Hollow at the south and on Ripple Hollow at the north at about 420 feet (128.0 meters) above mean sea level. The ridge crest is undulating above 820 feet (249.9 meters) in the 1/4 mile segment where the boundary is drawn along the divide.

The slopes are very steep; 60° is not uncommon in the ravines. Discontinuous ledges occur where the Grassy Knob cherts are massive and cohesive. The natural area encompasses ridges and ravines which give orientations to all points of the compass. Thus, comparisons and contrasts can be made among soils, erosion, and vegetation with different aspects.

Ridge crests are so narrow, few upland flats occur. Three or four wider places are found where a few acres of gently rounded ridge crest offer a different aspect.

The two valleys on the west have a relatively broad bottomland. Stream flow is intermittent. The channels themselves are "choked" with gravel and boulders and are dynamic.

During storms, runoff from the slopes is rapid, and stream flow is turbulent at a rapid velocity. Research into the dynamics of the system should yield valuable results.

The ridge pattern is essentially reticulate. Many steep, short ravines dissect the ridges debauching into valleys with dendritic patterns. The numerous tributaries are of a low order. Stream density is very high.

The geologic materials consist of limestone and chert bedrock, loess-covered upland, thinner loess on protected slopes, and colluvial or alluvial loess-derived silts on the lower slopes and broader valley floors. Loose chert scree occurs on some slopes.

The Bailey Formation is considered to be Lower Devonian. It consists of massive gray limestone, which is siliceous and contains irregular knobby masses, conspicuous on exposed bedding surfaces of slumped blocks. It is the bedrock of the lower portion of the western side of the central ridge and beneath the two broad valleys.

The Devonian age Grassy Knob Formation consists mainly of chert where exposed. Though commonly white on a fresh, broken surface, its appearance is usually pale orange from iron oxide stain. Characteristically it is brecciated and "honeycombed" with larger and smaller hollows. Brecciation is due to solution and irregular collapse before silicification of the original carbonate rock. It underlies the upper slope on the west and the entire slope on the east side.

During the late Pleistocene, thick deposits of silty loess were carried by the wind onto the bluffs. Accumulation was greatest on the ridges, though loess was trapped by the vegetation on the slopes as well. This deposit is of prime significance, as the soils have been formed in it. Pleistocene loess is well-sorted buff loess consisting of two, in some places three, distinct units separated by ancient soil zones. The lower portion of the upper two loess bodies is calcareous and contains fossil snails. However, the loess in this particular area has not been examined for these features.

The Ozark Hill Prairie RNA is at the eastern edge of the Ozark Physiographic Province. Here, the Devonian rocks were heavily silicified apparently before they were exhumed and then transected by the Mississippi River Valley. Perhaps the valley was super-imposed on Paleozoic rocks from a course taken on coastal plain sediments. The valley now transects the most resistant bedrock of the region. The result is a trough-like valley with high, steep bluffs.

Surface runoff has been the dominant process responsible for the topographic sculpturing of the area. It is also the dominant

geomorphic process today. Erosion is proceeding rapidly, especially on the steep slopes, in the ravines, and in the bottomlands. The region is subject to very heavy rains within a short time period, most of which runs off. Rainwash is rapid on the steep slopes. This sheet wash is soon concentrated in the many steep ravines. Here, bedrock is exposed, and blocks slide into the stream courses. Deepening is presently active.

Debris from the ravines and slopes is deposited in the valley bottoms. However, the valley bottoms are likewise a dynamic environment, as undercutting of banks, channel overflow, and parallel secondary channels continually modify the surface.

Piping has been found to be a significant erosional process in at least one area below the ridge crest on the southeast slopes. Numerous tunnels in the thick loess are being scoured by runoff which enters them. The tunnels probably originated from animal burrows. Collapse of parts of the tunnel roof produces depressions. Eventually these will become surface gullies.

Cliffs and ledges are common, though discontinuous. They present layers of more resistant bedrock in localities where slopes are steep and erosion active.

No search has been made for springs but they should be present (perhaps only seasonal) developed in the Bailey limestone. That formation appears to be subject to solution along bedding planes and joints, though actual caverns are not known.

