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 Stoneface 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 Stoneface 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 Stoneface 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

Stoneface

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)).

Chief

9/5/90
Date

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. 1632p

b. Little, E.L.Jr., 1979, Checklist of United States Trees (Native and Naturalized) Agri 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. 81p

b. Holsinger, JR, 1972, The fresh water amphipod crustaceans (Gammaridae) of North Am., Biota of Freshwater Ecosystems. Identification Manual No. 5, EPA. 89p

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. 174p

d. Sutherland, D.W.S, 1978. Common names of insects and related organisms. Entomological Society of America. 132p.

2. Management Precription

a. 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 unnecessary.

b. Fences are not needed to achieve management objectives.

c. Management prescriptions will be developed in cooperation with the NCFES and will be approved by the Forest Supervisor and Station Director. PJE

d. Recreation will be discouraged. PJE

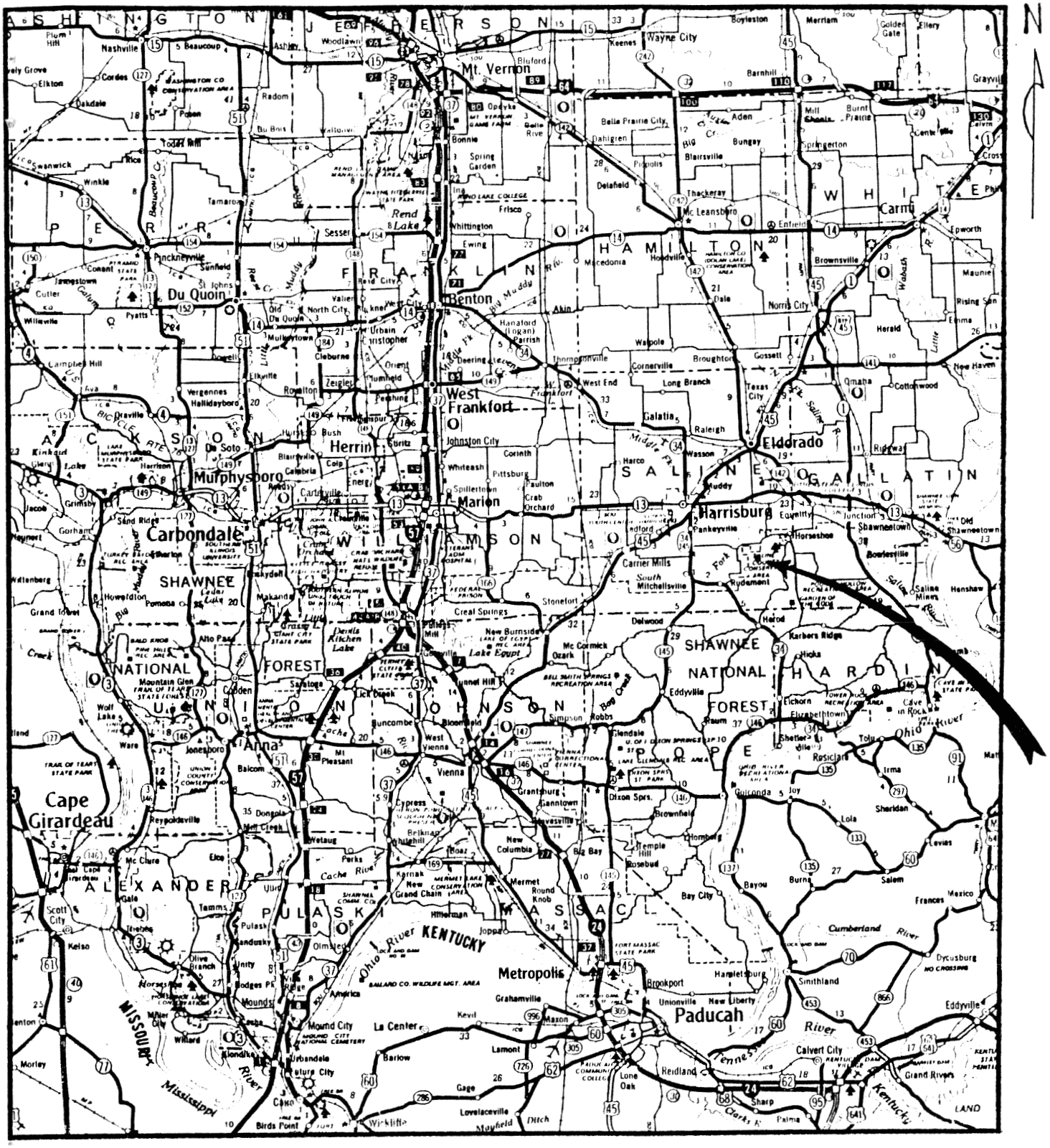

Figure 2. Location of Stoneface Research Natural Area shown (with arrow) on copy of Illinois Official Highway Map, 1985-86, Department of Transportation, Springfield

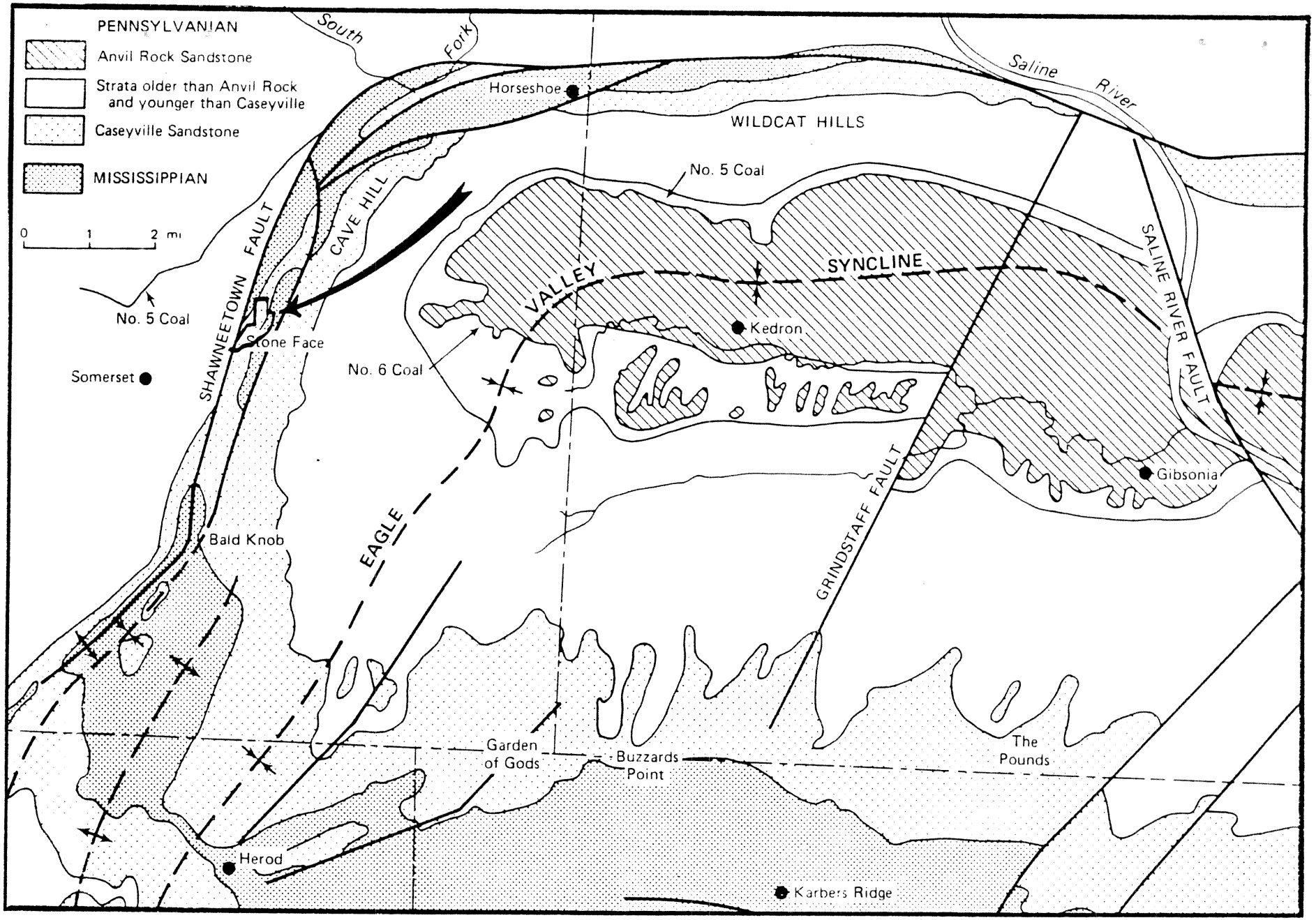

Figure 5. Location of Stoneface Research Natural Area shown (with arrow) on copy of map in A guide to the geology of the Equality area by D. Reinertsen, Illinois State Geological Survey, Field Trip Guide Leaflet 1980A, April, 1980

