

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 Whoopie Cat Mountain 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 Whoopie Cat Mountain 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 Whoopie Cat Mountain 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

Whoopie Cat Mountain

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 the Chief's decision is the final administrative decision of the U.S. Department of Agriculture (36 CFR 217.17(d)).

F Dale Roberts

Chief

9/26/90

Date

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

WHOOPIE CAT MOUNTAIN
RESEARCH NATURAL AREA



SHAWNEE NATIONAL FOREST
JULY 11, 1987

ERRATA SHEET

1. Authorities for biota nomenclature, unless otherwise noted, are as follows:

Flora:

a. Fernald, M.L. 1950. Gray's Manual of Botany, 8th ed., American Book Co., NY. 1632pp.

b. Little, E.L.Jr., 1979, Checklist of United States Trees (Native and Naturalized) Agric. Handbook No. 541, Forest Service, USDA.

Fauna:

a. Banks, R.C., R.W. Diarmid, A.L. Gardner, 1987. Checklist of Vertebrates of the United States, US Territories, and Canada. Resource Publ. 166, Fish and Wildlife Service, USDI. 81pp.

b. Holsinger, J.R. 1972. The Fresh Water Amphipod Crustaceans (Gammaridae) of North Am., Biota of Freshwater Ecosystems. Identification Manual No. 5, EPA. 89pp.

c. Robins, C.R., R.M. Bailey, C.E. Bond, V.R. Brooker, E.A. Lachorer, R.N. Lea, W.B. Scott. 1980. A List of Common and Scientific Names of Fishes from the U.S. and Canada, 4th ed. Am. Fisheries Soc., Spec. Publ. No. 12. Bethesda, MD. 174pp.

d. Sutherland, D.W.S. 1978. Common Names of Insects and Related Organisms. Entomological Society of America. 132pp.

2. Management Prescription, Pages 16-17.

a. Management prescriptions will be developed in cooperation with the NCFES.

b. Vegetation Management

1.) Hand removal of vegetation. This may be necessary because natural fires have been prevented or controlled in recent years. Once woody vegetation is controllable through prescribed burning or grazing, hand removal of woody vegetation will be necessary.

2.) Fences are not needed to achieve management objectives.

c. Mineral Resource Management

Exploration, development and extraction of minerals will be coordinated to protect RNA Values.

d. Recreation Management

Recreation will be discouraged. Regulations will be enforced.

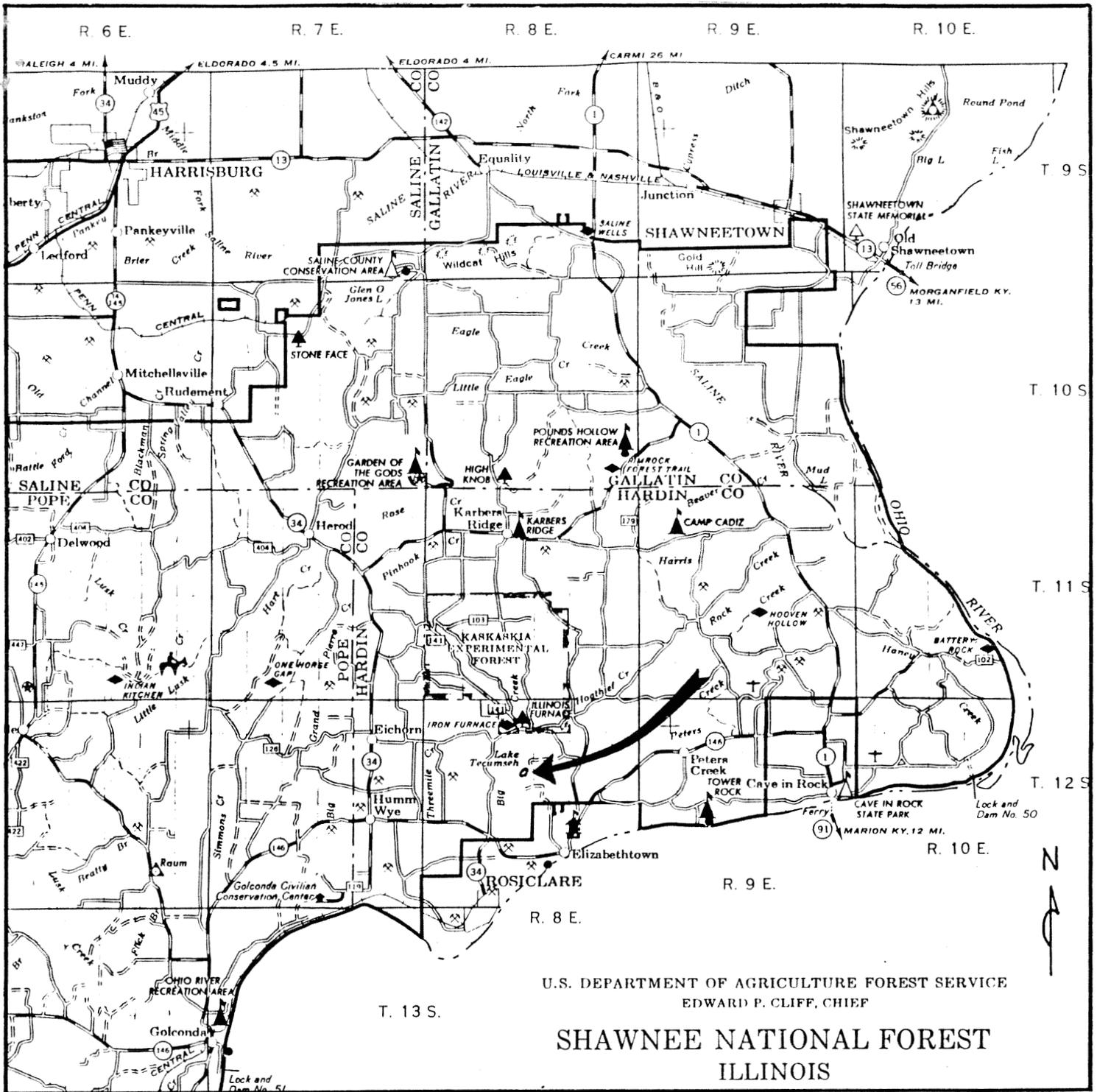


Figure 3. Location of Whoopie Cat Mountain Research Natural Area shown (with arrow) on copy of Shawnee National Forest map, 1971