The hill prairies appear to be located on and beneath the crest of the ridge on south- and west-facing slopes. Here, microclimatic conditions are severe, but a good root medium exists. Presently, soil wash is an active process as can be seen by accumulation above plant roots and exposure of roots on the downslope side. In the largest prairie (near the very south end of the RNA), a large active gully extends along the margin. It is retreating headward. This hill prairie is so steep that one wonders at the healthy and diverse character of the prairie stand.

References: S. E. Harris, Jr., C. W. Horrell, and D. Irwin. 1977. Exploring the land and rocks of southern Illinois, a geological guide. Southern Illinois University Press, Carbondale. 240 pages.

J. M. Weller and G. E. Ekblaw. 1940. Preliminary geologic map of parts of the Alto Pass, Jonesboro, and Thebes quadrangles in Union, Alexander, and Jackson counties. Ill. State Geol. Surv. Rep. Invest. 70. 26 p.

Soils

Conspicuous relationships exist between soils, geologic material, and landform. The deepest loess soils are on the ridge crests. The thinner loess veneer and scree slopes are on the exposed Grassy Knob chert. The bottomlands have undeveloped depositional loess and gravel.

The humid temperate climate of the region has favored the rapid weathering of soil materials and the downward movement of clays and minerals in the profile. Much of the annual precipitation occurs during short intense storms creating severe erosion potential.

The narrow ridge crests are mapped as Alford silt loam (308). These soils formed in deep loess, up to 15 feet (4.6 meters) thick in places. The underlying bedrock is massive chert. These are acid soils. They have greater fertility than most other soils in the area, but are subject to erosion.

The narrow valleys are mapped as Elsay silt loam (475). These soils formed in silt loam sediments over cherty material. The sites are subject to flooding of short duration, and also to deposition and stream cutting. These soils are neutral or slightly acid.

Small areas on upper slopes are mapped as Stookey silt loam (216). Stookey soils formed in 50 inches or more of loess over massive beds of chert. They are strongly acid and subject to severe erosion.

Some ravines and steep slopes in the south part of the area are mapped as Bodine cherty silt loam (471). These are shallow, excessively drained soils that developed in silty material over chert. Small boulders and outcrops occur. These soils are subject to severe erosion.

Most of the rugged terrain in the area, the steep slopes and valleys, is mapped as the Stookey-Bodine complex (990). Stookey soils occupy the upper slopes; the Bodine soils occupy the lower parts. The Bodine is a mixture of loess and chert. These are subject to severe erosion.

Reference: W. D. Parks and J. B. Fehrenbacher. 1968. Soil survey of Pulaski and Alexander counties, Illinois. Soil Conservation Service and University of Illinois, in cooperation with the Illinois Agricultural Experiment Station, Urbana, Illinois. 121 pages plus maps.

Lands

All of the RNA is federal land acquired by the U. S. Forest Service in 1935-36 as a part of the Shawnee National Forest. There are outstanding mineral rights on one tract of about 30 acres (121.1 hectares). This reservation will expire in 2035. According to Appendix E of the Shawnee National Forest, Final Environmental Impact Statement, Land and Resource Management Plan (1986), there is no coal, and the potential for fluorite, lead, zinc, oil, and gas is low.

Cultural features

No archaeological sites are known in the RNA, but little survey work has been conducted in the area. There are no cultural features except for traces of old trails and roadways on the main ridge crests. These may have originally been Indian and/or game trails. Some were probably used by logging crews as haul roads many years ago. Forest Service Roads 246B, 206B, and 206 are shown on the Mill Creek USGS Topographic Map, modified for Forest Service use, as entering the RNA (Figure 4). The sections within the RNA are unimproved and hardly recognizable as roads.

IMPACTS AND POSSIBLE CONFLICTS

The Shawnee National Forest's Land and Resource Management Plan (1986) contains standards and guidelines for the management and protection of special areas, including the proposed research natural areas. These standards and guidelines provide the basis for conflict resolution.

Mineral resources

All of the surface estate is in federal ownership. There are privately reserved mineral rights on one tract, that part of the NW 1/4 of section 5 that is within the RNA. This tract is about 30 acres (12.1 hectares). This reservation will expire in the year 2035.