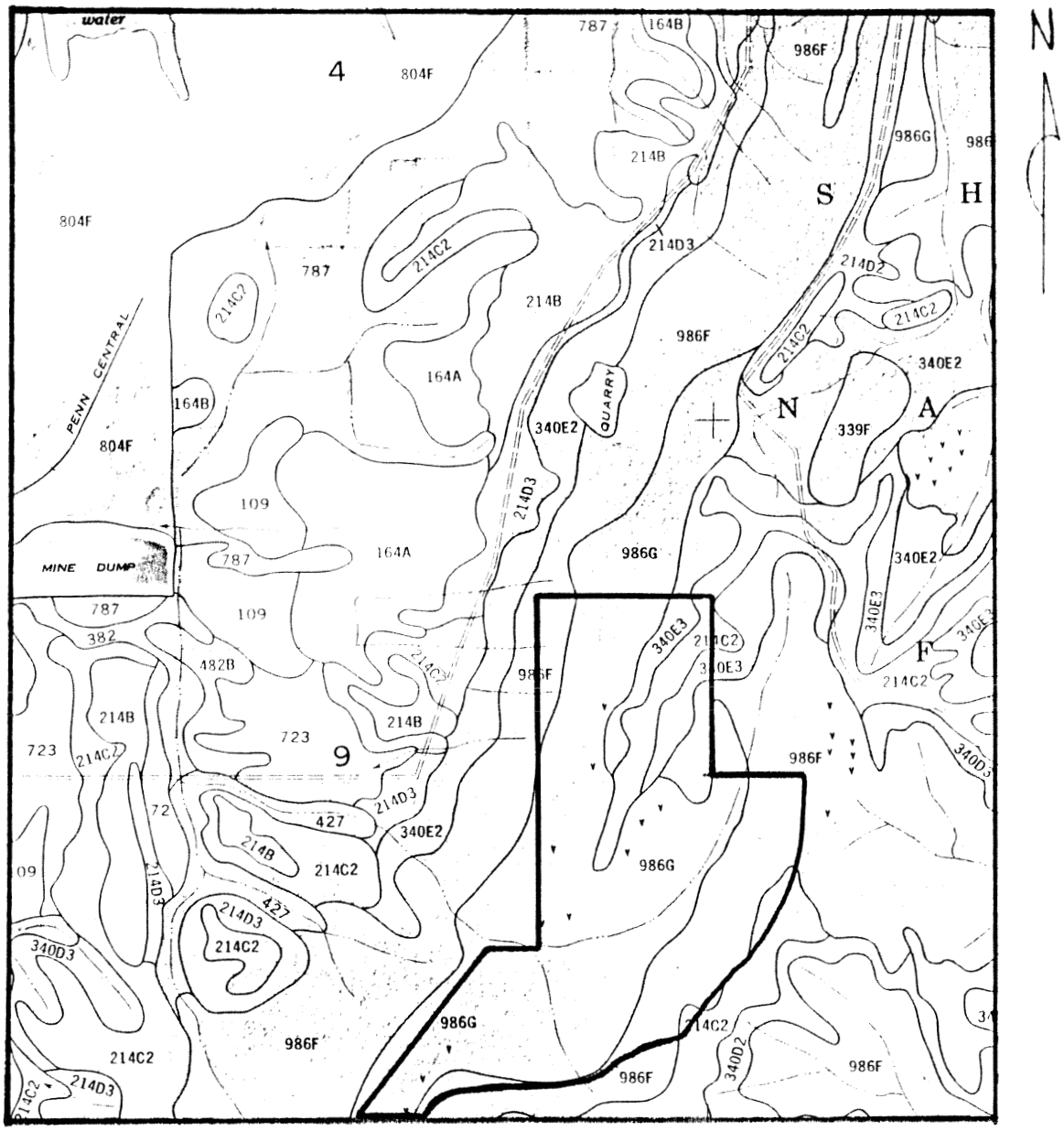

Figure 7. Location of Stoneface Research Natural Area shown on map of soils taken from Soil survey of Saline County, Illinois by C. Miles and B. Weiss, SCS and USFS, in cooperation with Ill. Agr. Exp. Sta., Urbana, 1978

scale 4" = 1 mile

214 - Hosmer silt loam

340 - Zanesville silt loam

986G - Berks-Wellston complex

986F - Wellston-Berks complex

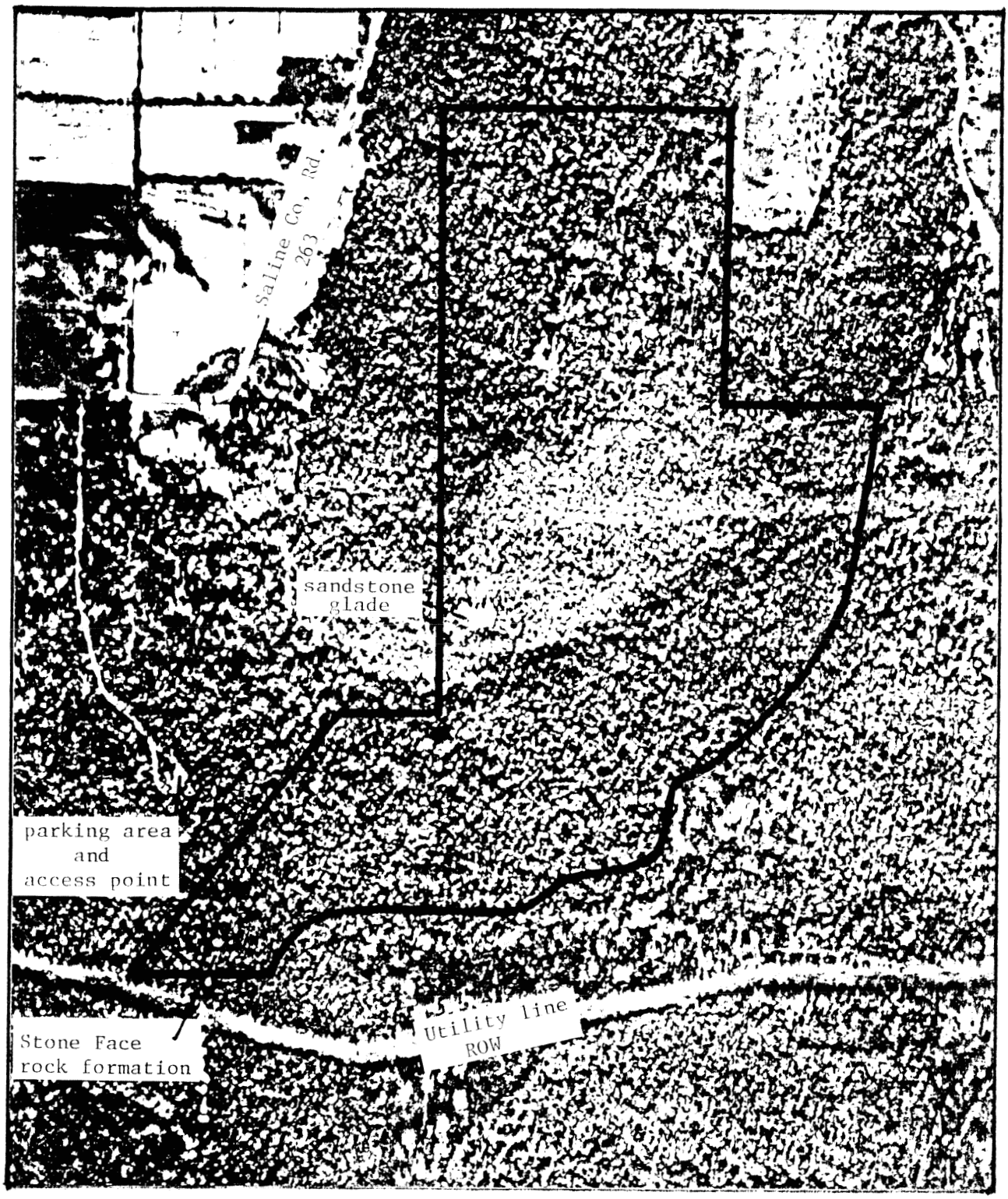

Figure 8. Copy of Illinois Department of Transportation aerial photograph taken Oct. 17, 1965 showing the Stoneface Research Natural Area and features