scale 1/4" = 1 mile

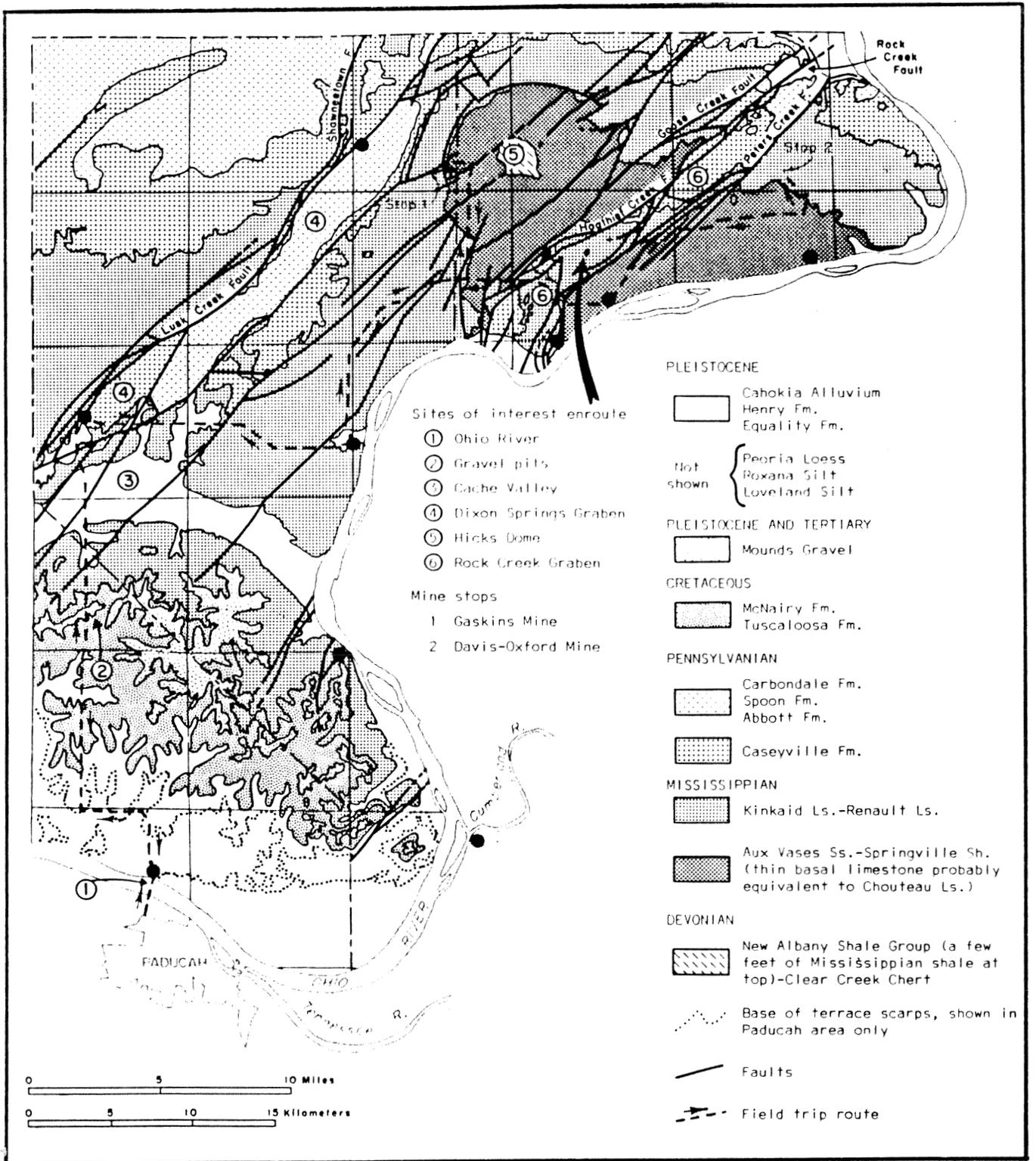


Figure 5. Location of Whoopie Cat Mountain Research Natural Area shown (with arrow) on copy of map in A geologic excursion to fluorspar mines in Hardin and Pope counties, Illinois by J. W. Baxter, J. C. Bradbury, and N. C. Hester, Ill. State Geol. Surv. Guidebook Series 11, 1973.

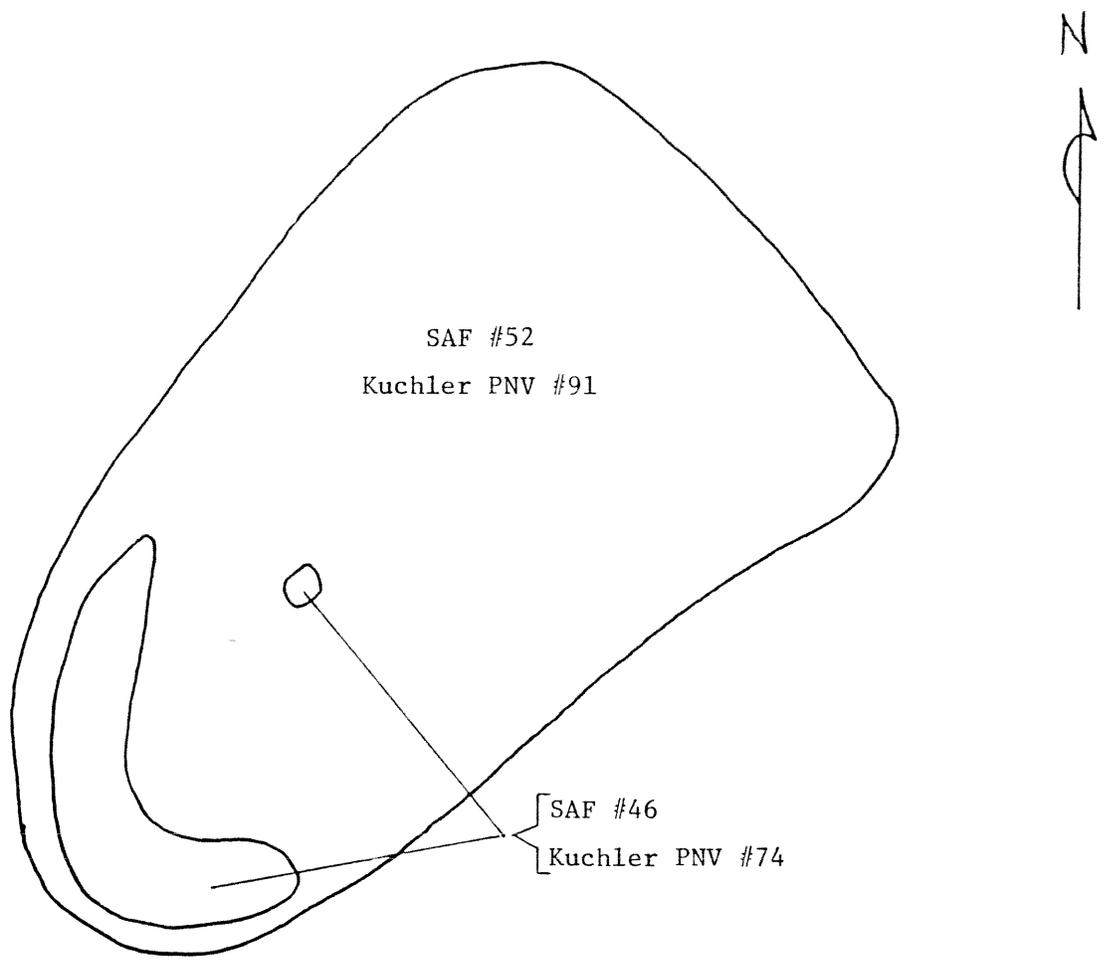


Figure 8. Map of Whoopie Cat Mountain Research Natural Area showing cover types represented

scale 5" = 1/4 mile

SAF Cover Type	Kuchler PNV Type
#52 white oak-black oak-northern red oak	#91 oak-hickory
#46 eastern redcedar	#74 cedar glades

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER

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

DATE SUBMITTED

April 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.

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 9			July 7, 1938	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	vertical aerial view of Whoopie Cat Mountain Research Natural Area	35 mm. BW

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643.52)

PHOTOGRAPHER

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

DATE SUBMITTED

April 1987

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 10			Oct. 6 1980	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	vertical aerial view of Whoopie Cat Mountain Research Natural Area and vicinity	35 mm. BW



Figure 9. Copy of ASCS aerial photograph taken July 7, 1938 showing location of Whoopie Cat Mountain RNA



Figure 10. Copy of ASCS aerial photograph taken Oct. 6, 1980 showing location of Whoopie Cat Mountain RNA

USDA-FOREST SERVICE PHOTOGRAPHIC RECORD <i>(See FSM 1643.52)</i>	PHOTOGRAPHER M. D. Hutchison	DATE SUBMITTED April 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. 11			Nov. 11, 1981	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	vertical, low altitude aerial view of south part of Whoopie Cat Mountain Research Natural Area	35 mm. C