The potential for the presence of fluorite, lead, zinc, gas, and oil is low, and no coal is in the area, according to the Final Environmental Impact Statement of the Shawnee National Forest Land and Resource Management Plan (1986). *Exploration, development and extraction of mineral resources will be coordinated to protect RNA values.*
Grazing PJE

This area has never been grazed under Federal ownership, and is not presently under range allotment. There is no demand or need for grazing land in the vicinity, and the area is unsuitable for livestock use. It is nearly all forested. The soils on the

steep slopes are subject to extreme erosion, and livestock use would have undesirable effects on the soils, natural plant communities, and rare species in the area. The 8.2 management prescription expressly prohibits grazing.

Timber

All of the potential research natural areas identified in the SNF Land and Resource Management Plan (1986) were considered inappropriate for timber production. These lands were not included in the Shawnee National Forest timber base. Consequently, no additional withdrawals will be required.

Watershed values

The protection and management of this area as an RNA will help maintain its watershed in a minimal erosional condition, and thus help protect the water quality of recipient streams and rivers.

Recreational values

There has been little recreational use of the RNA in the past. Deer and turkey hunters enter the area during the short hunting seasons. Off road vehicle riders (three-wheelers) have recently been using a trail to illegally enter and cross a part of the RNA at the south end. There are no special attractions to cause public use to increase significantly. Adequate supervision and management ~~should~~ prevent ~~serious~~ detrimental use from developing. ←

will ASG
NOTE: LAW ENFORCEMENT EFFORTS HAVE ELIMINATED THIS PROBLEM. DL & RMB

Wildlife and plant values

Management of the area as an RNA will help to preserve habitats for all wildlife and plant species native to the site.

Some maintenance is required to monitor and control exotics and keep woody invasion from eliminating the prairie community, but such should not cause any significant impact or result in any conflict with other uses in the vicinity.

Wilderness, Wild and Scenic River, or National Recreation Area values

The RNA is within the Ripple Hollow RARE II area proposed by various groups for study as a wilderness area. It was not recommended for wilderness study in the Shawnee National Forest, Land and Resource Management Plan, III-7, 1986.

Transportation plans

There are no known transportation plans that are likely to be in conflict with, or adversely affect, the RNA. Forest Service Roads 246B, 206B, and 206 are shown on the Mill Creek USGS Topographic Map, modified for Forest Service use, as entering the RNA (Figure 4). These are unimproved and are reverting to forest. They are closed to vehicle traffic at the RNA boundaries.

MANAGEMENT PRESCRIPTION

The primary objective of the Ozark Hill Prairie Research Natural Area management is to protect and maintain its natural character, i.e., to preserve the area from unnatural disturbance.

The purpose of management is to provide an area to illustrate and typify for research and educational purposes some of the important forest, hill prairie, and geologic types characteristic of the Midwest, as well as other plant communities and features that have special and unique characteristics of scientific interest and importance. *management prescriptions will be developed in cooperation with the NEFES.* PJE
Vegetation management

Prescribed burning and hand removal of small trees and shrubs are permitted to help control the invasion of woody vegetation into the naturally open areas. The tendency of natural openings in the Midwest to succeed to forest will likely result in the disappearance of prairie communities without fire or the replication of other natural control measures that kept them open in presettlement times. A regular schedule of burning will be developed as results are monitored.

Recreation management *Recreation will be discouraged.* PJE

ADMINISTRATIVE RECORDS AND PROTECTION

The Ozark Hill Prairie Research Natural Area is administered from the Jonesboro Ranger District of the Shawnee National Forest. The contact person responsible for this area is:

Jonesboro District Ranger
Shawnee National Forest
521 N. Main
Jonesboro, IL 62952

The research coordinator is:

Director
North Central Forest Experiment Station
1992 Folwell Ave.
St. Paul, MN 55108

The research data file is maintained by the North Central Forest Experiment Station, and the Shawnee National Forest Headquarters, Harrisburg, Illinois 62946. The Natural Heritage Division of the Illinois Department of Conservation, 524 S. 2nd Street, Springfield, Illinois 62706, also maintains a file for this natural area. Most specimens that have been collected in this area, both botanical and zoological, are housed in the collections at Southern Illinois University, Carbondale, Illinois.

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24
16

144
24

384

46
0244

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APPENDIX ITEM I.

Computer printout of data collected for the Ozark Hill Prairie Natural Area by the Illinois Natural Areas Inventory, 1976-78.

The major part of the INAI natural area is included within the RNA boundaries (the privately owned land has been excluded). Additional acreage on the east and southwest sides has been added for buffer.

509

Illinois Natural Areas Inventory
Natural Land Institute

AREA # 509

COUNTIES: 2 Alexander
91 Union

REFERENCE NUMBER: 19

AREA NAME: Ozark Hill Prairies

NATURAL AREA CATEGORIES & SIGNIFICANT FEATURES:

CAT. CODE / DESCRIPTION
I A2.12 Loess hill prairie

EXCEPTIONAL FEATURES:

CAT. CODE / DESCRIPTION
II 806 Timber rattlesnake (Loess hill prairie and upland forest)

PRESERVATION VALUE SCORE: 5

EVALUATOR: 3 Hutchinson

LEGAL LOCATION:

TWP	RNG	FM	SEC	QUARTER	QUARTER-QUARTERS
13S	2W	3	31		D
14S	2W	3	5		4&5&12&13
14S	2W	3	6		A&11&14&D&9
14S	2W	3	7		A&3&4&6&11&10

TOPOGRAPHIC QUADRANGLES: 281d Mill Creek 7.5

SPECIFIC STREAM : Clear Creek

STREAM SYSTEM (Water Shed) : 25 Clear Creek-Horseshoe Lake system

LEGISLATIVE DISTRICT: 59

MUNICIPALITY:- none

MINIMUM ALTITUDE: 440

MAXIMUM ALTITUDE: 800

TOPOGRAPHY:

PHYSIOGRAPHIC UNIT: 70 Salem Plateau Section
MAJOR FEATURE: 47 Erosional hills in bedrock (thick loess)

INDIVIDUAL TOPOGRAPHIC FEATURES:

114 Ravine
118 Valley wall

GEOLOGIC FORMATIONS:

80 Bailey Limestone

81 Grassy Knob Chert
216 Peoria Loess

SOIL ASSOCIATION (STATE) :
15 0 Stookey-Alford-Muren

SOIL ASSOCIATION (COUNTY) :
Stookey-Bodine

NATURAL COMMUNITY
2.12
Loess hill prairie

NATURAL DIVISION AND SECTION: 11c
Southern Section, Ozark Division
COMMUNITY CLASS : 2 Prairie
RARITY INDEX: 5 Very rare
NATURAL QUALITY:
6.00 acres of grade A ;
Essentially undisturbed

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
250 Sorghastrum nutans, Indian grass
14 Andropogon scoparius, little bluestem

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
250 Sorghastrum nutans, Indian grass
13 Andropogon gerardi, big bluestem

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
14 Andropogon scoparius, little bluestem
250 Sorghastrum nutans, Indian grass

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
13 Andropogon gerardi, big bluestem
14 Andropogon scoparius, little bluestem
250 Sorghastrum nutans, Indian grass

NATURAL COMMUNITY
1.2
Dry-mesic upland forest

NATURAL DIVISION AND SECTION: 11c

Southern Section, Ozark Division
COMMUNITY CLASS : 1 Forest
RARITY INDEX: 2 Common
NATURAL QUALITY:

34.0 acres of grade C ;
Mature second growth
3.30 acres of grade D ;
Recently logged

SAF COVER TYPE: 52 White oak--red oak--hickory

PLANT COMMUNITY:

195 Quercus alba,white oak
209 Quercus velutina,black oak--
55 Carya spp.,hickories

SAF COVER TYPE: 40 Post oak--black oak

PLANT COMMUNITY:

195 Quercus alba,white oak
208 Quercus stellata,post oak
209 Quercus velutina,black oak

NATURAL COMMUNITY

1.4

Mesic floodplain forest

NATURAL DIVISION AND SECTION: 11c
Southern Section, Ozark Division
COMMUNITY CLASS : 1 Forest
RARITY INDEX: 3 Occasional
NATURAL QUALITY:

10.0 acres of grade D ;
Recently logged
10.0 acres of grade B ;
Old second growth
354 acres of grade C ;
Mature second growth

SAF COVER TYPE: 59 Yellow poplar--white oak--northern red o

PLANT COMMUNITY:

206 Quercus rubra,red oak
195 Quercus alba,white oak
138 Liriodendron tulipifera,tuliptree

SAF COVER TYPE: 60 Beech--sugar maple

PLANT COMMUNITY:

98 Fagus grandifolia,beech
6 Acer saccharum,sugar maple
137 Liquidambar styraciflua,sweet gum

NATURAL COMMUNITY

6.6

Successional field

NATURAL DIVISION AND SECTION: 11c

Southern Section, Ozark Division

COMMUNITY CLASS : 6 Cultural

RARITY INDEX: 0 Not collected or not applicable

NATURAL QUALITY:

1.30 acres of grade E ;

Periodically plowed and mowed

SAF COVER TYPE: * Not collected

PLANT COMMUNITY: * Not collected

DIVERSITY INDEX: 3

TOTAL ACREAGE: 419

OWNERSHIP TYPE: 1 Private

2 Public

NUMBER OF OWNERSHIPS: 3

USE OF NATURAL AREA:

10 No apparent use

22 Research and education visits

23 Wildlife or fish management

USE OF SURROUNDING LAND (% wildland): 80

USE OF SURROUNDING LAND (% farmland): 20

USE OF SURROUNDING LAND (% developed land): 0

NEAREST SMSA: 9 St. Louis (Madison and St. Clair counties)

DISTANCE TO SMSA: 64

NUMBER OF NEARBY SCHOOLS: 3

NEAREST SCHOOL: 88 Southern Illinois University, Carbondale

NUMBER OF NEARBY D.O.C. FACILITIES: 4

MANAGEABILITY: 1

PRESERVATION STATUS:

4 Public land, not recognized as a natural area

6 Private land, not protected by owner or lessee

THREATS:

3 Threat likely within five years.

DESCRIPTION: Successional changes (woody plants)

2 Threat of destruction known, but not immediate.

DESCRIPTION: Logging

SPECIES LISTS:

1 Woody plants

4 Amphibians, reptiles, and mammals

5 Other species list

SAMPLING FORMS:

- none

DISCUSSION OF PRESERVATION VALUES:

The Ozark Hill Prairies are most of the small prairie remnants remaining in the Southern Section of the Ozark Hills. A good population of the rare timber rattlesnake occurs in the area.

PUBLICATIONS:

CITATION # -

APPENDIX ITEM II.

Copy of Page 21, Shawnee National Forest, Land and Resource Management Plan, Final Environmental Impact Statement, Appendix E illustrating the role of the Ozark Hill Prairie Research Natural Area in natural diversity.

APPENDIX E
Evaluation of Proposed RNA's

SAF Cover Type

SAF cover types in relation to RNA's

SAF Type:	ATWOOD RIDGE	BARKER BLUFF	BURKE BRANCH	KASKASKIA	LARUE/OTTER	MTN TOWNSHIP	OZARK HILL	PANTHER HOLLOW	WHOOPIE CAT	: Needed	: Comments
40	: X	: X	: X	: X	: X	: X	: X	:	:	: Yes	: In RNA in Kentucky, 1968
	:	:	:	:	:	:	:	:	:	:	: RNA Directory
44	: X	:	:	:	:	:	:	:	:	: Yes	: Midwest example
46	:	: X	:	:	:	:	:	:	:	: Yes	: Not in any RNA
52	: X	: X	: X	: X	: X	:	: X	:	: X	: Yes	: Midwest example
53	:	:	: X	: X	:	: X	:	:	:	: Yes	: Midwest example
55	:	:	:	:	:	:	:	: X	:	: Yes	: Central Midwest example
59	:	:	:	: X	: X	:	:	:	:	: No	: In RNA in Indiana
60	: X	:	:	:	: X	:	: X	:	:	: No	: In RNA in Indiana
63	:	:	: X	:	:	:	:	:	:	: Yes	: Not in any RNA, Northern
	:	:	:	:	:	:	:	:	:	:	: Example
64	:	:	:	: X	:	:	: X	:	:	: Yes	: Not in any RNA
65	:	:	:	:	: X	:	:	:	:	: Yes	: Not in any RNA
75	:	:	: X	:	:	:	:	:	:	: Yes	: Northern example
87	:	:	:	:	: X	:	:	:	:	: Yes	: Not in any RNA

This table is from a Regional Office 4060 memo dated October 27, 1983. The memo recommends that we provide minimum coverage of all SAF cover types indicated as needed in the above table.

A 4060/1920 memo from the Regional Office dated December 22, 1983, updates the above table. This memo places SAF cover types into three categories. One, in which there is no representative nationally; two, a category in which there is only one RNA representative; and three, a category in which there are two RNA's representing the cover type. These categories are as follows:

<u>Not Represented</u>	<u>In one RNA</u>	<u>In two RNA's</u>
SAF 46	SAF 40	SAF 55
SAF 65	SAF 53	
SAF 87		

Based on the above information, establishment of the following RNA proposals were recommended to provide minimum coverage of the needed SAF cover types.

<u>SAF Cover Types</u>	
Atwood Ridge	40, 44, 52, 60
Barker Bluff	40, 46, 52
Burke Branch	40, 52, 53
LaRue Pine Hills/Otter Pond	40, 52, 59, 60, 65, 75, 76, 87
Panther Hollow	40, 54, 55

APPENDIX ITEM III.

Copies of pages selected from the Shawnee National Forest, Land and Resource Development Plan documents describing the Ozark Hill Prairie Research Natural Area and documenting the recommendations of the Forest for its designation and management

Murphysboro Ranger District

13. Oakwood Kite Site	53
14. Toothless Cave	8
15. Cave Spring Cave	120
16. Big Bayou Kite Site	80

Jonesboro Ranger District

1. Atwood Ridge	955
2. Clear Creek Swamp	4
3. LaRue Pine Hills/Otter Pond	3547
4. Opossum Trot Trail	3
5. Ozark Hill Prairies	535
6. Wolf Creek Area	495
7. Bald Knob Geological	7

Detailed descriptions of each of these sites is in the planning record. Analysis details are in Appendix F of this FEIS.

Research Natural Areas

Research Natural Areas are protected areas reserved for nonmanipulative research observation and study. Each area is part of a national network representing a full array of North American ecosystems, biological communities, habitats, and phenomena, and geological and hydrological formations and conditions. Research Natural Areas (RNA's) are established by the Chief of the Forest Service.

There are currently no RNA's established on the Shawnee National Forest; however, four separate proposals have been submitted to the Forest Supervisor for consideration.

As a result of the four proposals submitted to the Forest Supervisor, the following twelve areas were considered for Research Natural Area designation in the planning process:

CHAPTER III
Affected Environment

Table 3-15
Recommended Research Natural Areas

<u>AREA</u>	<u>ACRES 1/</u>
Atwood Ridge	955
Barker Bluff	60
Burke Branch	300
Dennison Hollow	205
Kaskaskia	1,050
Panther Hollow	180
Whoopie Cat Mountain	17
Ozark Hill Prairies	535
LaRue Pine Hills	1,905
Otter Pond	680
Cave Hill	465
Stoneface	176

1/ The acreage shown is as originally proposed. Some modifications have been made in individual alternatives (see Appendix E).

Detailed descriptions of each area and the analysis of RNA proposals is in Appendix E of this FEIS.

Roadless Areas

The Shawnee National Forest does not currently have any areas designated as units of the National Wilderness Preservation System. It does, however, have nine roadless areas which are being considered for their potential as wilderness or for nonwilderness uses. These areas and their acreage are:

Table 3-16
Roadless Areas

<u>Roadless Area</u>	<u>Size (Ac. NFS Land)</u>
Bald Knob	5,888
Burden Falls	2,999
Burke Branch	6,230
Clear Springs	4,777
Garden of the Gods	3,844
Lusk Creek	6,055
Murray Bluff	4,172
Panther Den	722
Ripple Hollow	3,530

These nine areas were originally inventoried in 1977 during the second Roadless Area Review and Evaluation. This study came to be known as RARE II and was completed in 1979 with the issuance of a Final Environmental Statement. Four areas totaling 15,093 acres were recommended for wilderness study: Garden of the Gods, Bald Knob, Clear Springs, and Panther Den. Three areas totaling 13,143 acres were recommended for non-wilderness management: Murray Bluff, Burke Branch, and Ripple Hollow. Two areas totaling 8,883 acres were recommended for further evaluation: Lusk Creek and Burden Falls.

APPENDIX E
RNA Assignment by Alternative

Alternative I

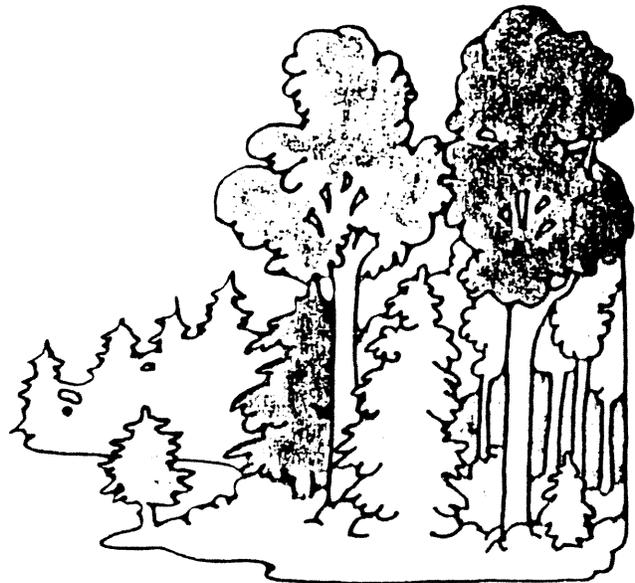
Alternative I emphasizes the maintenance and enhancement of wildlife habitat and preservation of unique natural features. A variety of motorized and nonmotorized recreation features are provided. All proposed Research Natural Areas are recommended for further evaluation.

Management Prescription 8.1

Kaskaskia Experimental Forest

Management Prescription 8.2

Barker Bluff
Atwood Ridge
Burke Branch
LaRue Pine Hills
Otter Pond
Dennison Hollow
Cave Hill
Stoneface
Ozark Hill Prairie
Whoopie Cat Mountain
Panther Hollow



APPENDIX E
Special Features

INTRODUCTION

This appendix lists areas of significant physical, biological and cultural features. Where necessary, additional information is provided to assist in implementing management on an area by area basis.

INTENSIVE RESEARCH AREAS

The following areas are assigned to Management Prescription 8.1 to provide for on-going natural resource research and management.

<u>Name</u>	<u>Size (Acres)</u>
Palzo Reclamation Project	325
Dixon Springs Agricultural Research Station	4259
Kaskaskia Experimental Forest	2169
Sugar Creek Seed Orchard	105

NATURAL AREAS

The following areas are assigned to Management Prescription 8.2 (except as noted) to provide for the preservation and protection of their unique scientific or educational values. One or more natural area categories (National Natural Landmark, Research Natural Area Candidate, Botanical Area, etc.) may be assigned to an individual site as warranted.

National Natural Landmarks (existing)

These areas are managed for their landmark features in accordance with the Forest-wide Standards and Guidelines and those in the Management Prescription shown.

<u>Name</u>	<u>Mgmt. Prescription</u>	<u>Size (Acres)</u>
Bell Smith Springs	8.2	1,260
LaRue Pine Hills	8.2	1,905
Little Grand Canyon	8.2	1,023
Lusk Creek	9.3	720
Total Acres		<u>4,908</u>

Candidate Research Natural Areas (RNA)

The following areas will be managed for the site specific features listed. Direction is found in the Forest-wide Standards and Guidelines and those in Management Prescription 8.2. If through evaluation at higher organizational levels and area(s) is not accepted into the National System, it will continue to be managed under Management Prescription 8.2 (or in case of Kaskaskia, 8.1) for the life of the plan.

APPENDIX E
Special Features

- An upland forest with rock chestnut oak (Quercus prinus).
- A sandstone glade.
- A dry-mesic upland forest.
- A sandstone cliff community.
- An example of Caseyville sandstone cliff.

Federal Threatened or Endangered Species:

No documented records for Federal T & E Species in this area.

Sensitive Species (proposed):

No records documenting any sensitive species in this area

Forest Listed Species:

Loggerhead Shrike (Lanius ludovicianus).

Ozark Hill Prairie

Location:

The area is located in portions of Section 31, T13S, R2W, and portions of Sections 5, 6, 7, and 8, T14S, R2W, Jonesboro Ranger District, Alexander County.

Area:

535 acres.

SAF Cover Types:

SAF 40, SAF 52, SAF 64, SAF 60.

General Information:

There is a diversity of habitat including dry, dry-mesic, and mesic forest communities and scattered loess hill prairies.

Parts of the area were logged years ago. There are four wildlife openings being maintained.

Purpose and Special Features:

To maintain the natural character of a large upland, mostly forested area with a diversity of habitats and to protect the following special features:

- Loess hill prairies.
- Mesic and dry-mesic upland forest stands.

This area includes the southernmost loess hill prairie along the Mississippi River. The forest stands include a diversity of habitats ranging from mesic ravines to dry ridgetops.