scale 1 inch = 660 feet

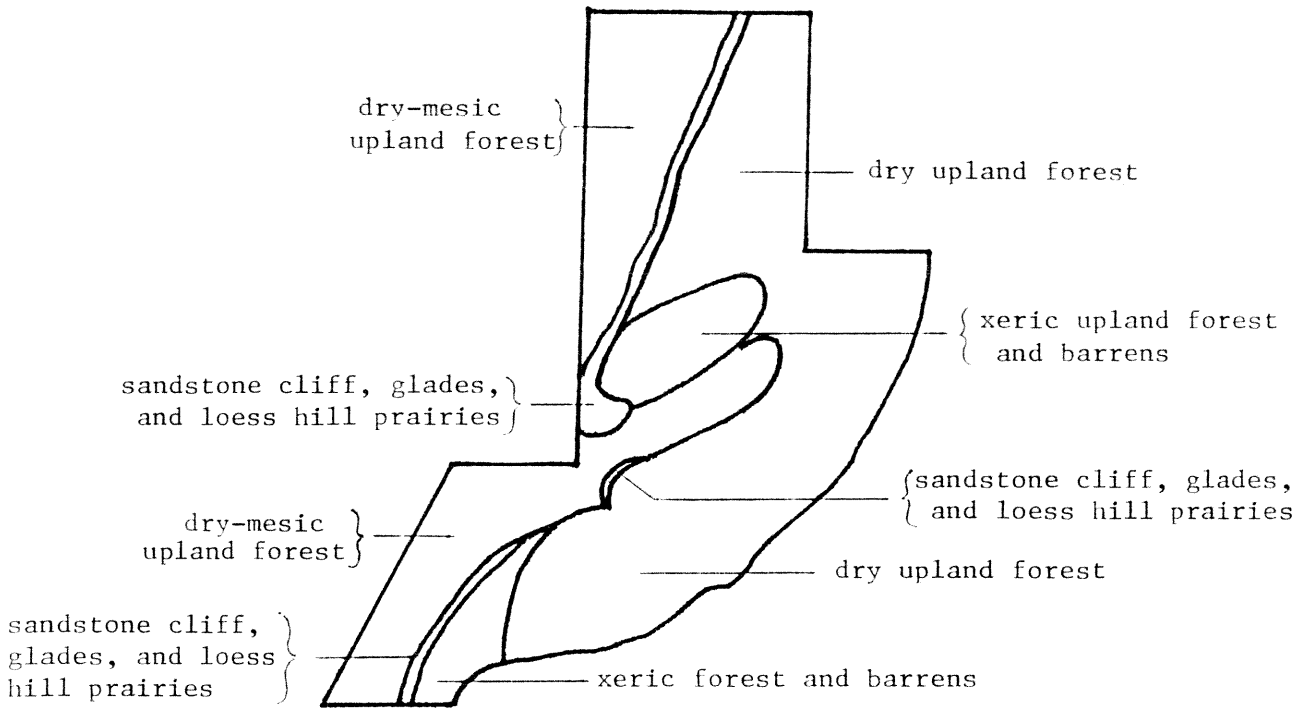

Figure 9. Map of Stoneface Research Natural Area showing natural communities

scale 3 cm. = 1/4 mi. N

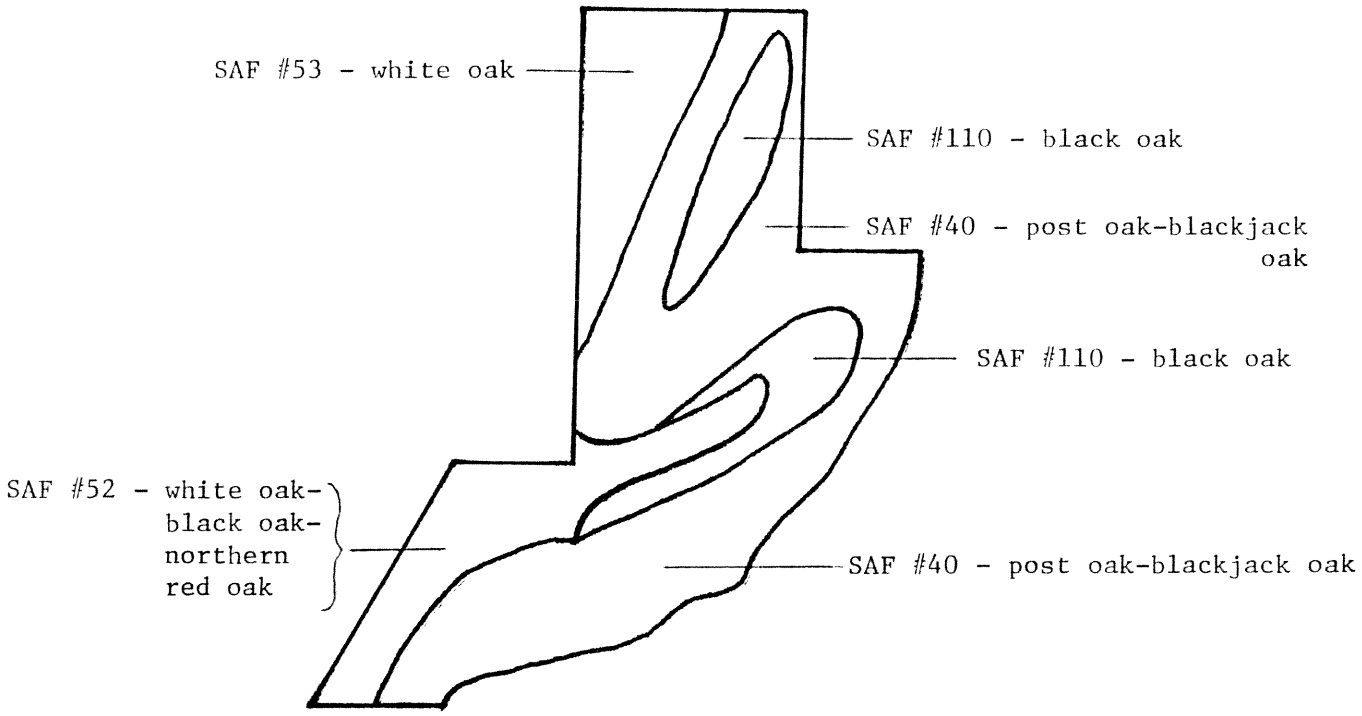

Figure 10. Map of Stoneface Research Natural Area showing area cover types

scale 3 cm. = 1/4 mi. N

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. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 11			June 29, 1938	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	aerial view showing location of Stoneface Research Natural Area	35 mm. BW

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IGL

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:

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TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 12			Oct. 6, 1980	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	aerial view showing location of Stoneface Research Natural Area	35 mm. BW

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1600-1 (8/67)

161

Figure 11. Copy of ASCS aerial photograph taken June 29, 1938 showing location of Stoneface Research Natural Area

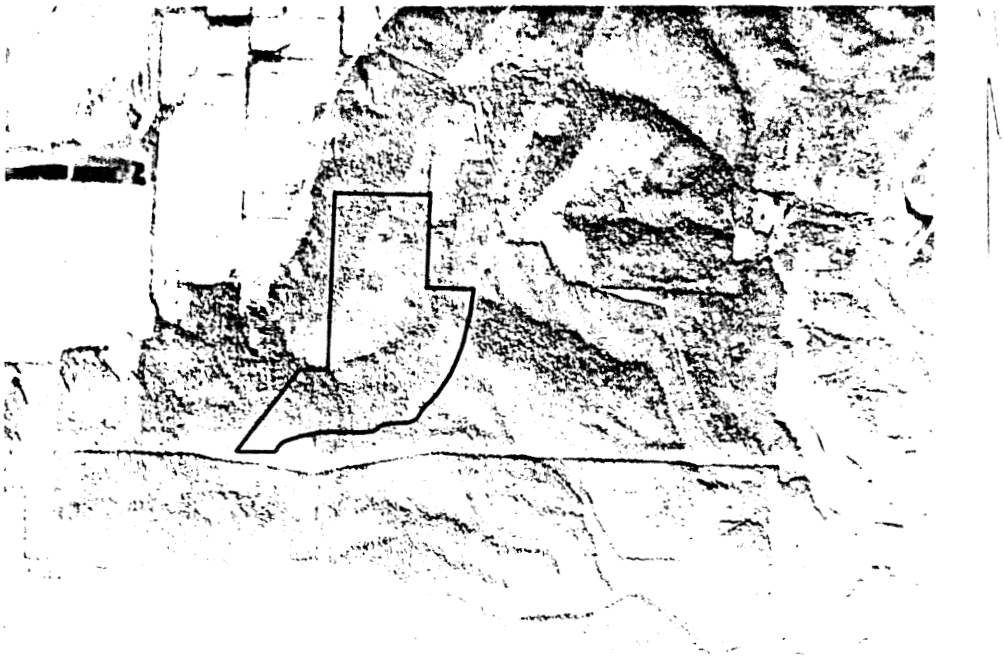

Figure 12. Copy of ASCS aerial photograph taken October 6, 1980 showing location of Stoneface Research Natural Area

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
E. B. Trovillion	July, 1987
HEADQUARTERS UNIT	**LOCATION**

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

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TEMP. (1)	PERMANENT *(To be filled in by the WO)* (2)	(3)	(4)	(5)	(6)	(7)
Fig. 13			Dec., 1980	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	oblique aerial view of Stoneface Research Natural Area	35 mm. C

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USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
S. Harris	July, 1987
HEADQUARTERS UNIT	**LOCATION**

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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. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 14			Nov. 18, 1986	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	view of cliffs at Stoneface Research Natural Area	35 mm. C

☆ U.S. GOVERNMENT PRINTING OFFICE : 1973—730-157/208 3-1

Figure 13. Aerial view looking northeast along ridge with Stoneface Research Natural Area located to north of utility line ROW visible near center of photograph
-photo taken by E. B. Trovillion, Dec., 1980

Figure 14. View of cliffs looking north across stream cut into Caseyville Sandstone at Stoneface Research Natural Area; the redcedars on the blufftop are growing in a sandstone glade
-photo taken by S. Harris, Nov. 18, 1986

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
S. Harris	July, 1987
HEADQUARTERS UNIT	**LOCATION**

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

☐ WO ☐ RO ☐ DIV. ☐ FOREST ☐ DISTRICT ☐ PHOTOGRAPHER Date _____

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TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 15			Nov. 18, 1986	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	view of sandstone glade at Stoneface Research Natural Area	35 mm. C

☆ U.S. GOVERNMENT PRINTING OFFICE : 1973—730-157, 208 3-1

1600-1 (8/67)

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
M. D. Hutchison	July, 1987
HEADQUARTERS UNIT	**LOCATION**

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

☐ WO ☐ RO ☐ DIV. ☐ FOREST ☐ DISTRICT ☐ PHOTOGRAPHER Date _____

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TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 16			1980	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	view of Stone Face rock formation at Stoneface Research Natural Area	35 mm. C

☆ U.S. GOVERNMENT PRINTING OFFICE : 1973—730-157/208 3-1

1600-1 (8/67)

Figure 15. View looking upslope (north) across sandstone glade above cliffs at Stoneface Research Natural Area -photo taken by S. Harris, Nov. 18, 1986

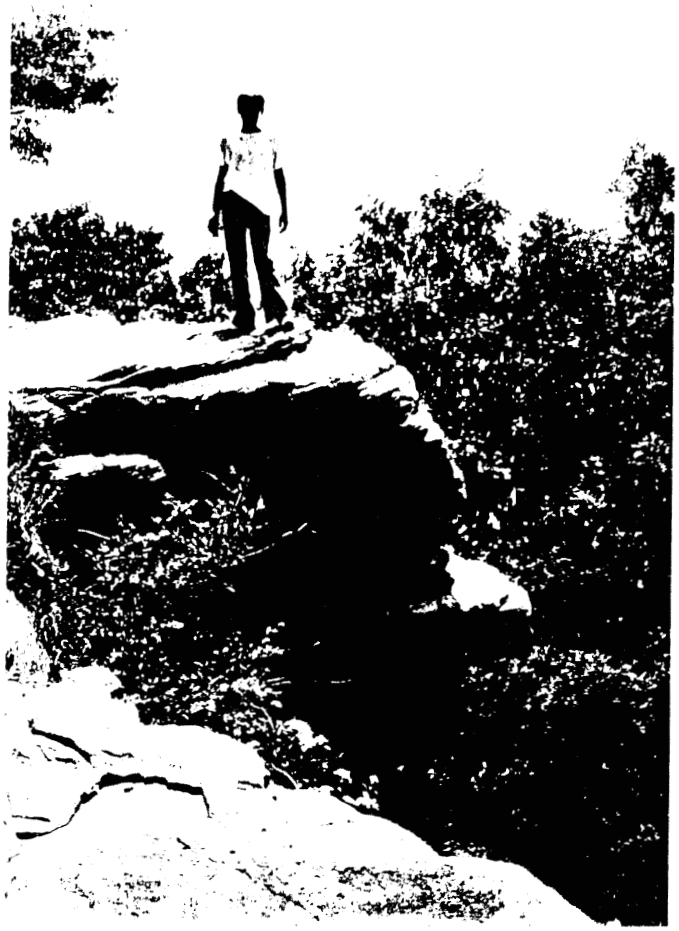

Figure 16. View looking southwest showing Stone Face rock formation at Stoneface Research Natural Area
-photo taken by M. D. Hutchison, 1980