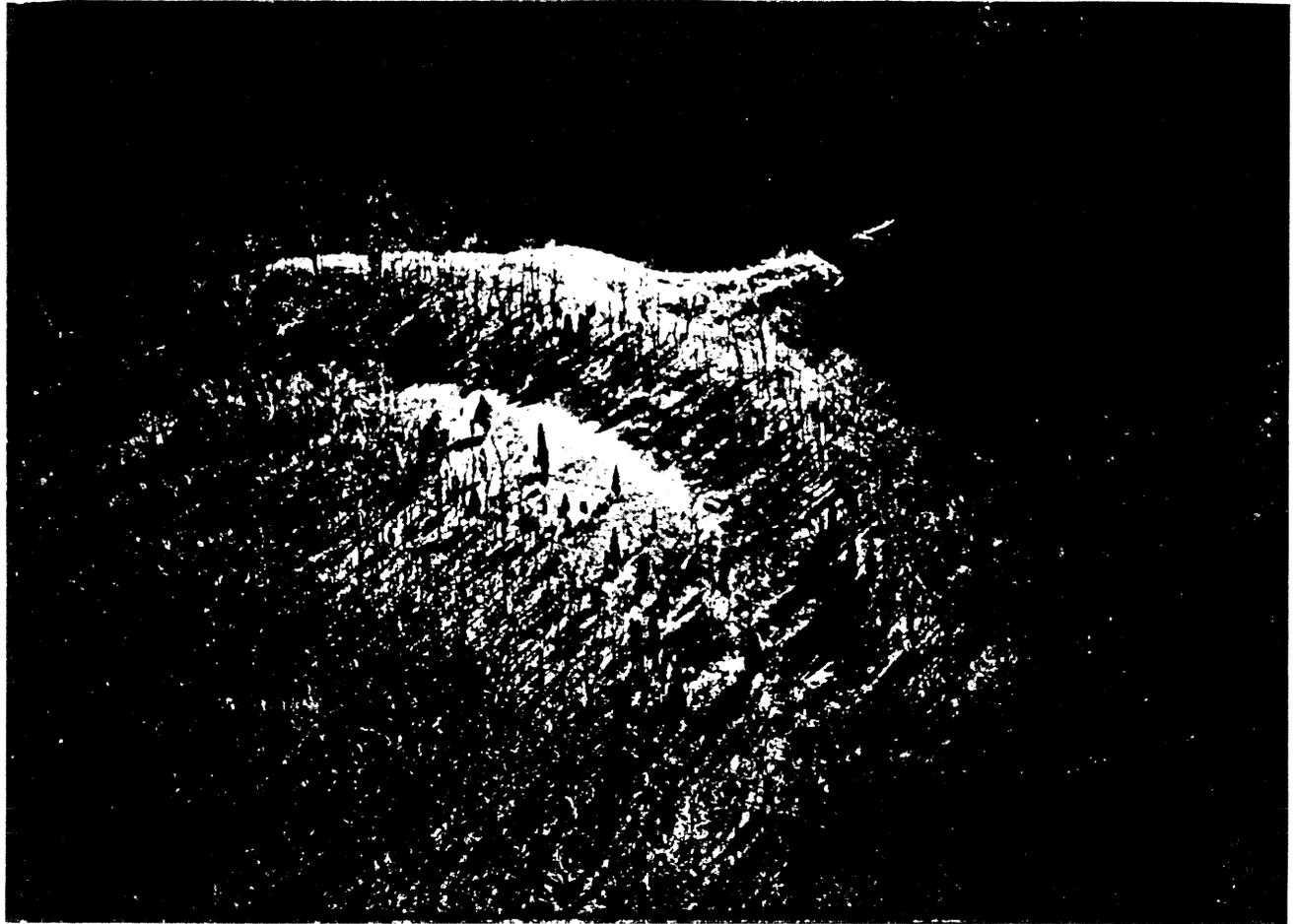


Figure 11. Aerial view of the south part of Whoopie Cat Mountain Research Natural Area; view is nearly vertical, and south is toward the top of the photo; the boundary of the RNA is the lower tree line above the lake edge; note the semicircular grassy opening with scattered redcedars; this is the limestone glade natural community -photo taken by M. D. Hutchison, Nov. 11, 1981

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER

M. D. Hutchison

DATE SUBMITTED

April 1987

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 12			winter, 1979	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	large old chinkapin oak tree at Whoopie Cat Mountain Research Natural Area	35 mm. BW



Figure 12. Large old chinkapin oak on southeast-facing slope at Whoopie Cat Mountain Research Natural Area; several of the largest oaks are near 300 years old; note the wide crown and low limbs indicating that it grew up in a more open community; probably this was glade in presettlement times -photo taken by M. D. Hutchison in winter, 1979

USDA-FOREST SERVICE		PHOTOGRAPHER	DATE SUBMITTED
PHOTOGRAPHIC RECORD (See FSM 1643.52)		M. D. Hutchison	April 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. 13			winter, 1979	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	limestone glade at Whoopie Cat Mountain Research Natural Area showing bedrock and vegetation	35 mm. C



Figure 13. View of limestone glade at Whoopie Cat Mountain Research Natural Area looking east along mid slope; the soil is very thin, and limestone cobbles and gravels are scattered over the surface
-photo taken by M. D. Hutchison in winter, 1979

USDA-FOREST SERVICE	PHOTOGRAPHER M. D. Hutchison	DATE SUBMITTED April 1987
PHOTOGRAPHIC RECORD (See FSM 1643.52)	HEADQUARTERS UNIT	LOCATION

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 14			winter, 1979	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	limestone glade at Whoopie Cat Mountain Research Natural Area showing bedrock and vegetation	35 mm. C



Figure 14. View of limestone glade at Whoopie Cat Mountain Research Natural Area looking east along upper edge; redcedars and chinkapin oaks are scattered in the glade, especially along the upper slope bordering the forest; some control of woody invasion will probably be necessary to maintain the open character of the glade -photo taken by M. D. Hutchison, winter, 1979

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643.52)

PHOTOGRAPHER

M. D. Hutchison

DATE SUBMITTED

April 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			summer, 1979	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	limestone glade at Whoopie Cat Mountain Research Natural Area showing summer vegetation	35 mm. C



Figure 15. View of limestone glade at Whoopie Cat Mountain Research Natural Area showing summer vegetation; view is upslope looking northeast; many of the plants typical of the black soil prairies to the north are present in the glade

-photo taken by M. D. Hutchison, summer, 1979

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER

Stanley Harris, Jr.

DATE SUBMITTED

April 1987

HEADQUARTERS UNIT

LOCATION

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TEMP.	PERMANENT (To be filled in by the WO)						(1)	(2)
Fig. 16			winter, 1979	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	view of ledge in limestone glade at Whoopie Cat Mountain Research Natural Area	35 mm. C		

108

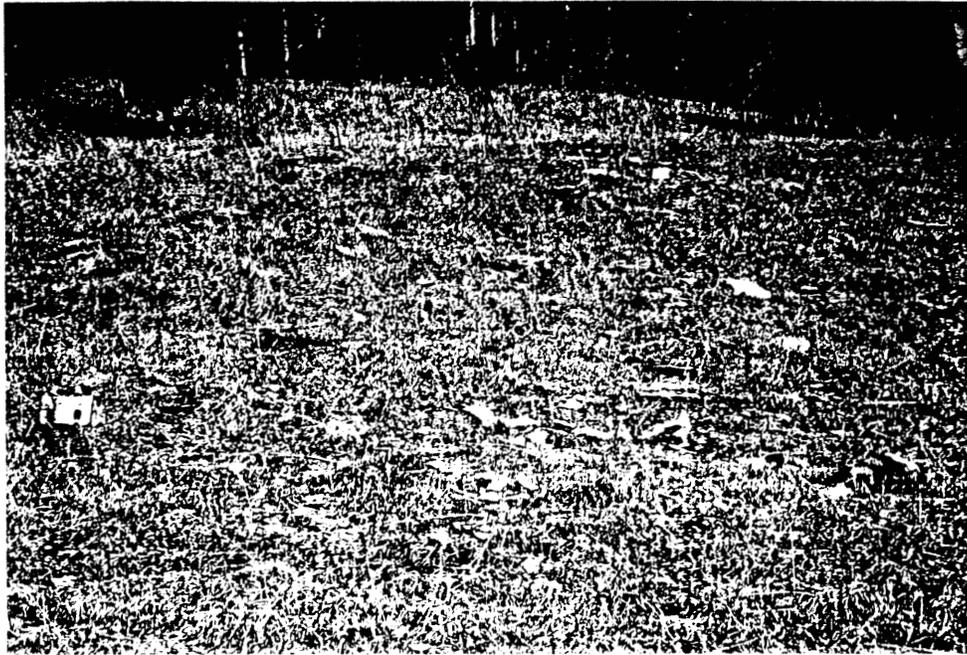


Figure 16. View looking upslope (northeast) at ledge in limestone glade; note limestone exposed; vegetation here is mostly little bluestem
-photo taken by S. Harris in winter, 1979