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER: M. D. Hutchison

DATE SUBMITTED: July, 1987

HEADQUARTERS UNIT:

LOCATION:

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

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TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 17			April, 1981	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	view of groundcover species in barrens at Stoneface Research Natural Area	35 mm. C

☆ U.S. GOVERNMENT PRINTING OFFICE : 1973—730-157/208 3-1

1600-1 (8/67)

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
M. D. Hutchison	July, 1987
HEADQUARTERS UNIT	**LOCATION**

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-11

☐ 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. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 18			June, 1980	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	view of Mead's milkweed (Asclepias meadii) at Stoneface Research Natural Area	35 mm. C

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1600-1 (8/67)

Figure 17. Close view of groundcover species in barrens at Stoneface Research Natural Area during early spring; grasses (including Andropogon, Sporobolus, Panicum, and Koeleria), sedges (Carex spp.), and forbs (including Oxalis, Lithospermum, and Tradescantia) are common -photo taken by M. D. Hutchison, April, 1981

Figure 18. The Mead's milkweed (Asclepias meadii) in flower at Stoneface Research Natural Area; this is currently a candidate for listing as a Federally Threatened species -photo taken by M. D. Hutchison, June, 1980

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
M. D. Hutchison	July, 1987
HEADQUARTERS UNIT	**LOCATION**

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

☐ WO ☐ RO ☐ DIV. ☐ FOREST ☐ DISTRICT ☐ PHOTOGRAPHER Date _____

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TEMP. (1)	PERMANENT *(To be filled in by the WO)* (2)	(3)	(4)	(5)	(6)	(7)
Fig. 19			Feb. 11, 1987	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	view of U.S. Forest Service and Illinois Department of Conservation personnel inspecting Stoneface Research Natural Area	35 mm. C

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1600-1 (8/67)

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
M. D. Hutchison	July, 1987
HEADQUARTERS UNIT	**LOCATION**
.	

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-11

☐ WO ☐ RO ☐ DIV. ☐ FOREST ☐ DISTRICT ☐ PHOTOGRAPHER Date _____

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TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
Fig. 20			April 3, 1987	Illinois, Shawnee National Forest, Elizabeth-town Dist., Saline Co.	aerial view of south end of Stoneface Research Natural Area	35 mm. C

☆ U.S. GOVERNMENT PRINTING OFFICE : 1973—730-157/208 3-1

1600-1 (8/67)

3L

Figure 19. U. S. Forest Service and Illinois Department of Conservation personnel inspecting Stoneface Research Natural Area; group is standing in glade along the blufftop -photo taken by M. D. Hutchison, Feb. 11, 1987

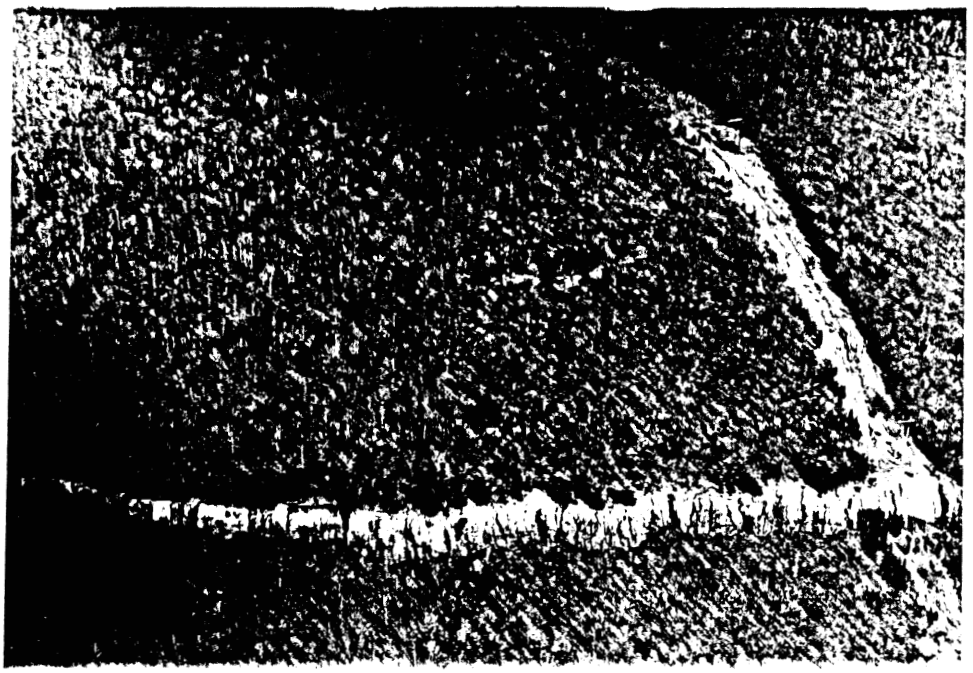

Figure 20. Aerial view looking east at south end of Stoneface Research Natural Area; the utility line ROW at the right edge of the photo is the south boundary of the RNA; the cliff is clearly visible along the fault-line escarpment -photo taken by M. D. Hutchison, April 3, 1987

Fig. 11.
Stoneface RNA
Saline Co., Ill.

Fig. 12.
Stoneface RNA
Saline Co., Ill.

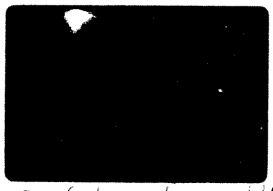

Fig. 13. Stoneface RNA
Saline Co., Ill.

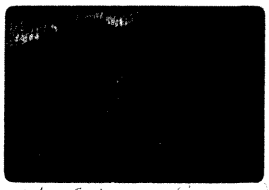

Fig. 14. Stoneface RN
Saline Co., I

Fig. 15. Stoneface RN
Saline Co., Ill.

Fig. 16. Stoneface RNA
Saline Co., Ill.

Fig. 17. Stoneface
RNA, Saline Co., Ill.

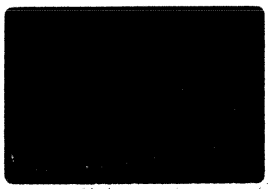

Fig. 18 Stoneface RN
Saline Co., I

Fig. 19.
Stoneface RNA
Saline Co., Ill.

Fig. 20.
Stoneface RNA
Saline Co., Ill

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Stoneface Research Natural Area

Shawnee National Forest

Saline County, Illinois

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met[1] 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 _____ Date 3/21/88
Gary Sieren, District Ranger,
Elizabethtown District

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

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

Recommended by _____ Date 10/7/88
Ronald D. Lindmark, Station Director,
North Central Station

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

TITLE PAGE

Establishment Record for the Stoneface Research Natural Area within the Shawnee National Forest, Saline County, Illinois

ESTABLISHMENT RECORD FOR THE STONEFACE RESEARCH NATURAL AREA WITHIN THE SHAWNEE NATIONAL FOREST SALINE COUNTY, ILLINOIS

INTRODUCTION

The Stoneface Research Natural Area (RNA) is a 176-acre (71.3-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. xeric upland forest, dry upland forest, dry-mesic upland forest, loess hill prairie, barrens, sandstone glade, and sandstone cliff.

The Mead's milkweed (Asclepias meadii), a plant that is currently a candidate for listing as Federally Threatened, occurs within the RNA. It is also proposed for listing by the Regional Forester as a Sensitive Species (Shawnee National Forest, Land and Resource Management Plan, 1986). The Mead's milkweed is listed as Endangered in Illinois (Natural Land Institute, 1981).

The Stoneface RNA is geologically significant as a part of a prominent landform, a hogback-like ridge that occurs on a fault-line scarp. This ridge, or cuesta, has sandstone cliffs 100 feet (30.5 meters) high along the scarp face.

Four 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 53 (white oak), and Type 110 (black oak). Several variants and small stands with other dominants are also present.

The RNA boundaries are very similar to those of the Old Stone Face Natural Area, identified by the Illinois Natural Areas Inventory (1978) as being of significance because of its rare plant species, i.e. Mead's milkweed, black chokeberry (Aronia melanocarpa), and American orpine (Sedum telephioides), its high quality loess hill prairie, and its very high quality sandstone cliff and sandstone glade natural communities.

Stoneface is on the upthrown (southeast) side of the Shawneetown Fault, and its sandstone cap forms a nearly continuous cliff, three-fourths of a mile (1.2 kilometers) long and up to 90 feet (27.4 meters) or more in height within the RNA. Stoneface is a part of a high ridge along this fault that rises abruptly from the flat Pleistocene lake plain. There are excellent views of this flat plain (now mostly cultivated) in a northwesterly direction from the cliffs. Drainage is to the west and then north into the Saline River. Bedrock is almost entirely Pennsylvanian sandstones and shales. The RNA is a part of the Greater

Shawnee Hills Natural Division, and is within the Interior Low Plateaus Physiographic Province (Schwegman, 1973).

The Public Land Survey surveyors described this area in 1807 and noted the "tremendous bluff of rocks" and "inexhaustable quarries of stone." Their comments for the north line of section 10 describe the route surveyed as ". . . worse and worse; this mile over ledges of rocks, clefts, quarries of stone inexhaustable; post oak, white oak, and blackjack." Post oaks, 7 inches (17.8 centimeters) and 9 inches (22.9 centimeters) in diameter, were witness trees for the quarter section corner between sections 9 and 10, and small witness and line trees are given for nearly all the corners and lines in the vicinity. Post oak, blackjack oak, black oak, and white oak are the most commonly mentioned trees in the region.

Comments recorded during the Rolfe topographical survey of Illinois in 1890-92 describe the region as follows:

> "Many prominent hills and divides are found in this township. The valleys are mostly deep, have very steep and prominent bluffs of hard sandstone and rocks . . . All along the valleys and sides of these hills the country is covered with rocks of sandstone making it almost impossible for cultivation."

The Stoneface RNA was in private ownership prior to its acquisition in 1935-36 by the federal government to become a part of the Shawnee National Forest. Most of the RNA has never been cultivated or significantly disturbed by livestock. There is an old agricultural field of about 14 acres (5.7 hectares) on the ridge top in the north part of the area visible on the 1938 aerial photographs, and there is a small corner of about 5 acres (2.0 hectares) that was apparently farmed prior to acquisition in the 1930's (Figure 11).

There has been some selective logging in parts of the area, but none of significance above the bluffs for many years. Due to the rugged terrain and thin rocky soils, the region has never been suitable for agricultural use. Trees grow slowly and are of poor form and quality for lumber over most of the upland region.

The area is scenic, and the ledges along the cliff near the south end of the RNA have been trampled by hikers and picnickers for many years. This is the location of a rock formation along the cliff that is noted for its resemblance to a human face (Figure 16).

The significance of the natural area was first recognized by the Illinois Nature Preserves Commission in 1966 (Thompson and Hutchison, 1966). It was recommended for

study as a Forest Service Botanical Area by the Illinois Nature Preserves Commission in 1970 (Forest Service Handbook, Shawnee Supplement No. 10, November, 1970). It was recognized to be of statewide significance during the Illinois Natural Areas Inventory (1978). The Stoneface Natural Area was recommended for designation as a research natural area in a report on protection and management of National Forest natural areas prepared and submitted by the Illinois Department of Conservation (West, 1980). In that report, the Stoneface Natural Area is a part of a larger area referred to as the Mountain Township Forests Natural Area. The Mountain Township Forests Natural Area (including Stoneface) was also recommended for RNA designation by the North Central Forest Experiment Station in 1981 (Rink, 1981).

LAND MANAGEMENT PLANNING

The Stoneface 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 Stoneface 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 a 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 natural features at the Stoneface Research Natural Area are the Mead's milkweed, the old growth forest, the ridge along a fault-line escarpment, and the high quality glade and barrens communities.

Mead's milkweed (Asclepias meadii), a plant that occurs at two localities at Stoneface, is currently a candidate for Federal listing as a Threatened Species (Figure 18). It is also proposed for listing as a Regional Forester's Sensitive Species.

The loggerhead shrike (Lanius ludovicianus), a Shawnee National Forest Listed Species, is reported from the area.

The upland forest in the RNA has scattered old growth stands. The trees are short, limby, and relatively small in diameter (due to thin drouthy soils), but many individuals are very old. High quality upland forests are rare in the Midwest.

The RNA is a part of a significant geomorphic feature, a ridge along a fault-line scarp. It is a cuesta with a prominent sandstone cliff (Figure 13). The area is an outstanding site to illustrate the contrast due to north versus south slope orientation in erosion, soil thickness, and vegetation. There is also a contrast due to the strong dip of the sandstone layers between the cliffed scarp face and the back slope, as compared with the other more gently dipping cuestas of the Shawnee Hills.

The sandstone glade community is well-developed in the RNA, particularly at one point on the south-facing spur ridge in the SW 1/4 of the NE 1/4 of the SE 1/4 of section 9 (Figure 15). It illustrates the extreme case of unconcentrated sheetwash, a major natural process of erosion in this region.

Sites with slightly more soil have a well-developed dry barrens community. These sites have a mixture of woody shrubs and prairie species. A few very small sites along the bluff top where prairie openings occur on loess are remnants of a loess hill prairie community that was once more extensive in the area.

The Stoneface Research Natural Area includes SAF types 40, 52, and 53 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 natural community types and species

present that add to the value of the area for research purposes.

Stoneface is a part of the prominent fault-line escarpment that rises above the flat Pleistocene lake plain typical of the region to the north and west (Figures 4 and 13). The hill rises 520 feet (158.5 meters) above the plain in a distance of about a half mile (0.8 kilometers). A narrow, nearly continuous sandstone cliff outcrops beneath the highest ridge (Figure 20). The topography reflects differential erosion of underlying bedrock layers. The thinness of the soils affects the vegetation, and much of the area is drouthy and thinly forested (Figure 20). There are assemblages of plant species in the glades, barrens, and xeric forests that are usually considered to be more characteristic of the prairies further to the north and west. These are remnants of community types that were common in the Shawnee Hills prior to settlement.

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 pedalogical 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 Stoneface Research Natural Area is a part of a high ridge that is a landform between a cuesta and a hogback (Figure 13). It is along a prominent fault-line escarpment that rises some 520 feet (158.5 meters) above the surrounding Pleistocene lake plain. This hill has a nearly continuous sandstone cliff with scenic vistas overlooking the flat plain to the west and north. The exposed bedrock in the RNA is Pennsylvanian sandstone. The soils are thin and drouthy.

The resistant Pennsylvanian sandstone ridge is a dominating feature of the RNA. Cliffs up to 100 feet (30.5 meters) occur along the scarp face of the cuesta. A deep valley divides the area. Elevation ranges from about 500 feet (152.4 meters) in the valley, to 750 feet (228.6 meters) at the north end of the area, to 820 feet (249.9 meters) at the south end. Gradients are steep throughout.

Nearly all of the RNA is forested with a diversity of plant species and community types. The barrens, xeric upland forest, and dry upland forest communities are characterized by thin drouthy soils and an open canopy of small limby trees and shrubby thickets (Figures 14 and 20). On some of the north-facing lower slopes and in the deep valley, there are more mesic sites with deeper soils and

larger trees. The ledges of exposed bedrock above the sandstone cliffs have glades with good assemblages of prairie plants (Figure 17). The drouthy sites, in particular, are of high natural quality and reflect little unnatural disturbance.

The dry and xeric forests are dominated by post oak (Quercus stellata), blackjack oak (Q. marilandica), and poverty oats (Danthonia spicata). Shrubs, where present, are mostly oaks and farkleberry (Vaccinium arboreum). Exposed rocks are covered with lichens (Parmelia spp.), and mosses (Polytrichum spp.). The most extensive sandstone glade is covered by lichens with scattered clumps of little bluestem (Andropogon scoparius). The hill prairies have white prairie clover (Petalostemum candidum), blazing star (Liatris squarrosa), little bluestem (Andropogon scoparius), and Junegrass (Koeleria cristata). Black chokeberry (Aronia melanocarpa), a northern relic, occurs on the bluff along with shadbush (Amelanchier arborea). American orpine (Sedum telephioides), another northern plant rare in the Shawnee Hills, also occurs along the bluff.

LOCATION

The Stoneface Research Natural Area is on the Elizabethtown Ranger District of the Shawnee National Forest. It is in Saline County, in the extreme southeastern tip of Illinois. Latitude is 37° 40' N, and longitude is 88° 26' W. The area is in sections 9 and 10, T. 10 S., R. 7 E. of the 3rd P. M. (Figures 3 and 4).

The RNA boundaries are described as follows:

Beginning at the northeast sixteenth corner of section 9, thence;

East along north sixteenth line to the north sixteenth corner to sections 9 and 10, thence;

South along the section line to the quarter corner to sections 9 and 10, thence;

East along the east-west center line of section 10 about 10 chains to the west edge of road No. 108, thence;

Southwesterly along the west edge of road No. 108 to the intersection with the section line to sections 9 and 10 and being about 11 chains north of the southeast corner of section 9, thence;

Continuing 3 chains along the west edge of road No. 108 to a point, thence;

Leaving said road and southwesterly along the northerly face of bluff S. 85° W 5 chains, S. 45° W 5 chains, West 15 chains, and southerly about 6 chains to point of intersection with the south line of section 9 and being 28 chains west of southeast corner of section 9, thence;

West along south line of section 9 about 9 chains to intersection with a power line, thence;

Northeasterly to a point on the south sixteenth line of section 9 and being 7 chains west of the southeast sixteenth corner, thence;

East along south sixteenth line to southeast sixteenth corner, thence;

North along east sixteenth line to point of beginning containing approximately 176 acres (71.3 hectares)

Elevation ranges from 450 feet (137.2 meters) above mean sea level at the northwest corner of the area, to 820 feet (249.9 meters) above mean sea level at the south edge.

The area is about 8 miles (12.9 kilometers) east-southeast of Harrisburg, the county seat of Saline County. It is about 3 miles (4.8 kilometers) northeast of the village of Rudement. Access to the RNA is from Illinois Rt. 34, north from Rudement, on Saline County Roads 5 and 263. Forest Service Road 150 turns south from Saline County Road 263 near the center of section 9 and ends at a parking area just a few yards west of the RNA boundary.

Access is also possible by walking a trail (Shawnee National Forest Road 108) south from Shawnee National Forest Road 112 in the NW 1/4 of section 10 (Figure 4).