USDA-FOREST SERVICE		PHOTOGRAPHER	DATE SUBMITTED
PHOTOGRAPHIC RECORD (See FSM 1643.52)		M. D. Hutchison	April 1987
		HEADQUARTERS UNIT	LOCATION

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TEMP.	PERMANENT (To be filled in by the WO)						(1)	(2)
Fig. 17			summer, 1979	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	prairie dropseed (<i>Sporobolus heterolepis</i>) growing in limestone glade at Whoopie Cat Mountain Research Natural Area	35 mm. C		



Figure 17. Prairie dropseed (Sporobolus heterolepis) growing in the limestone glade at Whoopie Cat Mountain Research Natural Area; this is a species typical of the black soil prairies and is considered to be rare in the south half of Illinois
-photo taken by M. D. Hutchison, summer, 1979

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643.52)

PHOTOGRAPHER

Keith Wilson

DATE SUBMITTED

April 1987

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 18			Mar. 20, 1976	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	fossils in Fraileys shale at Whoopie Cat Mountain Research Natural Area	35 mm. C



Figure 18. Fossils in the Fraileys Shale of the Golconda Group (Mississippian) at Whoopie Cat Mountain Research Natural Area; this is the unit that makes up the major part of the slope where the limestone glade occurs

-photo by Keith Wilson, March 20, 1976

USDA-FOREST SERVICE PHOTOGRAPHIC RECORD (See FSM 1643.52)	PHOTOGRAPHER D. Kurz	DATE SUBMITTED April 1987
	HEADQUARTERS UNIT	LOCATION

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. 19			1977	Illinois Shawnee National Forest	crested coralroot orchid (<i>Hexalectris spicata</i>), a species reported as growing at Whoopie Cat Mountain Research Natural Area	35 mm. C



Figure 19. The crested coralroot orchid (Hexalectris spicata); this is an Illinois Endangered Species and also a Forest Listed Species; this plant has been reported as growing along the edge of the glade at Whoopie Cat Mountain Research Natural Area
-photo by D. Kurz, 1977

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PHOTOGRAPHIC RECORD (See FSM 1643.52)		M. D. Hutchison	April 1987
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TEMP.	PERMANENT (To be filled in by the RO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fig. 20			Sept. 26 1986	Illinois Shawnee National Forest, Elizabethtown District, Hardin Co.	old black oaks and red oaks at Whoopie Cat Mountain Research Natural Area	35 mm. C



Figure 20. Old black oaks and red oaks at
Whoopie Cat Mountain Research Natural Area
-photo taken by M. D. Hutchison in fall,
1986

Fig. 9. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

Fig. 10. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

Fig. 12. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

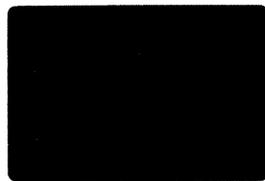


Fig. 11. Whoopie Cat Mtn. RNA, Hardin Co., Ill.



Fig. 13. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

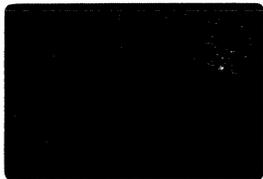


Fig. 14. Whoopie Cat Mtn. RNA, Hardin Co., Ill.



Fig. 15. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

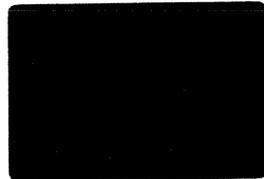


Fig. 16. Whoopie Cat Mtn. RNA, Hardin Co., Ill.



Fig. 17. Whoopie Cat Mtn. RNA, Hardin Co., Ill.



Fig. 18. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

Fig. 19. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

[no negative or slide available for this figure]



Fig. 20. Whoopie Cat Mtn. RNA, Hardin Co., Ill.

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Whoopie Cat Mountain Research Natural Area

Shawnee National Forest

Hardin 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 *Gary W. Sieren* Date *3/21/88*
Gary Sieren, District Ranger,
Elizabethtown District

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

Recommended by *Floyd Marita* Date *6/26/90*
Floyd Marita, Regional Forester,
Eastern Region

Recommended by *R. 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 Whoopie Cat Mountain
Research Natural Area within the Shawnee
National Forest, Hardin County, Illinois

ESTABLISHMENT RECORD FOR THE WHOOPIE CAT MOUNTAIN RESEARCH
NATURAL AREA WITHIN THE SHAWNEE NATIONAL FOREST
HARDIN COUNTY, ILLINOIS

INTRODUCTION

The Whoopie Cat Mountain Research Natural Area (RNA) is a 17-acre (6.9-hectare) tract owned by the federal government and managed by the U. S. Forest Service, Shawnee National Forest (Figure 4). It contains relatively undisturbed natural community types, e.g. glade and dry upland forest. It is a part of the Whoopie Cat Mountain Natural Area identified by the Illinois Natural Areas Inventory (1978) as being of significance because of its very high quality limestone glade and the presence of two uncommon plant species, the orange coneflower (Rudbeckia fulgida) and the crested coralroot orchid (Hexalectris spicata) (see Appendix I).

The crested coralroot orchid is a Shawnee National Forest Listed Species and is also listed as an Endangered Species in Illinois (Shawnee National Forest, Land and Resource Management Plan, 1986; and Natural Land Institute, 1981) (Figure 19). The climbing milkweed (Matelea obliqua) was recently discovered in the RNA. This is a Forest Listed Species and is also listed as a Threatened Species in Illinois.

The Society of American Foresters (SAF) cover type that most closely fits the forested part is Type 52 (white oak-black oak-northern red oak) (Eyre, 1980). Several variants and small stands with dominants such as scarlet oak (Quercus coccinea), chinkapin oak (Q. muhlenbergii), and post oak (Q. stellata) are also present. The glade most closely represents the cedar glades potential natural vegetation type described by Kuchler as PNV Type 74 (Kuchler, 1964 with U. S. Geol. Survey map numbers, 1969). The most similar SAF type for this community is Type 46 (eastern redcedar) (Figure 8).

The area is not on a mountain. Although the region is relatively rugged with steep slopes, the hills are low. It is within the watershed of Big Creek, a stream that flows south into the Ohio River. Whoopie Cat Mountain is on Mississippian age bedrock and is a part of the Shawnee Hills in the Interior Low Plateaus Physiographic Province (Figures 1, 5, and 6). It is within the Lesser Shawnee Hills Section of the Shawnee Hills Natural Division (Schwegman, 1973).

The area was privately owned prior to its acquisition by the federal government to become a part of the Shawnee National Forest (SNF). The major part of the area was acquired in 1937; a small part at the north end was acquired in 1968. It has never been cultivated or significantly disturbed by livestock. The area has been partially logged,

but the cutting was selective and occurred prior to Forest Service ownership, more than 50 years ago. Due to the rugged terrain and thin rocky soils, the area has never been suitable for agricultural use, and trees grow slowly and are of poor form and quality for lumber.

The RNA has received very little public use in the past. In 1977, a 25-acre (10-hectare) recreational lake was constructed by the Shawnee National Forest adjacent to the RNA. There has been an increase in visitor use in the general area since that time, and an occasional fisherman or deer hunter now wanders into the RNA (Figure 11). The site is not within any designated wilderness, wild and scenic river, or national recreation area.

The significance of the natural area was first recognized by the Illinois Nature Preserves Commission in the early 1970's (Hutchison, 1976). The feature of particular note at that time was the limestone glade.

The area was identified by the Illinois Natural Areas Inventory (1978) as a major part of a natural area of state-wide significance.

The area was first proposed for establishment as an RNA in 1980 by the Illinois Nature Preserves Commission.

LAND MANAGEMENT PLANNING

The Whoopie Cat 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 Whoopie Cat Mountain 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 the study of succession,

5) provide onsite and extension educational activities,

6) serve as baseline area for measuring long-term ecological changes,

7) serve as control area for manipulative research,

8) monitor effects of resource management techniques and practices.

JUSTIFICATION

The most important feature of the Whoopie Cat Mountain RNA is the limestone glade. This natural community type is listed by the Nature Conservancy with an element rank of G2S2 (G2 means that the community is imperiled globally because of rarity or because of other factors making it very vulnerable to extinction throughout its range; S2 means that it is imperiled in the state for the same reasons). The Whoopie Cat Mountain limestone glade is the largest of high quality in the Shawnee Hills of southern Illinois.

The area contains species uncommon in the region, plants disjunct from the prairies on the glacial till plain to the north. These include big bluestem (Andropogon gerardii), prairie dropseed (Sporobolus heterolepis), prairie dock (Silphium terebinthinaceum), and yellow coneflower (Ratibida pinnata) (Figure 15).

The crested coralroot orchid (Hexalectris spicata) occurs within the area (Figure 19). This is an Illinois Endangered Species and is also a Forest Listed Species.

The climbing milkweed (Matelea obliqua) was recently discovered in the RNA. This is a Forest Listed Species and is also listed as a Threatened Species in Illinois.

There is a diversity of tree species in the forest including small stands with dominants such as chinkapin oak, scarlet oak, red oak (Q. rubra), redcedar (Juniperus virginiana), and sugar maple (Acer saccharum). The overall SAF cover type is Type 52 (white oak-black oak-northern red oak), and this is listed in Appendix E of the Final Environmental Impact Statement, Land and Resource Management Plan for the SNF (1986) as a type needed in the RNA system.

Canopy trees are mature, with individual post oaks and chinkapin oaks between 250 and 300 years old (Figure 12).

Bedrock of at least two formations is exposed on the

slopes, and the topography is primarily determined by the underlying limestones and shales that vary in their resistance to erosion (Figure 13). The exposures of limestone affect the soil pH and influence the vegetation types on the site.

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 Whoopie Cat Mountain Research Natural Area has a diversity of vegetation types within a small area because of wide ranges in slope, aspect, soils, and bedrock character. It is all forested except for a 1.4-acre (0.6-hectare) tract that is a naturally open glade. There are large trees in the forest with several individuals old enough to predate settlement.

Two Forest Listed plants occur here, the crested coralroot orchid and the climbing milkweed. The coralroot orchid is an Illinois Endangered Species. The climbing milkweed is an Illinois Threatened Species.

The glade is on limestone and shale and is unusual in the Shawnee Hills because the hill crest has no cap of sandstone. Thus, there is no resistant caprock, no float of sandstone cobbles or boulders, nor any sand grains in the soil. Even the shale bedrock is much exposed on the slope (Figures 11 and 14). The glade is well-developed and open with a good assemblage and diversity of prairie species (Figure 15). It is the largest limestone glade of high quality in the Shawnee Hills of southern Illinois. It represents a community type listed by The Nature Conservancy as both Globally Endangered and State Endangered.

There is a small spring and seep near the top of the glade on the northwest-facing slope that yields enough water during the wet seasons to supply a small surface flow.

LOCATION

The Whoopie Cat Mountain Research Natural Area is on the Elizabethtown Ranger District of the Shawnee National Forest. It is in Hardin County, in the extreme southeastern tip of Illinois. Latitude is 37° 29' N, and longitude is 88° 19' W. The area is mostly in the N 1/2 of the NE 1/4 of section 16 with a small part extending into the S 1/2 of the

SE 1/4 of section 9, T. 12 S., R. 8 E. of the 3rd P. M. (Figures 3 and 4).

The RNA boundaries are described as follows:

Beginning at a point on the section line to sections 9 and 16 and the crest of a narrow ridge about 23.5 chains west of the northeast corner section 15, thence;

N. 40° E about 5 chains to the edge of Tecumseh Lake, thence;

S. 44° E about 6 chains to a point on the section line to sections 9 and 16, thence;

Continuing S. 44° E about 5 chains to edge of trail in bottom of valley, thence;

Southwesterly along the southeast facing slope to the cleared line edge of Whoopie Cat Lake, thence;

Southwesterly, westerly, and northwesterly around upland ridge to bottom of ravine extending northeasterly, thence;

Northeasterly following ravine to crest of ridge and point of beginning and containing approximately 17 acres (6.9 hectares)

Elevation ranges from 390 feet (119 meters) to 490 feet (149 meters) above mean sea level.

The RNA is just north of Whoopie Cat Lake and just south of Tecumseh Lake. The USGS topographic map, Rosiclare Quadrangle, modified for Forest Service use (1959), shows an unimproved dirt road (1784B) crossing the north end of the RNA: it is now reforested and scarcely discernible (Figure 4). A recent foot trail has been developed near the southeast boundary by fishermen going to the lake. Access is from Elizabethtown by means of a secondary highway (County Route 2) to an intersection, 2 1/2 miles (4 kilometers) north. Thence, following County Route 2 west, .5 miles (.8 kilometers), there is a primitive road that bears west (a left turn from County Route 2) 1 mile (1.6 kilometers) to near the north edge of the area. This primitive road is often rutted and impassible to 4-wheel vehicles. A path continues to Whoopie Cat Lake and follows the southeast boundary of the RNA (Figures 2, 3, and 4).

AREA BY COVER TYPES

The Whoopie Cat Mountain Research Natural Area is divided into two primary cover types, a part that is

forested and a part that is naturally open glade. The following are SAF and Kuchler types represented within the RNA (Figure 8):

SAF Cover Types	Kuchler PNV Type	Acres	Hectares
#52 white oak- black oak- northern red oak	#91 oak-hickory	15.6	6.3
#46 eastern redcedar	#74 cedar glades	1.4	0.6

According to the INAI (1978) data for the area, the following types were described:

Natural Community	Plant Community
Dry upland forest	post oak-white oak-chinkapin oak
Limestone glade	little bluestem-Indian grass-tall dropseed

PHYSICAL AND CLIMATIC CONDITIONS

The climatological data are from the collection station at New Burnside which has records dating from 1931. It is 27 miles (44 kilometers) to the northwest. The following description is copied from the Soil Survey of Pope, Hardin, and Massac Counties, Illinois (1975):

The Hardin County area has the continental climate typical of southern Illinois. The annual temperature range is about 100 degrees. Summer maximums reach 100° F. or more about two-thirds of the summers. Winter minimums are zero or below during about half the winters. Low pressure areas and their associated weather fronts bring frequent changes in temperature, humidity, cloudiness, and wind direction much of the year.

Annual precipitation averages about 46 inches and ranges from about 32 to 70 inches. Precipitation is fairly evenly distributed throughout the year. September and October are the driest months. Prolonged dry spells during the growing season are not unusual. Summer precipitation occurs mostly in short showers or thunderstorms which are occasionally accompanied by hail and damaging winds. Only light snows

occur during an average winter. The average annual snowfall ranges from 10 to 15 inches, but this total has been exceeded in a single month.

Summers are warm, and continuous warm periods can be prolonged. July is the warmest month; the average daily maximum temperature is near 90° F. for both July and August. January is the coldest month, and both January and February have had temperatures as low as -15° F. The five months from November through March each have 14 to 24 days in which the minimum daily temperature falls below 32° F. December, January, and February average 3 to 5 days each in which the maximum daily temperature does not exceed 32° F.

The number of days between the average date of the last freezing temperature in spring and the average date of the first freezing temperature in fall is between 187 and 200 days. Temperatures vary consistently between ridge and valley locations during radiation freezes, the most common type of freeze in Illinois.

The Whoopie Cat Mountain Research Natural Area is a hill with moderate to steep slopes. It is all forested except for a naturally open limestone glade at the south end. There are outcrops of limestone bedrock forming small ledges on the slopes, and shale is exposed in the glade. A small intermittent spring occurs at the upper edge of the glade. The forest has scattered, large, very old trees, and there is a diversity of species and size and age classes.

DESCRIPTION OF VALUES

Flora

The crested coralroot orchid (Hexalectris spicata), a plant listed as Endangered in Illinois, was found in the RNA in the 1970's, and probably is still present. This orchid is also a Forest Listed Species (Figure 19).

The climbing milkweed (Matelea obliqua) was recently discovered in the RNA. This is a Forest Listed Species and is also listed as a Threatened Species in Illinois.

The terrain, aspect, thin soils, and limestone bedrock have all influenced the development of vegetational types and are responsible for the diversity of habitats within a small area.

The limestone glade is primarily on the south-facing slope at the south end of the area (Figures 9, 10, and 11). There is also a small but significant opening on the ridge crest. The glade has a good assemblage of species typical of the black soil prairies on the glacial till plain to the

north. Dominants are grasses such as little bluestem (Andropogon scoparius), Indian grass (Sorghastrum nutans), and tall dropseed (Sporobolus heterolepis) (Figure 17). Common forbs are prairie dock (Silphium terebinthinaceum), yellow coneflower (Ratibida pinnata), purple coneflower (Echinacea pallida), and obedient plant (Physostegia virginiana). Shrubs include chinkapin oak and dogwoods (Cornus florida and C. drummondii). Redcedars are common, especially along the upper edge. Greenbriers (Smilax spp.) occur where the shrubs form thickets.

The dry upland forest has a diversity of species and small stands with dominants representing variants within the SAF forest cover type (white oak-black oak-northern red oak). On the upper slopes and ridge top near the south end of the RNA, post oaks and black oaks (Q. velutina) are dominant. On the upper slope above the glade, there is a small stand of scarlet oaks. All along the forest-glade border, redcedars are mixed with post oaks and chinkapin oaks. On the southeast-facing slope, chinkapin oaks, with individuals that are large and very old, are scattered. Scarlet oaks are common here along with white ash (Fraxinus americana), maples (Acer spp.), and a variety of other species. It appears that in presettlement times, this slope was considerably more open and was probably more glade-like than it is today (Figure 12). There are redcedars, hawthorns (Crataegus spp.), greenbriers, and sassafras (Sassafras albidum) in the understory. Slippery elm (Ulmus rubra), hornbeam (Ostrya virginiana), redbud (Cercis canadensis), and dogwood (Cornus florida) are also common understory species.

On the northwest-facing slope where conditions are slightly more mesic, white oak (Quercus alba), red oak, and shagbark hickory (Carya ovata) are common, although there are local sites dominated by post oak and black oak on the upper slope. Beech (Fagus grandifolia) and sugar maple are found at one small site, and redcedars occur mixed with oaks above the glade in the southwest part. The understory is open on the higher part of the slope, but near the bottom, where the canopy is open, there are patches of glade vegetation. Sugar maple, dogwood, hornbeam, and rusty nannyberry (Viburnum rufidulum) are common understory species in this part.

At the northeast end where the RNA slopes to the northeast, there is a small mesic site with white oak, red oak, and sugar maple. Here, the canopy is dense, and the understory is primarily small sugar maples.

Fauna

There are no rare or endangered animals known from the RNA, but little inventory work has been done in the vicinity. The deer mouse (Peromyscus maniculatus) is common

in the glade and throughout the forest. The red-tailed hawk (Buteo jamaicensis) is a common raptor often seen hunting in the area. The blue racer (Coluber constrictor) and hognose snake (Heterodon platyrhinos) commonly sun in the glade in the early spring. Land snails, including Haplotrema concavum and Mesomphix friabilis, are very abundant in the glade. Although not rare in southern Illinois, these snails appear to be much more common in the natural glade openings than in the forests or abandoned agricultural fields.

The glade habitat also has a diverse assemblage of insect and spider species. The following were noted during one short visit in 1986:

- eastern tailed blue butterfly (Pieridae)
- little sulphur butterfly (Pieridae)
- sleepy orange butterfly (Pieridae)
- cloudless sulphur butterfly (Pieridae)
- zebra swallow tail butterfly (Graphium marcellus)
- pyralid moth (Pyralidae)
- a dragonfly, the widow (Libellula luctuosa)
- a dragonfly, the green jacket (Erythemis simplicicollis)
- preying mantis (Mantidae)
- shorthorned grasshopper (Acrididae)
- yellow garden spider (Argiopidae)
- orb weaver spider (Araneidae)
- harvestman (Phalangiidae)
- walkingstick (Phasmatidae)

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

Geology (Figures 5 and 6)

Bedrock is of the Golconda Group of the Chester Series, Mississippian System. The Golconda has been divided into three formations. The limestone ledges at the top of the hill probably represent the uppermost Beech Creek Formation. It is dark-to-medium grained, somewhat argillaceous, and silty. This unit is only 10 to 15 feet (3.0 to 4.6 meters) thick (Figures 5 and 6).

Fraileys Shale makes up the middle formation (Figure 18). It consists mainly of shale with thin beds of limestone and calcareous siltstone. The limestone is gray to buff. Some units are very fossiliferous, and these are famous among geologists for their fossils which may weather out entirely. The lower Haney Limestone Formation is below the water level of the lake to the south.

The RNA is an elongate conical hill with the long axis trending NE-SW. The limestone glade is on the southern slope oriented so that it receives the greatest insolation. Northeasterly from the glade, the trees are open grown, suggesting that the glade may have formerly been more extensive (Figures 4, 9, and 10).

At the northeast corner, the hill is connected to a larger set of hills across a swale. This forms a headwater amphitheater which concentrates surface water into an ephemeral waterway leading into the lake.

Big Creek and its drainage basin crosses, nearly at right angles, the most complex fault system in Illinois. It is within the Rock Creek Graben, a segmented downdropped fault block trending northeasterly from Rosiclare. The graben exposes bedrock "slivers" of Chesterian sandstone-shale-limestone formations between bedrock areas of thick mid-Mississippian limestones to the northwest and southeast (Figure 5).

The general trend of the maturely dissected topography more or less parallels the fault trend. Nevertheless, the topography does not clearly reflect the individual fault lines. The natural area itself is not intersected by a fault nor does its geomorphic form reflect any structural activity.

The geomorphic processes which have formed the hill are the same as those active in modern times--weathering, rain impact, and surface runoff. Mass wasting is apparently minimal.

The effects of weathering are apparent especially in the thinly vegetated glade where soil cover is thin and bedrock of the Fraileys Formation is at or near the surface. The shale has a natural tendency to part along the horizontal bedding planes, while vertical joints allow passage of air and water. The limestone layers have closely spaced joints and marked compositional differences. Most of the Fraileys is calcareous shale, but the more resistant limestone beds form prominent ledges. The limestone is argillaceous, hence solution of the carbonate and wetting of the clay causes disintegration of the ledges. The shale tends to disintegrate due to wetting and drying and freezing and thawing. Once disintegration has occurred, the loose particles are subject to rain impact and rainwash; removal is about as rapid as weathering proceeds (Figures 13 and 14).

Groundwater solution certainly occurs. A small spring and seep near the top of the glade yields enough water during the wet seasons to supply a small surface flow. Flow has not been sufficient to erode a gully.

References: J. W. Baxter and G. A. Desborough. 1965. Areal geology of the Fluorspar District Part 2--Karbers Ridge and Rosiclare quadrangles. Illinois State Geological Survey, Circular 385. 40 pages plus map.

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.

Soils (Figure 7)

All of the soils in the RNA are stony and shallow. They are well drained, and runoff is rapid. They are formed in loess and underlying material weathered from shale or sandstone. Organic matter content is low, and the hazard of erosion is very severe.

The soil on the ridgetop is mapped as Wellston silt loam (339E). This soil is ordinarily strongly acid and relatively deep, but limestone is at or near the surface at this site, and a small glade is on the ridge crest near the south end.

The Beasley silt loam (691F) occurs on the steepest slopes including the largest glade. Here, the loess cover has been removed by erosion, and limestone and shale are exposed. This soil is probably alkaline in most places.

On the upper slopes between the glade and the ridgetop, the soils are mapped as the Wellston-Berks complex (986F). These are also stony, shallow, and usually acid (Figure 7).

Reference: W. D. Parks, et al. 1975. Soil survey of Pope, Hardin, and Massac counties, Illinois. Soil Conservation Service and Forest Service, in cooperation with the Illinois Agricultural Experiment Station, Urbana, Illinois. 126 pages plus maps.

Lands

All of the RNA is federal land acquired by the U. S. Forest Service as a part of the Shawnee National Forest. Mineral rights are outstanding on the entire 17 acres (6.9 hectares) for an unlimited time.

Cultural

There are no known historical sites, cemeteries, or Indian features within the RNA.

IMPACTS AND POSSIBLE CONFLICTS

The Shawnee National Forest's Land and Resource

Management Plan 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

Mineral rights are outstanding for the 17-acre (6.9-hectare) RNA for an unlimited time. According to Appendix E of the Shawnee National Forest Land and Resource Management Plan (1986), the potential for the presence of fluorite, lead, and zinc is high. The potential for the presence of oil and gas is low, and there is no coal indicated as present in the vicinity.

Fluorspar is currently being mined in Hardin County, and there might be interest in future exploration in this area.

Grazing

This area is not under any range allotment and is unsuitable for livestock grazing. It is a small acreage and is mostly forested. There are no fences in the vicinity, and there is no known interest in developing this area for livestock. The soils on the steep rocky 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.

Timber

All of the potential research natural areas identified in the Shawnee National Forest Land and Resource Management Plan 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 Whoopie Cat Mountain Research Natural Area drains into two artificial lakes, Tecumseh Lake and Whoopie Cat Lake. These lakes drain by means of a small tributary into Big Creek, which empties into the Ohio River near Elizabethtown, about 2 1/2 miles (4.0 kilometers) to the south (Figure 4).

Big Creek is one of the streams in Illinois considered to be highly significant for its high water quality and rare fishes. The protection of the RNA will help to maintain the high natural quality of the lakes and streams in the watershed.

Recreational values

There has been little recreational use of the RNA in the past. An occasional hunter crosses the area, and fishermen walk along its lower edge bordering Whoopie Cat Lake. There is a path here, very near the RNA boundary, and recent evidence of some illegal off road vehicle use is obvious. There are no special attractions to cause future problems with recreational use conflicts other than the area's proximity to Whoopie Cat Lake and Tecumseh Lake.

Wildlife and plant values

Maintenance of the limestone glade communities and associated uncommon and endangered species will require some control of woody succession. Prescribed burning and hand removal of woody shrubs unnaturally invading the glade are permitted to preserve the prairie flora. 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

Big Creek is listed as a candidate for the National System of Wild and Scenic Rivers, and further study is recommended in the Shawnee National Forest, Land and Resource Management Plan, 1986. The protection of the RNA will help to maintain the high water quality and rare fish populations in this stream.

Transportation plans

There are no known transportation plans that are likely to adversely affect the RNA, except that improvement of the access road into the Tecumseh Lake and Whoopie Cat Lake area is being considered, and such might increase visitor use of the lakes and increase the chances of visitor impact on the RNA.

The RNA is small, contains no existing roads, and none should be needed for Forest Service management of properties in the area.

MANAGEMENT PRESCRIPTION

The primary objective of the Whoopie Cat Mountain 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 and glade types characteristic

of the Midwest, as well as other plant communities that have special and unique characteristics of scientific interest and importance.

Vegetation Management

Prescribed burning and hand removal of small trees and shrubs are needed to help control the invasion of woody vegetation into the glade areas (Figure 14). It is assumed that the tendency or natural openings in the Midwest to succeed to forest will result in the disappearance of glade and prairie communities without fire or the replication of other control measures that kept them open in pre-settlement times. Prescribed/controlled burning should not be necessary every year. Initially, some large woody shrubs will be removed from the glade by hand cutting. A regular schedule of burnings will be developed as results are monitored.

ADMINISTRATIVE RECORDS AND PROTECTION

The administrator and protector of this RNA is:

District Ranger
Elizabethtown District
USDA-Forest Service
Elizabethtown, IL

The Research Coordinator is:

Director
North Central Forest Experiment Station
1992 Folwell Avenue
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 of the natural area. Plant species collected in the area have been deposited in the herbarium at Southern Illinois University at Carbondale, Illinois 62901.

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APPENDIX ITEM I.

Computer printout of data collected for Whoopie Cat Mountain by the Illinois Natural Areas Inventory, 1976-78

(Note that the natural area identified by the INAI is considerably larger than the Research Natural Area described in the establishment record. All of the RNA is within the INAI area, but some of the features described in the INAI printout are outside the boundaries of the RNA.)

325

Illinois Natural Areas Inventory
Natural Land Institute

AREA # 325

COUNTIES: 35 Hardin

REFERENCE NUMBER: 69

AREA NAME: Whoopie Cat Mountain

NATURAL AREA CATEGORIES & SIGNIFICANT FEATURES:

CAT. CODE / DESCRIPTION

I A5.8 Limestone glade

II 22 Hexalectris spicata (Dry upland forest at edge of limestone glade)

EXCEPTIONAL FEATURES:

CAT. CODE / DESCRIPTION

II 42 Rudbeckia fulgida (Limestone glade)

PRESERVATION VALUE SCORE: 5

EVALUATOR: 4 Kurz

LEGAL LOCATION:

TWP	RNG	PM	SEC	QUARTER	QUARTER QUARTERS
12S	8E	3	15		7&8&6&11&10
12S	8E	3	16		A&8+&9&10

TOPOGRAPHIC QUADRANGLES: 277a Rosiclare 7.5

SPECIFIC STREAM : Big Creek

STREAM SYSTEM (Water Shed) : 27 Massac--Bay--Lusk--Big Grand Pierre--Big Creek syst

LEGISLATIVE DISTRICT: 59

MUNICIPALITY: -- none

MINIMUM ALTITUDE: 370

MAXIMUM ALTITUDE: 560

TOPOGRAPHY:

PHYSIOGRAPHIC UNIT: 50 Shawnee Hills Section

MAJOR FEATURE: 48 Erosional hills in bedrock (medium loess)

INDIVIDUAL TOPOGRAPHIC FEATURES:

5 Knob

6 Ridge

114 Ravine

GEOLOGIC FORMATIONS:

216 Peoria Loess

127 Fraileys Shale

128 Haney Limestone
129 Hardinsburg Sandstone

SOIL ASSOCIATION (STATE) :
16 P Hosmer-Stoy-Weir

SOIL ASSOCIATION (COUNTY) :
Hosmer-Zanesville-Wellston
Grantsburg-Bedford-Baxter

NATURAL COMMUNITY

5.8

Limestone glade

NATURAL DIVISION AND SECTION: 13b
Lesser Shawnee Hills Section, Shawnee Hills Divisi
COMMUNITY CLASS : 5 Primary
RARITY INDEX: 4 Rare
NATURAL QUALITY:
11.0 acres of grade A ;
Relatively undisturbed

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:

14 Andropogon scoparius, little bluestem
250 Sorghastrum nutans, Indian grass
256 Sporobolus asper, tall dropseed

NATURAL COMMUNITY

1.1

Dry upland forest

NATURAL DIVISION AND SECTION: 13b
Lesser Shawnee Hills Section, Shawnee Hills Divisi
COMMUNITY CLASS : 1 Forest
RARITY INDEX: 3 Occasional
NATURAL QUALITY:
61.0 acres of grade C ;
Mature second growth

SAF COVER TYPE: 40 Post oak--black oak

PLANT COMMUNITY:

208 Quercus stellata, post oak--
195 Quercus alba, white oak--
202 Quercus muhlenbergii, chinquapin oak

NATURAL COMMUNITY

1.2

Dry-mesic upland forest
Dry-mesic upland forest

NATURAL DIVISION AND SECTION: 13b
Lesser Shawnee Hills Section, Shawnee Hills Divisi
COMMUNITY CLASS : 1 Forest
RARITY INDEX: 3 Occasional
NATURAL QUALITY:
1.10 acres of grade C ;
Mature second growth

SAF COVER TYPE: 53 White oak

PLANT COMMUNITY:
195 Quercus alba,white oak
202 Quercus muhlenbergii, chinquapin oak
206 Quercus rubra,red oak

DIVERSITY INDEX: 3

TOTAL ACREAGE: 73

OWNERSHIP TYPE: 1 Private
2 Public

NUMBER OF OWNERSHIPS: 4

USE OF NATURAL AREA:
10 No apparent use

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: 93

NUMBER OF NEARBY SCHOOLS: 1

NEAREST SCHOOL: 87 Southeastern Illinois College, Harrisburg

NUMBER OF NEARBY D.O.C. FACILITIES: 3

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: Recreational development

SPECIES LISTS:

- 1 Woody plants
- 2 Ferns and fern allies
- 3 Summer birds
- 4 Amphibians, reptiles, and mammals
- 5 Other species list

SAMPLING FORMS:

- 4 Prairie frequency

DISCUSSION OF PRESERVATION VALUES:

Along with very high quality limestone glades, Whoopie Cat Mountain contains the endangered crested coralroot orchid and the threatened orange coneflower (*Rudbeckia fulgida*).

PUBLICATIONS:

CITATION # 101

Hutchison, M. D. 1976. Preservation values of the Big Creek watershed in Hardin County, Illinois. Ill. Nature Preserves Comm., Rockford. 68 p.

CITATION # 1301

Quarterman, E., and R. L. Powell. 1978. Potential ecological/geological Natural Landmarks on the Interior Low Plateaus. (Report to the National Park Service.) 738 p.

APPENDIX II.

Copy of Page 21, Shawnee National Forest, Land and Resource Management Plan, Final Environmental Impact Statement, Appendix E illustrating the role of the Whoopie Cat Mountain 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 tab. 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 III.

Copies of pages selected from the Shawnee National Forest, Land and Resource Management Plan documents describing the Whoopie Cat Mountain Research Natural Area and documenting the recommendations of the Forest for its designation and management

CHAPTER III
Affected Environment

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</u> 1/
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

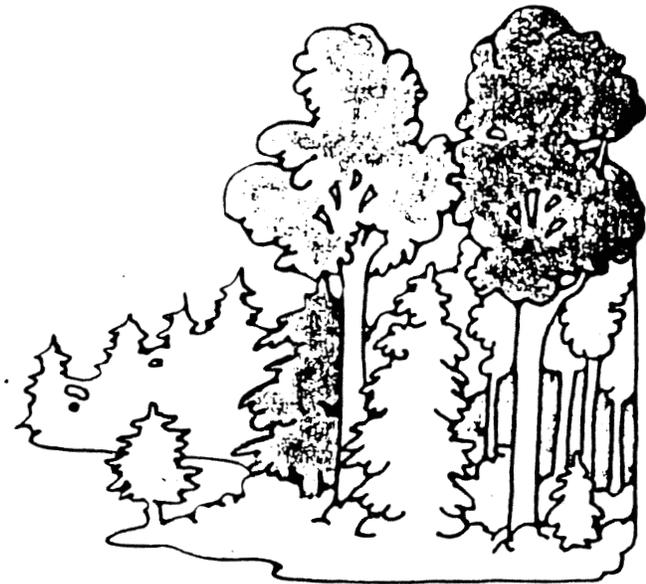
Alternative I emphasizes the maintenance and enhancement of wildlife habitat and preservation of unique natural features. A variety of motorized and nonmotorized recreation features are provided. All proposed Research Natural Areas are recommended for further evaluation.

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



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

<u>Name</u>	<u>Management Prescription</u>	<u>Size(acres)</u>
Atwood Ridge	8.2	955
Barker Bluff	8.2	60
Burke Branch	8.2	300
Cave Hill	8.2	465
Stoneface	8.2	175
Dennison Hollow	8.2	205
Ozark Hill Prairie	8.2	535
Panther Hollow	8.2	180
Whoopie Cat Mountain	8.2	17
Kaskaskia Exp. Forest	8.1	1,050
LaRue Pine Hills/Otter Pond	8.2	2,811
Total		6,753

Atwood Ridge

Location:

The Atwood Ridge RNA proposal is located in portions of Sections 4, 5, 8, 9, 16, and 17, T13S, R2W, Jonesboro Ranger District, Union County.

Area:

955 acres

SAF Cover Types Identified in Area:

SAF 40, SAF 44, SAF 52, SAF 60.

General Information:

The area includes a relic stand of chestnut oak as well as Magnolia acuminata and azalea near the western edge of their respective ranges. In addition, the area includes a number of Indian burial sites. The area is an example of dry, upland Illinois forest. Portions of the northern part of Atwood Ridge have been clearcut. Aside from the clearcuts, the area could provide baseline information on succession in upland hardwood forests.

Selective logging has occurred on some portions of the area. There remains representative mature dry upland forest stands with chestnut oaks that are essentially undisturbed. In many places, the steep slope timber was left (including many chestnut oaks).

A hiking trail exists within the area.

Purpose and Special Features:

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

-Dry upland forest dominated by the rock chestnut oak (Quercus prinus).

APPENDIX E
Special Features

Sensitive Species (proposed):

No records documenting any sensitive species in this area.

Forest Listed Species:

- Early Saxifrage (Saxifraga virginensis).
- Strawberry Bush (Euonymus americanus).
- White Basswood (Tilia heterophylla).
- Loggerhead Shrike (Lanius ludovicianus).

Whoopie Cat Mountain

Location:

The area is located in portions of Sections 9 and 16, T12S, R8E, Elizabethtown Ranger District, Hardin County.

Area:

17 acres.

SAF Cover Types:

SAF 52.

General Information:

The tract contains essentially undisturbed limestone glades and important habitat for an orchid (Hexalectris spicata).

There is some evidence of past selective logging. Whoopie Cat Lake is adjacent to the area.

Purpose and Special Features:

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

- Limestone glade.
- Crested coralroot orchid (Hexalectris spicata).

Federal Threatened and Endangered Species:

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

Sensitive Species (proposed):

No records documenting any sensitive species in this area.

Forested Listed Species:

- Crested coralroot orchid (Hexalectris spicata).
- Loggerhead Shrike (Lanius ludovicianus).

APPENDIX E
Special Features

Federal Threatened and Endangered Species:

No records documenting any Federal T & E Species in this area.

Sensitive Species (proposed):

No records documenting any Sensitive Species in this area.

Forested Listed Species:

No records documenting any Forest Listed Species in this area.

Panther Hollow

Location:

The area is located in portions of Sections 20 and 21, T11S, R10E, Elizabethtown Ranger District, Hardin County.

Area:

180 acres.

SAF Cover Types:

SAF 40, SAF 53, SAF 54.

General Information:

The area is in two hollows. Panther Hollow is narrow with adjacent sandstone cliffs and outcroppings. Buckhart Hollow is broader and the upper reaches contain exposed sandstone bedrock which forms an intermittent stream. The southwestern bluff tops of both hollows contain dry and xeric upland forest and sandstone glade communities.

Purpose and Special Features:

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

- Early Saxifrage (Saxifraga virginensis).
- White Basswood (Tilia heterophylla).
- Strawberry bush (Enonymus americanus).
- A sandstone cliff community.

This area has forest stands that represent a diversity of habitats ranging from mesic ravines to dry ridgetops.

Federal Threatened and Endangered Species:

No records documenting any Federal T & E Species in this area.