AREA BY COVER TYPES

The Stoneface Research Natural Area is nearly all forested. The following are SAF and Kuchler cover types represented within the RNA (Figure 10):

SAF Cover Type	Kuchler PNV Type	Acres	Hectares
#40 post oak-blackjack oak	#91 oak-hickory	91	36.8
#52 white oak-black oak-northern red oak	#91 oak-hickory	30	12.1
#53 white oak	#91 oak-hickory	25	10.1
#110 black oak	#91 oak-hickory	30	12.1

Natural and plant communities that occur within the RNA (based primarily on the 1978 Illinois Natural Areas Inventory data but with some modification) are described as follows:

Natural Community	Plant Community
Sandstone cliff	alumroot-marginal shield fern
Sandstone glade	redcedar-post oak
Sandstone glade	post oak/hill blueberry/little bluestem
Loess hill prairie	little bluestem-Junegrass
Dry upland forest	post oak-black oak-pignut hickory
Dry upland forest	white oak-blackjack oak-winged elm
Dry-mesic upland forest	white oak-red oak-hickory
Dry-mesic upland forest	white oak
Successional field	graminae spp./forb spp./saplings

The following natural community types are mapped by the authors of this report (see Figure 9 for map and see the Flora section for descriptions):

sandstone cliff
sandstone glade
loess hill prairie
barrens
xeric forest
dry upland forest
dry-mesic upland forest

PHYSICAL AND CLIMATIC CONDITIONS

The climatological data are from the collection station at Harrisburg. The period of record is 1931-60. Harrisburg is 8 miles (12.9 kilometers) west-northwest of the Stoneface Research Natural Area. The following description is copied from the Soil Survey of Saline County, Illinois (1978):

> The Saline County area has the continental climate typical of southern Illinois. The annual temperature range is about 100 degrees F. Summer maximums reach 100 F. (37.8° C.) or more during 8 out of 10 summers. Winter minimums are zero (-17.8° C.) or below during 6 out of 10 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 42 inches (106.7 centimeters) and ranges from about 25 to 72 inches (64 to 183 centimeters). 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. More than 7 inches (17.8 centimeters) of rain has fallen in a 24-hour period. Only light snows occur during an average winter. The average annual snowfall is about 12 inches (30.5 centimeters), and only rarely does a winter have as much as 20 inches (50.8 centimeters).
>
> 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. The highest recorded temperature is 113° F. (45° C.). January is the coldest month, and both January and February have had temperatures as low as -20° F. (-28.9° C.).
>
> 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 about 185 days. Temperatures vary consistently between ridge and valley locations during radiation freezes, the most common type of freeze in Illinois.

The Stoneface RNA is on the north slope of the Shawnee Hills ridge that extends east-west across the southern tip of Illinois, and drainage is to the west and north into the Saline River (Figures 1 and 4). The high ridge on which Stoneface is located is a landform between a cuesta and hogback along a fault-line scarp where the rocks are dipping approximately 15° toward the east and southeast. It is on the upthrown (south and southeasterly) side of the Shawneetown Fault. The sandstone cap, dipping easterly, forms a nearly continuous cliff crossing the RNA up to 90 feet (27.4 meters) or more in height along the northeast side of the hill. A deep valley divides the area, providing slopes in all directions, and gradients are steep throughout.

The area is nearly all forested. The cliffs along the escarpment have glades and natural openings (Figures 15 and 19). Some of the drouthy barrens have small openings in the forest canopy.

Most of the area is drouthy with thin soils, and, in many places, the slopes have a thin cover of trees with individuals that are stunted and partly dead. The overstory trees are limby and short, and shrubs and vines form thickets in many places (Figure 14). Openings have clumpy grasses and forbs characteristic of dry woods in the region (Figure 17). Along the north-facing slopes and in the more mesic valleys, there are larger taller trees with a relatively dense canopy.

DESCRIPTION OF VALUES

Flora

The following natural community types are recognized by the authors of this report as occurring within the Stoneface Research Natural Area: sandstone cliff, sandstone glade, loess hill prairie, barrens, xeric upland forest, dry upland forest, and dry-mesic upland forest (Figure 9). The loess hill prairie, sandstone glade, and cliff communities are so narrow, discontinuous, and/or small in area, they are not separated from each other on the map. The barrens and xeric upland forest communities are also difficult to separate as distinct entities because of the considerable overlap in species composition between them. It is mainly the degree of drouthiness that influences structural differences, i.e. the sizes and shapes of trees, the density of stands, and the amount of ground cover. Typical examples of each of the

natural communities recognized are found within the RNA boundaries.

The sandstone cliffs and glades are dominated by exposed bedrock which is typically covered with lichens (Parmelia spp.) and mosses (Polytrichum spp.). Vascular plants occur in crevices, on small rock ledges, and in pockets of soil collected from sheetwash upslope. American orpine (Sedum telephioides), alumroot (Heuchera parviflora), ferns (Dryopteris spp.), and sedges (including Cyperus filiculmis) are common on the cliffs. This is also the habitat for the black chokeberry (Aronia melanocarpa) and Mead's milkweed (Asclepias meadii). The glades occur on more level ledges above the cliffs. The largest is on the south-facing nose of the ridge, on the north side of the valley that crosses the RNA (Figures 10 and 15). Here, there is a nearly solid pavement of sandstone exposed. Vegetation is clumpy, rooted in cracks and crevices. Stunted post oaks, blackjack oaks, redcedars (Juniperus virginiana), and winged elms (Ulmus alata) grow here. Farkleberry (both Vaccinium arborea and V. vacillans) form thickets, and greenbriers (Smilax spp.) are common. Prickly pear cactus (Opuntia compressa) and pineweed (Hypericum gentianoides) are primarily restricted to the glade community. The loess hill prairies are small sites (less than 0.1 acres or 0.04 hectares in size) along the blufftop where the soil is relatively deep. The openings are surrounded by post oaks, blackjack oaks, redcedars, and hickories (Carya glabra and C. texana). Prairie species present include the white prairie clover, blazing star, little bluestem, and Junegrass.

The dry barrens and xeric forest communities are both dominated by blackjack oak and post oak, the principal difference between them being the incomplete canopy and the grass dominated groundcover of the barrens. In this area, the barrens have short, limby trees, local sites where redcedar is abundant, dense stands of farkleberry, and openings with assemblages of prairie species, especially little bluestem, Junegrass, and poverty oats (Danthonia spicata). Forbs include goldenrods (Solidago spp.), flowering spurge (Euphorbia corollata), and white prairie clover. Upslope from the barrens, the soil is thicker. Here, there are xeric forest sites, mostly oak thickets with winged elm and poison ivy (Rhus radicans). The basal area of woody cover is greater than in the barrens. These sites also have an understory of farkleberry and greenbrier. The groundcover in the xeric forest is predominantly poverty oats.

Post oak is the dominant tree of the dry upland forest, although blackjack oak is occasional. On the ridgetops, black oak (Quercus velutina) and white oak (Q. alba) are codominants, but there is considerable local variation in species composition. Shadbush, farkleberry, and greenbriers

are common in the understory. Pussytoes (Antennaria plantaginifolia) and dittany (Cunila origanoides) are indicator herbs of the drier sites on the ridges. The tree stands are denser, and the basal area is greater in the dry upland forests than in the barrens and xeric forest communities.

The dry-mesic forest community occurs on the lower portions of the southeastern slope of the hill and extends up the valley in the center of the area. This forest community is dominated by red oaks (Quercus rubra) and white oaks, but hickories and chinkapin oak (Q. muhlenbergii) are also common. Redbud (Cercis canadensis) and flowering dogwood (Cornus florida) are frequent in the understory. Poison ivy dominates the groundcover in the summer, and toothworts (Dentaria laciniata) are exceptionally abundant in the early spring. There is a nearly permanent trickle of spring water in the valley that keeps it moist. Here, several species of sedges and ferns grow among the boulders, including the royal fern (Osmunda regalis).

The Mead's milkweed occurs at two sites within the RNA: along the upper edge of the sandstone cliff, and further upslope in the barrens. It is proposed for listing as a Regional Foresters Sensitive Species, and is a candidate for listing as Federally Threatened. It is also listed as Endangered in Illinois.

Fauna

No Federally Endangered or Threatened Species are currently known to be resident at Stoneface. Bald eagles (Haliaeetus leucocephalus) and peregrine falcons (Falco peregrinus) probably pass through the area in migration as they fly along the ridge.

Several Shawnee National Forest Listed birds probably occur here, including the red-shouldered hawk (Buteo lineatus), Cooper's hawk (Accipiter cooperii), Bewick's wren (Thryomanes bewickii), and loggerhead shrike (Lanius ludovicianus). Enough habitat exists in the vicinity for breeding of these species. Other common birds are the pileated woodpecker (Dryocopus pileatus), eastern wood-pewee (Contopus virens), and blue-gray gnatcatcher (Polioptila caerulea).

The timber rattlesnake (Crotalis horridus) and the copperhead (Agkistrodon contortrix) are occasional along the bluffs in the RNA. The eastern box turtle (Terrapene carolina), the five-lined skink (Eumeces fasciatus), the fence lizard (Sceloporus undulatus), and the American toad (Bufo americanus) are common throughout the area.

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 (Canis latrans), gray fox (Urocyon cinereoargenteus), raccoon (Procyon lotor), opossum (Didelphis marsupialis), and gray squirrel (Sciurus carolinensis).

Geology (Figures 5 and 6)

A relatively thin layer of silty loess covers the area. This is due to a lesser original thickness of deposition and more than average erosion since deposition. The loess remains several feet thick in a few places on the ridge crests. The bedrock is sandstone and shale. Sandstone is more visible because of its resistance; boulders tend to slide on top of, and obscure the underlying shales. Shales are rarely visible, and most are quite silty. The sandstone is composed of very pure quartz grains, so disintegration does not yield much nutrient material.

The most recent geological map (Nelson and Lumm, 1986) indicates that the entire area is underlain by the Caseyville Formation (sandstones and associated shales). The ridge crest on the southeast margin may consist of the overlying Grindstaff Formation.

The complex Shawneetown Fault system is responsible for the escarpment ridge. This ridge rises abruptly from the flat Pleistocene lake plain whose sediments overlie the coal-bearing portion of Pennsylvanian strata. Great thicknesses of Pennsylvanian sediments have been eroded from both sides of the fault zone. However, the resistant Caseyville Sandstone "holds up" Stoneface, whereas on the north and west sides, the same formations are deeply buried. There is no evidence to indicate movement along the Shawneetown Fault in Recent Time. Shaping of the landforms has been accomplished primarily by erosional and degradational processes. The dip of the rocks in the natural area is about 15° easterly. This is dramatically visible where the central stream has eroded through the massive Caseyville cliffs. The sandstone ledges dip eastward toward the stream channel forming a classical V-shaped outcrop. Here the stream forms a cataract. Upstream, the gradient is not so steep as in the back slope valleys. Other steep waterways are present both on the valley slopes and on the scarp slope but no tributaries have developed.

Unconcentrated sheetwash has been a major process of erosion of the loess cover. The sandstone glade above and on the north side of the outcrop "V" illustrates the extreme case of this erosional process. Loess has been completely removed from a band several meters wide and nearly 75 meters long. The bedding plane of the massive sandstone forms the ground surface. Only a few cobbles and pebbles lie on the surface. A few woody plants are rooted in the joints of the

bedrock. These obstructions hold enough loose material for some grasses and forbs to take hold. The upslope portion is broader with fewer plants. During heavy rains, a broad torrent washes the slope, and the bare surface is being extended.

Mass wasting (gravity fall from the cliff face and creep down the slopes) is an on-going process. Few large blocks occur on the scarp slope. However, some large blocks have slid outward to form a "bridge" to the bluff at one point. There is no evidence that these blocks have moved in historic time. Some small overhanging "rock shelters" occur beneath the cliff.

References: W. J. Nelson and D. K. Lumm. 1986. Geologic map of the Rudement Quadrangle, Saline County, Illinois. Illinois State Geological Survey, Map IGQ-3. Map plus explanation and discussion.

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)

Most of the soils at Stoneface are thin and stony. They are well drained, and runoff is rapid. They mostly formed in loess, although some sand is incorporated in the basal portion. Organic content is low, and the hazard of erosion is very severe. The soils are immature except on the ridge crests, therefore, the character of the soil is determined largely by the parent materials.

The relative thinness of the soil can be readily judged from the vegetation. On the broad upland ridge at the north end of the area, the loess is thick enough to provide a good root medium and some water storage. Loess cover also extends down the slopes on north orientations. Loess is very thin, even absent, on sites along the south-facing slope of the central valley where conditions of freeze-thaw and drought favor more rapid mass wasting and rainwash.

Rock outcrops occur along the upper northwest-facing slope, where a nearly continuous sandstone cliff is prominent (Figure 20).

The Berks-Wellston complex (986G) is mapped on the upper slopes and covers most of the RNA. These are very steep and drouthy soils. Areas of surface stones, boulders, and rock outcrops are common. They formed in loam weathered from sandstone, siltstone, and some shale, and are strongly acid. Berks soil makes up the major part of this complex, especially on south-facing slopes. Berks soil has less clay than Wellston soil.

The Wellston-Berks complex (986F) is mapped on slopes that are slightly less steep than where the Berks-Wellston complex occurs. Here, the Wellston soil makes up 50 to 70 percent of the unit.

The Zanesville silt loam (340) is mapped on gentler upper slopes along the ridge crest in the north part of the RNA. It formed in loess and material weathered from sandstone, siltstone, and shale. It is mainly loam with some stones, is medium acid in reaction, and has a fragipan.

The Hosmer silt loam (214) occurs as very narrow bands along the main ridge in the north part of the RNA. It formed in loess, has a fragipan, and is usually strongly acid.

Reference: C. Miles and B. Weiss. 1978. Soil survey of Saline County, Illinois. Soil Conservation Service and Forest Service, in cooperation with the Illinois Agricultural Experiment Station, Urbana, Illinois. 94 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. There are no outstanding mineral rights. According to Appendix E of the Shawnee National Forest, Final Environmental Impact Statement, Land and Resource Management Plan (1986), there is medium potential for the presence of fluorite, lead, zinc, and coal, and low potential for the presence of oil and gas.

Cultural features

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

There are no outstanding mineral rights at the Stoneface Research Natural Area. According to Appendix E of the Shawnee National Forest, Final Environmental Impact Statement, Land and Resource Management Plan (1986), there

is medium potential for the presence of fluorite, lead, zinc, and coal, and low potential for the presence of oil and gas.

Coal is currently being mined in the Cave Hill vicinity, to the southeast of the RNA, but because of the faulting and displacement in the region, it is doubtful that mineable deposits are present within the RNA boundaries.

Grazing

This area is not under any range allotment and is unsuitable for livestock grazing. It is nearly all forested (Figure 12). 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 (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 Stoneface as an RNA will maintain the minimal erosional condition of the watershed, and thus help protect the water quality of the recipient streams and rivers. There are several springs and seeps in the area. Protection of the natural vegetative cover in the area may be an important factor in maintaining the unpolluted character of their waters. High water quality is important for the protection of rare plants and animals which are directly associated with the springs and beds of streams.

Recreational values

There is a long history of hiking and picnicking in the area. Most of the public use is along the foot trail leading into the RNA from the parking lot, which is a few yards to the west of the west boundary (see Figure 4). This trail leads northeast along the base of the bluff a short distance and then ascends a low cliff to follow the bluff top in a southwesterly direction. There are scenic overlooks along the cliff, and the Stone Face rock formation is a popular stopping point for hikers. Occasionally, hunters enter the area, and the trail is sometimes used by horseback riders and off road vehicle riders.

The rugged cliffs, spectacular views, and the Stone Face rock formation are attractive features that could cause significant protection problems if public use is not controlled, and especially if such use increases. Adequate supervision and management should prevent serious recreational use conflicts from developing.

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 control exotics and keep woody invasion from eliminating the barrens, glade, and hill prairie communities, 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

No designated or proposed Wilderness, Wild and Scenic River, or National Recreation Area would be impacted.

Transportation plans

There are no known transportation plans that are likely to be in conflict with, or adversely affect, the RNA. The one SNF trail (1607) mapped in the north part of the area (Figure 4) is no longer on the transportation inventory and is no longer visible. PJE

MANAGEMENT PRESCRIPTION

The primary objective of the Stoneface 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, barrens, glade, and prairie types characteristic of the Midwest, as well as other plant communities that have special and unique characteristics of scientific interest and importance.

Vegetative management

There is unnatural erosion occurring where the trail is worn along the bluff top. Such will be controlled with water bars and natural diversions to keep most of the visitors away from the sensitive plant sites.

Exotics are not a problem in the less disturbed parts of the RNA, and none of the significant cover types or rare plant species are threatened at the present time, but removal and control of certain agressive species, such as Japanese honeysuckle (Lonicera japonica), throughout the area would be desirable. The rare plant sites will be monitored, and invading exotics will be removed from their vicinities by hand or with hand tools.

Prescribed burning and hand removal of trees and shrubs are permitted to help control the invasion of woody vegetation into the naturally open areas, i.e. the glades, barrens, and hill prairies. It is assumed that the tendency of natural openings in the Midwest to succeed to forest will result in the disappearance of these communities without fire or the replication of control measures that kept them open in presettlement times. Annual burning is allowed where such is needed to restore the open canopy of the barrens, but burning is not necessary every year for maintenance of the open communities. A regular schedule of vegetative management activities will be developed as results are monitored. The Illinois Department of Conservation staff is currently developing a management plan for the rare plant species, particularly the Mead's milkweed (Schwegman, 1987). This will be the guide for management of those sites.

* see errata PJE

Recreational use will not be advertised or encouraged in this area. The existing parking lot and trail near the west edge of the RNA will not be improved or expanded. The vegetation is too vulnerable to trampling and collecting.

^ ORV use and horseback riding will be prohibited. If necessary, the area will be signed to discourage these recreational activities. PJE

ADMINISTRATIVE RECORDS AND PROTECTION

The administrator and protector of the Stoneface Research Natural Area is:

District Ranger
Elizabethtown District
USDA - Forest Service
Elizabethtown, Illinois 62931

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 of the natural area. Plant species collected in the area have been deposited in the herbarium at Southern Illinois University at Carbondale, Illinois 62901.

REFERENCES

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Miles, C. C., and B. J. Weiss. 1978. Soil Survey of Saline County, Illinois. Soil Conservation Service and Forest Service, in cooperation with the Illinois Agricultural Experiment Station, Urbana. 94 pages plus maps.

Natural Land Institute. 1981. Endangered and threatened vertebrate animals and vascular plants of Illinois. Rockford, Illinois. 189 pages plus appendices.

Nelson, W. J., and D. K. Lumm. 1986. Geologic map of the Rudement Quadrangle, Saline County, Illinois. Illinois State Geological Survey, MIGQ-3. Map plus explanation and discussion.

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Schwegman, J. E. 1987. Status and management analysis - Asclepias meadii. Report prepared by Illinois Department of Conservation and submitted to Shawnee National Forest. 4 pages.

Shawnee National Forest map (scale 1/4" = 1 mile). U. S. Department of Agriculture, Forest Service.

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APPENDIX ITEM I

Computer printout of data collected for the Old Stone Face Natural Area by the Illinois Natural Areas Inventory, 1976-78.

Note that the INAI is slightly smaller than the RNA.

Illinois Natural Areas Inventory
Natural Land Institute

AREA # 839

COUNTIES: 83 Saline

REFERENCE NUMBER: 13

AREA NAME: Old Stone Face

NATURAL AREA CATAGORIES & SIGNIFICANT FEATURES:

CAT.	CODE / DESCRIPTION
V	Shawnee National Forest special use area
II	120 Asclepias meadii (Thin soil on sandstone blufftop)

EXCEPTIONAL FEATURES:

CAT.	CODE / DESCRIPTION
III	3(Thin soil on sandstone)
I	B2.12 Loess hill prairie
II	121 Sedum telephioides (Face of sandstone cliff)
I	A5.9 Sandstone cliff community
IV	Sandstone cliff
VII	Intermittent stream
I	A5.13 Sandstone glade

PRESERVATION VALUE SCORE: 4

EVALUATOR: 4 Kurz

LEGAL LOCATION:

TWP	RNG	PM	SEC	QUARTER	QUARTER-QUARTERS
10S	7E	3	9		A&D&9+
10S	7E	3	10		4&5&12&13
10S	7E	3	16		1&2

TOPOGRAPHIC QUADRANGLES: 274b Rudement 7.5

SPECIFIC STREAM : Saline River

STREAM SYSTEM (Water Shed) :28 Saline River system

LEGISLATIVE DISTRICT: 59

MUNICIPALITY:- none

MINIMUM ALTITUDE: 420

MAXIMUM ALTITUDE: 730

TOPOGRAPHY:

PHYSIOGRAPHIC UNIT: 50 Shawnee Hills Section
MAJOR FEATURE: 48 Erosional hills in bedrock (medium loess)

INDIVIDUAL TOPOGRAPHIC FEATURES:

111 Hogback
114 Ravine
108 Fault-line scarp

GEOLOGIC FORMATIONS:
138 Kinkaid Limestone
160 Caseyville Formation
161 Abbott Formation
216 Peoria Loess

SOIL ASSOCIATION (STATE) :
18 R Grantsburg Robbs-Wellston

SOIL ASSOCIATION (COUNTY) :
Grantsburg-Robbs

NATURAL COMMUNITY
2.12
Loess hill prairie

NATURAL DIVISION AND SECTION: 13a
Greater Shawnee Hills Section, Shawnee Hills Divis
COMMUNITY CLASS : 2 Prarie
RARITY INDEX: 5 Very rare
NATURAL QUALITY:
0.10 acres of grade B ;
Trampling

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
14 Andropogon scoparius,little bluestem-
127 Koeleria cristata,June grass

NATURAL COMMUNITY
1.1
Dry upland forest

NATURAL DIVISION AND SECTION: 13a
Greater Shawnee Hills Section, Shawnee Hills Divis
COMMUNITY CLASS : 1 Forest
RARITY INDEX: 2 Common
NATURAL QUALITY:
65.0 acres of grade C ;
Mature second growth

SAF COVER TYPE: 40 Post oak--black oak

PLANT COMMUNITY:
208 Quercus stellata,post oak-
209 Quercus velutina,black oak-
57 Carya glabra,pignut hickory

NATURAL COMMUNITY
1.2
Dry-mesic upland forest

NATURAL DIVISION AND SECTION: 13a
Greater Shawnee Hills Section, Shawnee Hills Divis
COMMUNITY CLASS : 1 Forest
RARITY INDEX: 2 Common
NATURAL QUALITY:
59.0 acres of grade C ;
Mature second growth

SAF COVER TYPE: 53 White oak

PLANT COMMUNITY:
206 Quercus rubra,red oak-
195 Quercus alba,white oak-
55 Carya spp.,hickories

NATURAL COMMUNITY
5.9
Sandstone cliff community

NATURAL DIVISION AND SECTION: 13a
Greater Shawnee Hills Section, Shawnee Hills Divis
COMMUNITY CLASS : 5 Primary
RARITY INDEX: 1 Abundant
NATURAL QUALITY:
Unknown acres of grade A ;
Relatively undisturbed

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
324 Heuchera parviflora,small-flowered alumroot-
325 Dryopteris marginalis,marginal shield fern

NATURAL COMMUNITY
5.13
Sandstone glade

NATURAL DIVISION AND SECTION: 13a
Greater Shawnee Hills Section, Shawnee Hills Divis
COMMUNITY CLASS : 5 Primary
RARITY INDEX: 2 Common
NATURAL QUALITY:
0.80 acres of grade A ;
Relatively undisturbed

SAF COVER TYPE: * Not collected

PLANT COMMUNITY:
208 Quercus stellata,post oak
/
358 Vaccinium vacillans,hill blueberry
/
14 Andropogon scoparius,little bluestem

DIVERSITY INDEX: 5

TOTAL ACREAGE: 125

OWNERSHIP TYPE: 2 Public

NUMBER OF OWNERSHIPS: 1

USE OF NATURAL AREA:
21 Low-intensity recreation

USE OF SURROUNDING LAND (% wildland): 70

USE OF SURROUNDING LAND (% farmland): 30

USE OF SURROUNDING LAND (% developed land): 0

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

DISTANCE TO SMSA: 83

NUMBER OF NEARBY SCHOOLS: 2

NEAREST SCHOOL: 87 Southeastern Illinois College, Harrisburg

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

MANAGEABILITY: 1

PRESERVATION STATUS:
3 Public land, informally recognized as a natural ar

THREATS:
4 No known threat

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

SAMPLING FORMS:
- none

DISCUSSION OF PRESERVATION VALUES:
Old Stone Face is a Shawnee National Forest special use area. The sandstone bluff has the endangered Mead's milkweed (Asclepias meadii), the threatened stonecrop Sedum telephioides, and the relict black

chokeberry. The area is diverse, with a very high quality sandstone glade and cliff community and a high quality loess hill prairie.

PUBLICATIONS:

CITATION # 381
Keser, J. J. 1971. Vascular flora of Stone Face, Saline County, Illinois. Master's thesis. Southern Ill. Univ., Carbondale.

CITATION # 482
Voigt, J. W., and R. H. Mohlenbrock. 1964. Plant communities of southern Illin Southern Ill. Univ. Press, Carbondale. 202 p.

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Illinois Nature Preserves Commission. 1971. Illinois Nature Preserves two-yea report, 1969-1970. Ill. Nature Preserves Comm., Rockford. 50 p.

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Mohlenbrock, R. H., and D. K. Evans. 1974. Illinois field and herbarium studies. Rhodora 76:460-470.

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Marlow, G. R. 1970. A study of the visitor to the parks and recreation areas along the proposed George Rogers Clark Recreation Way, southern Illinois. Master's thesis. Southern Ill. Univ., Carbondale. 50 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 Stoneface Research Natural Area in natural diversity

SAF Cover Type

SAF cover types in relation to RNA's — includes Stoneface RNA.

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:

Not Represented	In one RNA	In two RNA's
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.

	SAF Cover Types
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 Stoneface 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:

Table 3-15
Recommended Research Natural Areas

AREA	ACRES 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

Roadless Area	Size (Ac. NFS Land)
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

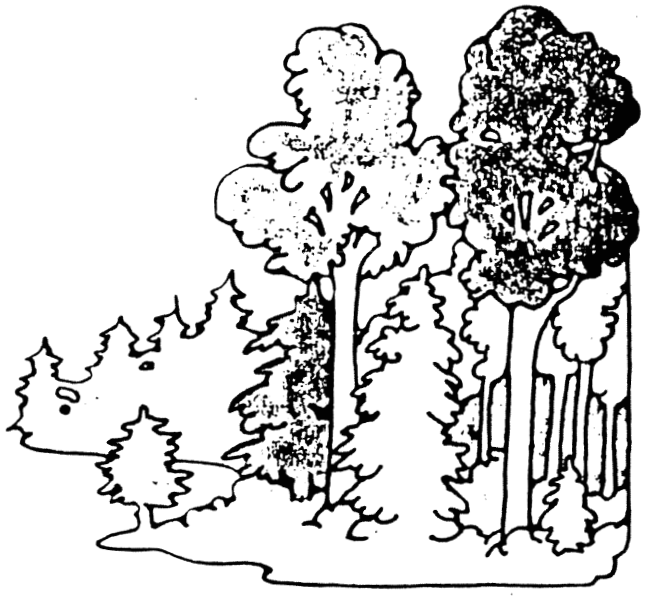
Alternative I emphasizes the maintenance and enhancement of wildlife habitat and preservation of unique natural features. A variety of motorized and nonmotorized recreation features are provided. All proposed Research Natural Areas are recommended for further evaluation.

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.

Name	Size (Acres)
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.

Name	Mgmt. Prescription	Size (Acres)
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		4,908

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

Name	Management Prescription	Size(acres)
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

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:

-A dry upland forest community.
-Invertebrate cave fauna and cave.
-Meads milkweed (Asclepias meadii).
-Sandstone cliff community.
-Sandstone galde community.
-An outcrop of the Tradewater chert.
-A fault zone with a great amount of displacement.

The dry upland forest is the largest of its type and quality in Illinois.

The cave is one of two intensive maze-like caverns in the Interior Low Plateau Province and is the only one developed within moderately dipping strata adjacent to a fault zone.

Federal Threatened and Endangered Species:

No records documenting presence of a Federal T & E Species in this area.

Sensitive Species (proposed):

-Mead's Milkweed (Asclepias meadii).

Forest Listed Species:

-Loggerhead Shrike (Lanius ludovicianus).

Stoneface

Location:

The area is located in Sections 9, 10, and NE¼ Section 16, T10S, R7E, Elizabethtown Ranger District, Saline County.

Area:

175 acres.

SAF Cover Types:

SAF 40, SAF 53.

General Information:

This area includes high sandstone bluffs. The dry upland forest of the bluff tops and slopes appear to have little evidence of disturbance. Undisturbed sandstone glades occur along the bluff top. Savannah-like dry woods/glade community occurs on the southern exposure of the bluffs.

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:

-Mead's milkweed (Aclepias meadii).
-A sandstone glade community.
-A sandstone cliff community.
-A loess hill prairie community.

This area also contains mesic upland, dry-mesic upland, and dry upland forest stands.

Federal Threatened or Endangered Species:

No records documenting the presence of a Federal T & E Species in this area.

Sensitive Plants and Animals (proposed):

-Mead's Milkweed (Asclepias meadii).

Forest Listed Species:

Loggerhead Shrike (Lanius ludovicianus).

Dennison Hollow:

Location:

The area is located in Section 15 and 16, T10S, R7E, Elizabethtown Ranger District, Saline County.

Area:

205 acres.

SAF Cover Types:

SAF 40, SAF 53.

General Information:

Dennison Hollow contains a dry upland and dry mesic upland forest, a sandstone glade and cliff community.

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: