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United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

This form is for use in documenting multiple property groups relating to one or several historic contexts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. For additional space use continuation sheets (Form 10-900-a). Type all entries.

A. Name of Multiple Property Listing

Prehistoric Rock Shelter and Cave Sites in Southwestern Missouri

B. Associated Historic Contexts

Prehistoric Human Occupations in Southwestern Missouri Rock Shelters, ca. 12,000-250 B.P.

C. Geographical Data

[X] See continuation sheet

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards for Planning and Evaluation.

G. Tracy Mehan III, Director — 8/22/94

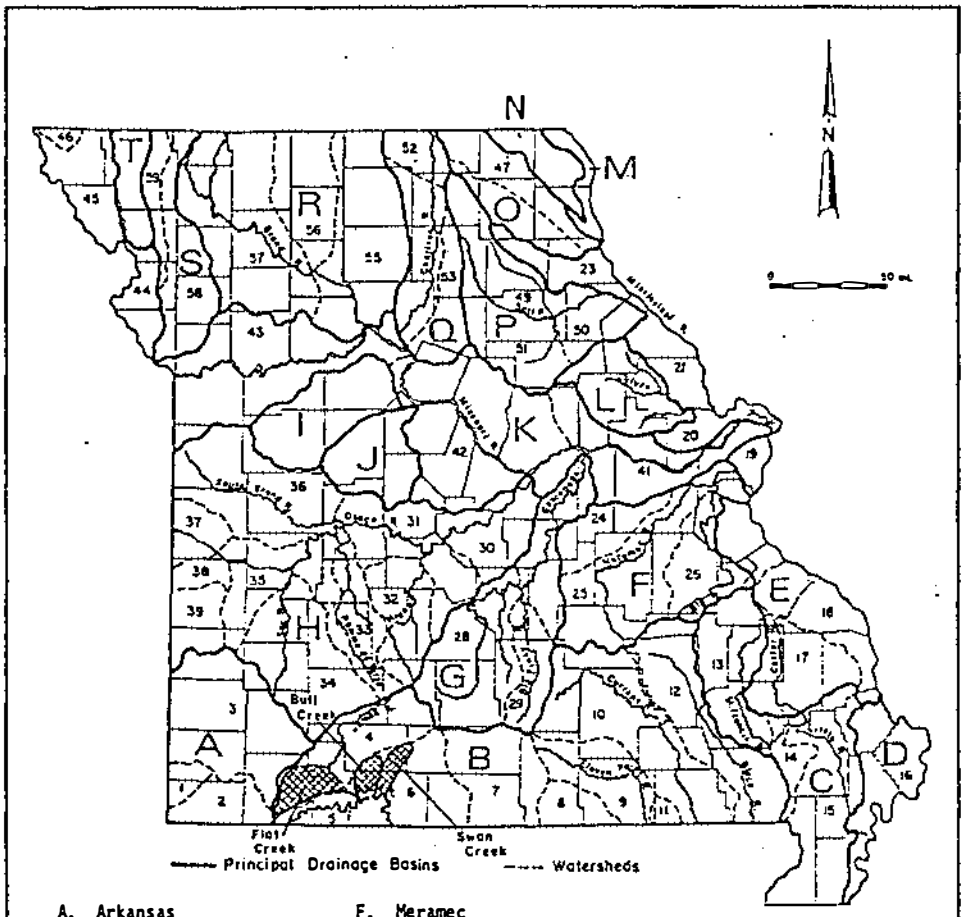
Signature of certifying official — Date

Department of Natural Resources and State Historic Preservation Officer

State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper of the National Register — Date



A. Arkansas
1. Lost Creek
2. Elk
3. Spring

B. White
4. James
5. Table Rock
6. White
7. North Fork
8. Spring
9. Eleven Point
10. Current
11. Fourche Creek
12. Black

C. St. Francis
13. Upper St. Francis
14. Lower St. Francis
15. Little River

D. Lower Mississippi
16. Lower Mississippi

E. Upper Mississippi
17. Whitewater/Castor
18. Mississippi 1
19. Mississippi 2
20. Mississippi 3
21. Mississippi 4
22. Mississippi 5
23. North River

F. Meramec
24. Bourbeuse
25. Meramec
26. Big

G. Gasconade
27. Lower Gasconade
28. Upper Gasconade
29. Big Piney

H. Osage
30. Lower Osage
31. Lake of the Ozarks
32. Niangua
33. Pomme de Terre
34. Sac
35. Upper Osage
36. South Grand
37. Marais des Cygnes
38. Little Osage
39. Marmaton

I. Blackwater

J. Lamine

K. Missouri
41. Missouri 1
42. Missouri 2
43. Missouri 3
44. Missouri 4
45. Missouri 5
46. Nishnabotna

L. Cuivre

M. Des Moines

N. Wyaconda/Fox

O. Fabius
47. North Fabius
48. South Fabius

P. Salt
49. North Fork
50. Salt 1
51. Salt 2

Q. Chariton
52. Upper Chariton
53. Lower Chariton
54. Middle/East Fork

R. Grand
55. Grand 1
56. Thompson
57. Grand 2

S. Platte
58. Platte
59. One Hundred & Two

T. Nodaway

Figure 1. Location of project areas in relation to Missouri watersheds and principal drainage basins.

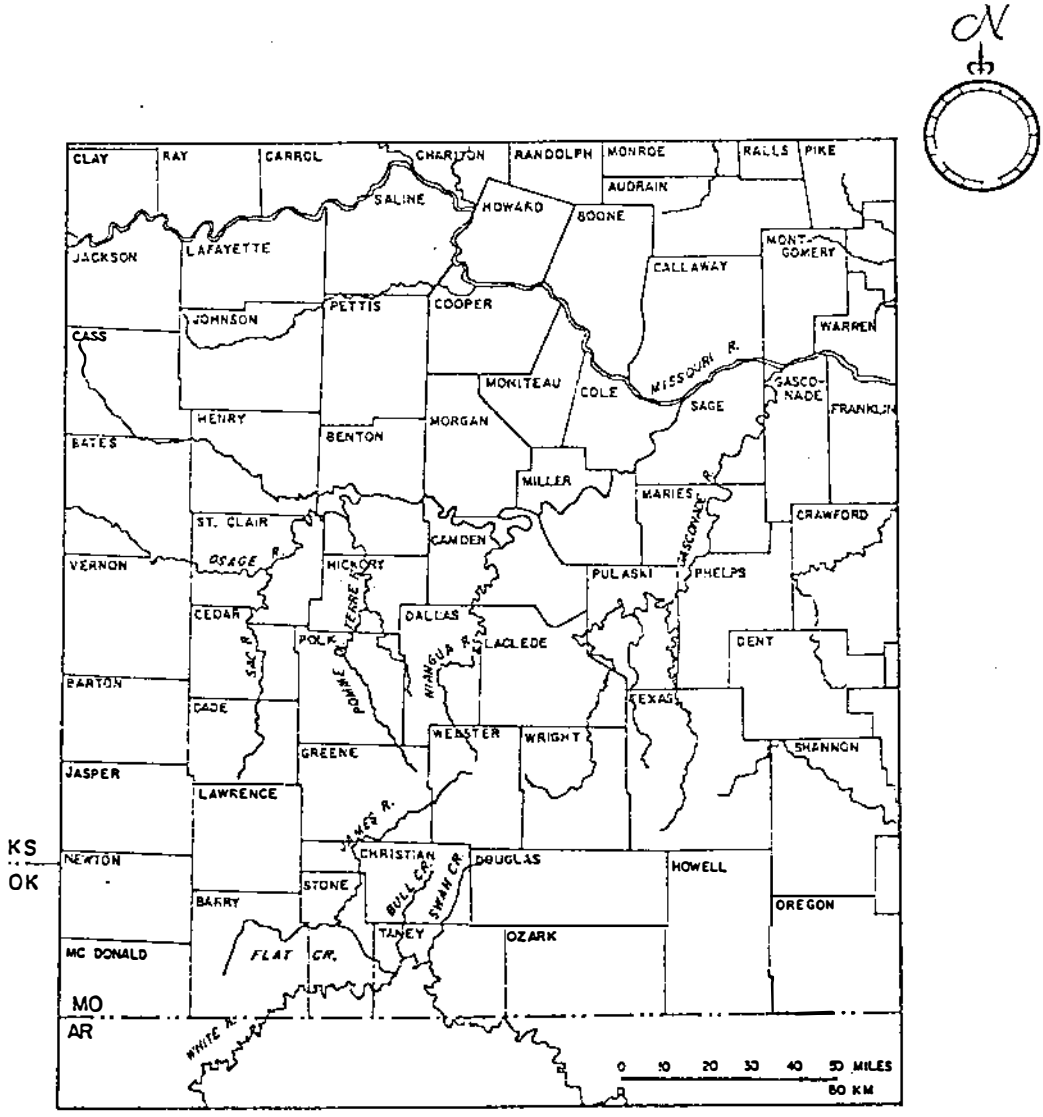


Figure 2. Location of Flat, Bull, and Swan creeks in Barry, Christian, Douglas, Stone, and Taney counties in southwest Missouri.

Ordovician strata and the more gently rolling Springfield Plateau capped by younger Mississippian-aged strata (Bretz 1965). North-south oriented Bull and Swan drainage basins transect the Eureka Springs escarpment with their lower reaches on the edge of the Salem Plateau and their headwater tributaries incised into the Springfield Plateau. Flat Creek drainage basin is also divided by the Eureka Springs escarpment with the eastern half on the Salem Plateau and the other half on the Springfield Plateau.

The majority of the Salem (Ozark) Plateau is underlain by bedrock of the Ordovician system, which includes cherty dolomites and sandstones of the Gasconade, Roubidoux, and Jefferson City-Cotter formations (Anderson 1979). In the project areas the upper Cotter dolomite dominates, with the Jefferson City unit outcropping only along the lower reaches of Bull and Swan creeks (Thomson 1982a; Thomson 1982b; Thomson n.d.). Massive sandstone beds in the Jefferson City-Cotter formations yield the most shelters and caves.

The Springfield Plateau is composed primarily of Mississippian strata, which includes the Bachelor, Compton, Northview, Pierson, Reeds Spring, Elsey, and Burlington formations. The Bachelor and Northview formations are thin (0.1-1.2m) sandstone-siltstone and shale units (Martin 1972:7-8) which usually form re-entrants (shelters) into the lower Pierson formation. Except for the Compton, the remaining formations are all chert-bearing limestone units. Along with caves and shelters as living sites for prehistoric peoples, chert was the most significant resource in all of these rock formations.

Prehistoric Native American occupations in southwestern Missouri rock shelters (i.e., West White Study Unit; Weston and Welchman 1987:B25-1) began at least 12,000 years ago and continued until the historic period, ca. 250 B.P. (Chapman 1975). The first inhabitants may have made their living primarily by hunting, but their economy developed rapidly into one of mixed hunting, gathering and fishing. During the last 3-4 millennia, horticultural activities were added to the economy until maize-complex gardening became a staple in the last millennium. Both open and sheltered sites were utilized as habitations and burial areas throughout prehistory, and preferences for the length of occupation at specific types of sites probably changed according to economic necessity and socio-political conditions. Sheltered sites differ from open sites in that the conditions for preservation of archaeological remains are far better in the former site type. Thus, sheltered sites contain a unique record of a portion of the settlement pattern for every period in prehistory.

The Paleo-Indian and Dalton periods (ca., 12,500-9700 B.P.) are represented by very few sites and virtually no artifact assemblages. These types of sites often occur on the uplands or on high terraces where distinctive lanceolate (Paleo-Indian) or bifurcated base (Dalton) projectile points occur in contexts mixed with materials from other culture periods. The earliest tool assemblages probably also include distinctive scraper forms (e.g., "spurred"), blade flake tools, gravers and burins, and the Dalton inventory is distinguished by adzes. These types of tools have low visibility in southwestern Missouri shelters, but not so projectile points. A Clovis point was recovered from Cobb Cave (23CN71; Benn ed., n.d.), and private collectors have shown the writer Dalton points reportedly from other shelter sites.

Archaic sites are most common on terraces and uplands, yielding large quantities of lithic debris, chipped stone tools, and grinding and hammering stones. This assemblage reflects the shift toward a hunting and gathering subsistence pattern. The Rice complex, a local manifestation of the Early Archaic period (ca. 9000-7000 B.P.; Chapman 1975:129), includes points with lanceolate shapes as well as lobate-based points and Graham Cave Side Notched. This assemblage is best known from the lowest levels in the Rice and Jackie rock shelter sites in Table Rock Lake (Bray 1956; Marshall and Chapman 1960a,b). The Middle Archaic period (ca. 7000-4000 B.P.) material from many of the same shelters and open sites is called the White River complex (Chapman 1975:159). This complex includes large and small side

notched points, Jakie Stemmed, and an array of chipped stone scrapers, drills, other bifaces, and groundstone axes and metates (Bray 1956; Marshall 1958; Chapman et al. 1960). Late Archaic period sites (ca. 4000-2000 B.P.) are even more prolific in terms of stone tool diversity. Projectile point forms emphasize large, stemmed and basal-corner notched styles. Added to this assemblage are perishable artifacts (e.g., sandals, cordage, basketry, mats, leather, wooden tools; Chapman 1975:186; Scholtz 1975) and native cultigens (e.g., chenopodium, ragweed, sumpweed, bottle gourd), when completely dry conditions prevail.

During the Woodland periods (ca. 2000-1000 B.P.), ceramics and the bow and arrow were added to archaic tool inventories. Use of bow and arrow technology requires that projectile point sizes be reduced, first to side notched forms and later to even smaller triangular flake points. Large, stemmed knives continued to be manufactured as did scrapers, drills and other chipped and groundstone tools. Ceramics were tempered with crushed rock, bone or fired clay, and surfaces were roughened with cord-wrapped paddle impressions and decorated with tool marks. Woodland peoples pursued a hunting and gathering subsistence perfected by the Archaic peoples, but their use of refined technologies like ceramics and horticultural products meant that food production and processing were being intensified (cf., Braun 1983). This change in subsistence coincided with a reorganization of the settlement pattern toward an emphasis on small site occupations arrayed densely across the landscape. Woodland occupations in nearly every sheltered site reflect this change.

Tiny notched and unnotched triangular projectile points found by private collectors on some terraces in the White River basin indicate the presence of Mississippian peoples between ca. 1000-250 B.P. The Loftin mound site at the mouth of the James River is the only Caddoan village in this region of southwestern Missouri (see Wood et al. 1983). Open sites do not usually yield shell tempered Mississippian pottery, however, sheltered sites occasionally do because conditions for preservation are better. Other materials from shelter sites consist of scrapers, heavy cutting tools and vast amounts of animal bones (mostly deer), suggesting sheltered sites were utilized as seasonal hunting camps (Benn ed. n.d.).

Since there is evidence for human occupation in sheltered sites during every prehistoric period, we presume these sites were attractive enough for prehistoric peoples to make these

places regular stops during the seasonal round of economic activities. This application of the settlement model is particularly relevant for hunters and gatherers in the Ozarks where the likely socio-economic unit, the family-band, could be comfortably accommodated in an average-sized shelter. Sheltered sites also have proven to be very attractive to historic and contemporary Americans (e.g., tourists, explorers, vandals, amateur diggers), whose negative impacts on archaeological remains are increasing at an alarming rate. The state plan for archaeological resource protection in Missouri (Weston and Welchman 1987) contains no discussion or provisions for protecting sheltered sites nor, for that matter, any comprehensive overview of prehistory in the West White Study Unit.

We also suspect that utilization of sheltered sites changed during prehistoric times, because some layers produce more remains of different types than other layers. For instance, variability is abundantly evident in the 20 sites in this nomination: some contain only a handful of lithic debitage and tools from any cultural period, others have sparse deposits of the earliest cultural materials (e.g., Early Archaic period), but almost every sheltered site yields Woodland artifacts (Tables 1-3). Some shelters have over a meter of solidly-packed remains representing practically every activity of daily life during the Late Archaic and Woodland periods. Such a well preserved, stratified record of prehistoric culture is not matched by any other type of site in southwestern Missouri. Because of fine preservation, the possibilities for reconstructing prehistoric cultural behavior from rock shelter data are limited only by the technical achievements of archaeological methodologies.

One factor most responsible for the quality of sheltered sites is the relative absence of natural weathering processes in sedimentary deposits. Without weathering, other disturbances (e.g., groundwater percolation, insect and rodent penetration, mechanical mixing by humans) can be distinguished and evaluated for their effects on the archaeological record. Additionally, evidence for the natural environment (e.g., climate, vegetation and fauna) in the form of terrestrial snails, seeds, animal feces, etc., is preserved in sheltered sites (Straus 1990), when this material would otherwise be dissolved and destroyed in open sites.

Table 1
Summary Data on Sheltered Sites in Flat Creek Drainage Basin

Site Number	Drainage Basin	Survey Area	Rock Formation	Discovery Method	Access[1]	Vandal Activity[2]	Site Nature	Aspect	Maximum Site Size(m) W	L	H	Extant Midden(m^2)	Condition[3]	Site[4] Type	Cultural Affiliation	NRHP
23BY1	Flat	Spot Check	Reeds Spring	ASM	Good	Past/Recent	Cave	SE	12.0	13.0	6.0±	0	Semi-dry	Campsite	Early Archaic-Mississippian	-
23BY2	Flat	Flat-5	Reeds Spring	ASM	Poor	Past	Cave	SW	8.0	15.0	2.2	34±±	Semi-dry	Campsite	Woodland Mississippian Protohistoric	T-
23BY3	Flat	Spot Check	Pierson(c)	ASM	Good	Past/Recent	Cave[X]	NE	22.0	21.0	4.6	50±±	Semi-dry	Campsite	Middle Archaic-Mississippian	T-
23BY4	Flat	Spot Check	Pierson(c)	ASM	Good	Past/Recent	Cave	S	9.0	18.0	3.0	78±±	Dry	Campsite	Middle Archaic-Mississippian	T-
23BY6	Flat	Spot Check	Pierson(c)	ASM	Poor	Past/Recent	Cave	NE	20.0	22.0	4.5	70±±	Semi-dry	Campsite	Woodland Mississippian	T-
23BY7	Flat	Flat-2	Reeds Spring	ASM	Poor	Past/Recent	Cave	S	8.0	15.0	1.8	58±±	Semi-dry	Campsite	Woodland Mississippian	T-
23BY9	Flat	Flat-5	Pierson(c)	ASM	Fair	Past/Recent	Rockshelter	S	7.0	130.0	2.2±	0	Semi-dry	Campsite	Woodland Mississippian	-
23BY257	Flat	Spot Check	Cotter	ASM	Poor	None	Cave[X]	E	2.5	16.0	4.0	0	Wet	Knapping	Unknown	-
23BY273	Flat	Spot Check	Pierson/ Compton	ASM	Fair	Recent	Cave[X]	SE	20.0	23.0	13.0	98±±	Dry	Campsite	Middle Archaic-Mississippian	T+
23BY5059	Flat	Spot Check	Pierson(c)	ASM	Poor	Past/Recent	Rockshelter	W	6.0	30.0	4.0	116	Dry	Campsite	Middle Archaic-Mississippian	+
23BY627	Flat	Flat-2	Pierson(c)	MSS	Good	Recent	Cave	S	7.0	12.0	2.0	12±±	Semi-dry	Campsite	Woodland Mississippian	T+
23BY628	Flat	Flat-3	Pierson(c)	MSS	Poor	Recent	Rockshelter	E	11.0	30.0	5.0	124±±	Dry	Campsite	Unknown	T+
23BY629	Flat	Flat-6	Pierson(c)	MSS	Fair	None	Rockshelter	E	7.0	15.0	4.0	53	Semi-dry	Campsite	Woodland Mississippian	+
23BY630	Flat	Flat-5	Reeds Spring	MSS	Poor	None	Cave	W	9.0	15.0	2.3	10	Semi-dry	Knapping	Unknown	-
23BY631	Flat	Flat-6	Pierson(c)	Survey	Fair	None	Rockshelter	N	4.0	15.0	2.6	19	Semi-dry	Knapping	Unknown	T-
23BY632	Flat	Flat-6	Pierson	MSS	Fair	Recent	Rockshelter	W	4.0	11.0	2.4	21±±	Semi-dry	Campsite	Late Woodland Mississippian	T-
23BY633	Flat	Flat-7	Pierson(c)	Survey	Good	Recent	Rockshelter	SE	3.0	25.0	2.5	69	Semi-dry	Campsite	Late Woodland	+
23SN600	Flat	Flat-1	Pierson(c)	ASM	Good	Recent	Rockshelter	NE	4.0	55.0	3.0	86±±	Semi-dry	Campsite	Late Archaic (Woodland?)	T+
23SN601	Flat	Flat-1	Pierson(c)	ASM	Good	Recent	Rockshelter	E	5.0	120.0	7.0	350	Dry	Campsite	Unknown	+

Table 2

Summary Data on Sheltered Sites in Bull Creek Drainage Basin

Site Number	Drainage Basin	Survey Area	Rock Formation	Discovery Method	Access[1]	Vandal Activity[2]	Site Nature	Aspect	Maximum Site Size(m) W	L	H	Extant Midden(m^2)	Condition[3]	Site Type[4]	Cultural Affiliation	NRHP
23CN54	Bull	Spot Check	Elsey	ASM	Good	Past/Recent	Cave	S	19.0	14.0	3.2	106**	Semi-dry	Campsite	Woodland Mississippian	T-
23CN710?	Bull	Bull-1	Pierson(c)	Survey	Fair	None	Rockshelter	SE	5.5	16.0	3.0	32	Semi-dry	Knapping	Unknown	+
23CN711	Bull	Bull-3	Pierson(c)	MSS	Fair	None	Cave	S	15.0	38.0	2.1	81	Dry	Campsite	Woodland	+
23CN712	Bull	Bull-7	Pierson(c)	Survey	Good	Past	Cave	SE	13.0	9.0	4.5*	14**	Dry	Campsite	Unknown	T-
23CN713	Bull	Bull-8	Pierson	MSS	Poor	None	Cave	W	23.0	8.0	2.3	56	Semi-dry	Campsite	Unknown	+
23CN714	Bull	Spot Check	Pierson(c)	MSS	Fair	Recent	Cave	S	9.0	5.0	2.1	38**	Semi-dry	Campsite	Woodland (Archaic?)	T-
23CN715	Bull	Bull-11	Pierson(c)	Survey	Good	None	Rockshelter	E	3.5	10.0	2.8	18	Semi-dry	Knapping	Unknown	T+
23CN716	Bull	Bull-11	Pierson(c)	Survey	Good	Recent	Rockshelter	W	4.5	12.0	2.5*	0	Semi-dry	Campsite	Unknown	-
23CN717	Bull	Spot Check	Pierson	MSS	Fair	None	Cave	W	5.0	11.0	4.3	0	Semi-dry	Knapping	Unknown	-
23CN718	Bull	Spot Check	Pierson(c)	MSS	Poor	None	Cave	N	5.0	6.0	1.8	21	Semi-dry	Knapping	Unknown	+
23CN719	Bull	Bull-4	Cotter	MSS	Poor	Recent	Cave	E	4.0	30.0	3.0	75	Semi-dry	Campsite	Unknown	T+
23CN727	Bull	Spot Check	Pierson(c)	Informant	Poor	Recent	Rockshelter	S	3.0	22.0	3.2*	9	Semi-dry	Campsite	Woodland Mississippian	T-
23CN728	Bull	Spot Check	Pierson(c)	Informant	Good	Recent	Cave	N	3.0	5.0	1.7	0	Semi-dry	Campsite	Woodland Mississippian	-
23SN855	Bull	Bull-6	Pierson/ Compton	MSS	Fair	Past	Cave	S	18.0	13.0	7.0*	56**	Dry	Campsite	Woodland Mississippian	T-

Table 3

Summary Data on Sheltered Sites in Swan Creek Drainage Basin

Site Number	Drainage Basin	Survey Area	Rock Formation	Discovery Method	Access[1]	Vandal[2] Activity	Site Nature	Aspect	Maximum Site Size(m) W	L	H	Extant Midden(m^2)	Condition[3]	Site[4] Type	Cultural Affiliation	NR
23CN660	Swan	Swan-6	Cotter	ASM	Fair	None	Cave	E	4.0	15.0	1.7	15	Semi-dry	Kanpping	Unknown	--
23CN720	Swan	Spot Check	Pierson(c)	MSS	Poor	None	Cave	S	4.5	4.5	2.2	5	Wet	Knapping	Unknown	-
23CN721	Swan	Spot Check	Pierson(c)	Informant	Fair	None	Cave	SW	11.0	7.0	2.8	22	Semi-dry	Knapping	Unknown	--
23CN722	Swan	Spot Check	Cotter	Informant	Poor	None	Cave	E	2.5	6.0	1.7	12	Dry	Knapping	Unknown	T
23CN723	Swan	Swan-9	Cotter	Survey	Poor	None	Rockshelter	S	2.0	4.0	2.2	7	Semi-dry	Knapping	Unknown	T
23CN724	Swan	Swan-9	Cotter	Survey	Poor	None	Rockshelter	N	8.0	23.0	2.8	100	Semi-dry	Campsite	Woodland	+
23CN725	Swan	Swan-9	Cotter	Survey	Fair	Recent	Rockshelter	N	5.0	24.0	2.3	67**	Semi-dry	Campsite	Unknown	T
23CN726	Swan	Spot Check	Cotter	Informant	Poor	Recent	Rockshelter	SW	2.8	20.0	1.6	28**	Semi-dry	Campsite	Woodland Mississipplan	T
23DG42	Swan	Swan-5	Cotter	MSS	Fair	Past	Cave	S	2.5	10.0	2.2*	0	Semi-dry	Campsite	Unknown	-
23DG43	Swan	Swan-5	Cotter	MSS	Fair	None	Rockshelter	S	3.0	8.0	1.5	17	Semi-dry	Knapping	Unknown	T
23DG44	Swan	Swan-5	Cotter	Informant	Fair	Recent	Rockshelter	NE	5.0	22.0	2.5	19	Semi-dry	Knapping	Unknown	T
23DG45	Swan	Spot Check	Cotter	Informant	Fair	Recent	Rockshelter	S	3.0	13.0	2.0	34**	Semi-dry	Campsite	Woodland Mississipplan	T

Key to each Table
? = US Forest Service Property
(c) = Pierson limestone-Northview shale contact
ASM = Archaeological Survey of Missouri
MSS = Missouri Speleological Survey
x = Cave with associated rockshelter
* = Artificial height due to historic excavations
** = Disturbed midden deposits
W. = Width
L = Length
H = Height
NRHP= National Register Historic Places
+ = Little or no disturbance, potentially eligible NRHP (test)
T+ = Damaged but potentially eligible NRHP (test)
T- = Mostley destroyed, not eligible NRHP (test)
- = Not eligible NRHP (no further work)

1 - Access (via stream valleys)
Good = walk-in
Fair = short climb
Poor = long steep climb

2 - Vandal Activity
Past = pre-1970
Recent = 1970 present

3 - Condition
Dry = little or no moisture, dusty
Semi-dry = periodic or localized moisture, damp
Wet = permanent moisture, spring

4 - Site Type
Campsite = varied activities, evidence of habitation
Knapping = knapping activity only, no evidence of habitation

The exceptional evidence available in rock shelters is an enormous advantage for achieving a comprehensive picture of culture patterns from all types of sites in the settlement system. Sheltered sites provide the "missing" evidence, i.e., material remains (e.g., bones, seeds, mussel and egg shells, features, tools made from perishables; cf., Harrington 1960; Chapman 1975; Scholtz 1975) which ordinarily are leached from thin Ozark soils on open sites. Of course, use of well preserved evidence from sheltered sites to reconstruct human behavior at open sites requires the establishment of analogues which connect these types of sites. This means we need detailed artifact assemblages from chronological contexts to be certain of site age, and we need to undertake use-wear studies of artifact types to know the kinds of activities that occurred at specific locales. [A demonstration of these types of integrated analyses has been presented by McMillan and Wood (eds. 1976) for the materials from Rogers Shelter in central Missouri.] By knowing artifact age and function, it is easier to relate organic evidence from sheltered sites to analogous culture contexts in open sites, where the organic evidence is almost always compromised.

F. Associated Property Types

I. Name of Property Type Rock Shelter and Cave habitations

II. Description

III. Significance

IV. Registration Requirements

☒ See continuation sheet

☐ See continuation sheet for additional property types

The density and distribution of sheltered sites in the transition area between the Salem Plateau and the Springfield Plateau is controlled by bedrock stratigraphy. The majority of sheltered sites (57.8%) occur in the Pierson formation just above its contact with the Northview formation. Cave development predominates in the Pierson limestone (Martin 1972; Thomson and Martin 1975) because the underlying Northview formation acts as an acquiclude which causes lateral migration of ground water along joints in the lower Pierson until it emerges at the surface at cave springs. Pierson caves are usually joint controlled and erode horizontally along bedding planes (Martin 1972:84). Rock shelters also occur at the Northview-Pierson contact because the Northview shale is less resistant to erosion than the overlying Pierson limestone forming re-entrants after extensive weathering.

The next formation most likely to produce sheltered sites is the Jefferson City-Cotter. Most rock shelters in these strata occur at the base of massive sandstone beds, of which the best known is the Swan Creek member. These beds are localized in occurrence but appear to be particularly common in the northeastern portion of Swan Creek drainage basin. Smaller, more shallow rock shelters also occur at the contacts between beds of indurated dolomite and shalely dolomite. Cave morphology differs in the Jefferson City-Cotter and Pierson formations. Caves in Jefferson City-Cotter dolomite tend to be more narrow (tubular) in the entrance areas with long meandering passages, whereas Pierson caves often exhibit wide lens-shaped mouths but shorter conical-shaped passages which soon pinch out. Cave entrances in Jefferson City-Cotter dolomite are often collapsed sinks with steep uninhabitable slopes, while the floors and ceilings of Pierson caves are generally level following prominent bedding planes. Few caves and no rock shelters were found in the Compton, Reeds Spring, and Elsey formations.

In a survey of sheltered sites in central Tennessee, Hall and Klippel (1988) tested the hypothesis that the selection of shelters for occupation was guided by a set of situational variables. They identified a southern aspect and large size of shelters as variables that correlated positively with prehistoric occupations. Horizontal and vertical distance from streams were negatively correlated with shelter occupations. Data from the Ozark shelter survey (Ray and Benn 1989) indicate that three factors correlate with occupations: relative moisture, southern aspect and large size (see Tables 1-3).

Most shelters (76%), including ones with cultural deposits, had semi-dry sedimentary fills. Sheltered sites with dry sediments were definitely preferred over locations with wet fills (75% of the former were occupied, 15% of the latter).

The aspects (direction of opening) of occupied sites are widely variable but clearly favor a southern exposure (62%). The reason aspects vary so much--including even northern exposures for occupied sites--is that two comfort factors relate to prehistoric habitation: warmth and light as generated by either the sun or campfires. Shelters with southern exposures are favored because they receive constant solar radiation. On the other hand, north-facing shelters, which are deep or have narrow openings, can be heated effectively by campfires.

The most dramatic correlation between shelter structure and the presence of prehistoric occupations is size. Occupied caves have four times as much area as unoccupied ones, and occupied rock shelters are almost seven times larger than unoccupied ones. While $4m^2$ is the size of the smallest occupied site, the usual minimum size for a sheltered site is $12\text{-}15m^2$. A substantial proportion (40%) of the sheltered sites have more than $100m^2$ of floor area.

The types of prehistoric occupation in 45 sheltered sites were identified from surface artifacts during the initial survey. When shelter sites had little or no soil deposit and only a few items of lithic debitage were found, sites were designated as limited activity "knapping stations." Such sites probably were utilized for brief stays during which tools were refurbished and people rested. Fourteen sites with limited occupations were recorded. The remaining 31 sites in the original survey sample contain significant deposits of midden soil with animal bones, carbon, lithic flakes and tools, and sometimes pottery sherds. These 31 sites are designated "camps," because they have the potential for being places of long-term habitation where many activities took place.

Twenty-one intact sites from the original Ozarks survey were investigated by test excavations to evaluate their research potential (one site lacked potential). The twenty sites in the multiple property nomination include 12 camps and eight knapping stations. This blend of site functions is intended to represent the range of settlement types in all sheltered sites, although no one knows the actual proportion of long-term camps to limited

activity sites. Deposits in the twenty sites represent most culture periods, including the following components: 11 Mississippian, 12 Woodland, 10 (3 possible) Archaic. Most of the latter group of components belong to the Late Archaic period. Five sites also have the potential to yield Dalton or Paleo-Indian components from deeply buried (still unexcavated) levels. Four of the 20 sites lack culture period identification, because non-diagnostic material was recovered. With this range of known components and others believed to be deeply buried, the sample of 20 sites represents all periods of the prehistoric record in the Ozarks.

The kinds of materials recovered so far from sheltered sites reflects the daily activities of hunters and gatherers. Short-term knapping stations contain lithic debitage from resharpening tools and refurbishing weapons. Occasionally, a flake tool (e.g., for cutting meat or scraping bone or wood), broken projectile point, or animal bone also is found in knapping stations. Camp sites yield many artifacts along with carbonized wood and food remains, pit and hearth features, and lenses of ash and decomposed organic matter. Artifacts typical of camps include whole projectile points and broken tips, scrapers, drills, flake tools, hammerstones, bone tools, huge amounts of animal bones, mussel shell, grinding equipment (metates, manos), and quantities of lithic debitage. The debitage encompasses all stages in the reduction sequence from cores to primary and secondary flakes, tertiary (retouch) flakes, bifaces, and expended artifacts. A few camp sites also contain domestic equipment such as ceramics, turtle shell bowls, and fetishes (e.g., rock crystals, special animal bones, hematite;).

The rapid rate of sheltered site destruction is a strong argument for action by archaeologists to preserve this cultural resource. There is an imminent danger of losing this site type before a representative sample has been scientifically recorded and excavated. For instance, the survey of 45 sheltered sites revealed that 40% of the sites were highly disturbed and, therefore, effectively destroyed for future research (Tables 1-3). Another 22% of the sites have moderate disturbances, while only 38% are undisturbed (Ray and Benn 1989:204). The vast majority of past and on-going disturbances are the result of uncontrolled digging. Not depicted in these raw figures is the impact on the "integrity" of the cultural resource. To illustrate the rapid loss of integrity in sheltered sites, nearly all of the destroyed sites were large shelters with deep, dry cultural deposits--in short, the "best" sites for research and preservation. Conversely, less than half (6/17) of the remaining undisturbed sites are believed to contain archaeologically significant cultural deposits.

One of the best arguments for the significance of sheltered sites was presented by Richard MacNeish (1978:81-123). His search for the origins of maize drew him to the highlands of Mexico and Peru to excavate in rock shelters, where dry deposits yielded a magnificent record of prehistoric plant collecting. MacNeish's methods of excavating complicated shelter deposits and employing an interdisciplinary team of researchers to evaluate the contents of sites set standards everywhere for archaeological work. The western Ozarks, including southwestern Missouri, contains the same type of sheltered sites and exceptional preservation of lengthy prehistoric cultural records. Ozark rock shelters already have achieved attention during decades of investigation (e.g., Harrington 1924, 1960; McMillan and Wood eds. 1976; Brown 1984).

Sheltered sites in southwestern Missouri are a unique aspect of the prehistoric settlement system because all the conditions affording good opportunities for archaeological research converge in these sites. First, sheltered sites are an integral part of prehistoric lifeways, and they preserve the remains of many, if not most, daily activities. Throughout the past, shelters have been used differentially, so they contain evidence of cultural changes as well as indications of different types of subsistence activities (cf., McMillan and Wood eds. 1976). Additionally, sheltered sites typically have stratified deposits of stone tools, features, and organic remains in an enclosed context where an exact sampling universe can be determined. Compared to open sites, the excavator obtains a greater return of information per dollar/hour invested in digging sheltered sites. Third, preservation conditions in sheltered sites are good and in some instances exceptional. Bones, shell, carbon, and cultural features are preserved in most sites, and dry deposits with uncarbonized perishables are not uncommon. Fourth, sheltered sites contain a record of natural (sedimentary and organic) deposition which is largely unaltered by soil formation processes. Thus, past climatic episodes and habitat communities can be reconstructed from evidence independent of human influences.

James Brown (1984) established a baseline for future research in sheltered sites with his evaluation of late prehistoric life in the Ozarks. In debunking the notion of an "Ozark Bluff Dweller" entity separate from and delayed in their development compared to Late Woodland and Mississippian period peoples in the Arkansas River valley, Brown challenges others to

demonstrate how and why culture changes happened in the relatively sparsely populated Ozark highlands, where hunting and collecting remained an optimal economic strategy up to the Historic period. Brown identifies "...shelters as ancillary sites for specialized foraging activities of agricultural groups [such as the Caddoan]." (op.cit.:51) This hypothesis remains to be tested at the same time we investigate the broader issue of why Late Archaic and Woodland (i.e., Early Ceramic period) occupations, with their high density and diversity of artifacts and food remains, seem to be long-term habitations.

The whole issue of "function" is central to research in sheltered sites. Part of what Brown (1984) attacks is the tendency to treat rock shelters as the "type site" for prehistoric Ozark cultures (thus the derivation of the term "Ozark Bluff Dwellers"). In fact, as part of human settlement systems, sheltered sites functioned in different ways during different periods in prehistory. The only constant pattern in sheltered sites is their superb conditions for preservation of evidence. We are left with the conclusion that almost all major research questions pertaining to prehistoric occupations in sheltered sites, except some questions involving late prehistoric activities such as textile manufacture and horticulture, have yet to be scientifically investigated. Moreover, no one knows the exact role sheltered sites had in prehistoric settlement systems, especially during the Paleo-Indian and Archaic periods.

The qualities of sheltered sites in southwestern Missouri include integrity of cultural deposits, contents for research purposes, and association with other archaeological site types. All three qualities are necessary to demonstrate site significance, but the condition of integrity is the crucial one because it is immediately threatened by modern day activities.

Site integrity is easily defined for sheltered sites. Caves and rock shelters have rock ceilings, walls and floors which define absolute site limits and encapsulate sediments. The majority of filling accumulates in one direction: vertical. For human occupants, shelters provide predictable environments: e.g., sunlight and warmth through the opening, protection from precipitation, temperature leveling, familiar surroundings. Shelters change because of natural processes, such as rodent burrowing, ground water seepage, spring flow, and ceiling breakdown and weathering. All of these factors affect to shelter integrity in various degrees depending on local conditions and circumstances.

Recently, the integrity of a majority of sheltered sites has been threatened by human actions which remove rather than supplement shelter deposits. Apparently, the combination of prolific cultural remains and a general human fascination with caves and other unusual rock formations makes sheltered sites attractive to modern people and stimulates their interests in examining the contents. Perennial springs in many caves and shelters also have attracted developers of the water resource. The 1989 survey in southwestern Missouri revealed that sheltered sites are being destroyed at such an alarming rate that all significant shelter sites in southwestern Missouri may be severely damaged or destroyed by 2000. Based on personal contacts with local people, we strongly suspect this prediction applies to sheltered sites throughout the Ozark Highland, although perhaps some rural and non-developing areas in the Ozarks might be insulated longer from this phenomenon.

There are three categories of disturbances to cultural deposits in sheltered sites. One category encompasses a variety of natural actions which will always impact archaeological deposits (e.g., rodents, animals inhabiting the shelters, geological changes, weathering). The most disruptive natural action is the flow of springs through shelters. Rainwater runoff certainly erodes cultural deposits, although overall lowering of the water table in the Ozarks has dried most springs. The second

category of site impacts is development of shelters for private or commercial purposes: e.g., tapping or impounding the spring, sheltering cattle, building structures, opening for tourism. Most development of sheltered sites has already taken place from the beginning of the twentieth century to the 1950s.

The third category of site impacts is vandalism and uncontrolled digging. To the community of archaeologists and the public, both kinds of disturbances are lumped as "vandalism," but a significant distinction should be noted. "Vandals" are trespassing on private or public property to dig shelter sites, but a considerable amount of uncontrolled digging is done by landowners in shelters on their own property. Vandalism and uncontrolled digging is the impact most threatening to shelter sites today and into the future. The 1989 shelter survey recorded 28 sites with past (ca. pre-1970) and recent (on-going) uncontrolled digging of all types. Twenty-four of these sites showed evidence of recent digging--some occurring between visits during the course of the survey. To stem this tide of site destruction a combination of activities is proposed. Selected sheltered sites will be nominated to the NRHP to raise their status as significant cultural resources. Landowners will be invited to be involved in the site protection process. Public lectures and media stories will be presented to educate the public about shelter site potential and preservation.

To summarize the category of site integrity, sheltered sites selected for the Multiple Property Nomination must have a majority of their natural and cultural deposits intact. This means spring water cannot have washed away substantial deposits. Nor can we nominate sites so disturbed by vandals that the original ground surface cannot be established or that block excavations cannot be accommodated in undisturbed deposits. Other natural disturbances in the archaeological record (e.g., rodents, weathering, roots) are not considered as limitations to site integrity, since these factors cannot be evaluated prior to intensive excavation.

Another quality of southwest Missouri sheltered sites is that their contents provide a more comprehensive picture of prehistoric lifeways. The circumstances of good preservation in sheltered sites mean that researchers can draw relationships between organic remains and the lithic tools used to process those resources, for instance by doing use-wear analyses on the tools. Opportunities for this kind of research are relatively rare in open sites, where thin, acidic soils dissolve organic remains and damage evidence on the surfaces of lithic tools through weathering and mechanical abrasion.

The third quality of sheltered sites resides in their associations with other types of sites to manifest a complete picture of prehistoric settlement systems in the southwestern Ozarks. Since sheltered sites are scattered everywhere in the Ozarks and probably never were the sole habitation sites for prehistoric people, shelters comprise one part of the total settlement system. The use of sheltered sites as resource processing stations, habitations, and burial areas can be related to other types of sites through artifact associations. This relationship between sheltered and open sites applies to every cultural period but is most clearly illustrated in the case of the Loftin site, a large Mississippian village with a ceremonial structure at the mouth of the James River. No similar site exists for this complex, agricultural society in southwestern Missouri, yet Mississippian materials are found in many sheltered sites. Brown (1984) asserts that the evidence in sheltered sites was left by hunting parties making forays from large, open villages and by local, hunting and gathering peoples who were strongly influenced by Mississippian centers such as Loftin. In this scenario the evidence from sheltered sites is critical for understanding a potentially complex social interaction between complex Mississippian societies and bands of hunters and gatherers.

G. Summary of Identification and Evaluation Methods

Discuss the methods used in developing the multiple property listing

[X] See continuation sheet

H. Major Bibliographical References

[X] See continuation sheet

Primary location of additional documentation:

- [ ] State historic preservation office
- [ ] Other State agency
- [ ] Federal agency
- [ ] Local government
- [X] University
- [ ] Other

Specify repository: Center for Archaeological Research

I. Form Prepared By

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Early work in the Flat Creek area of Barry and Stone counties was done largely by amateurs. Beginning in the early 1930's, Lee Adams (1941, 1950, 1958) and associates conducted widespread surveys and dug several caves and rock shelters in the White River valley and its tributaries in southwest Missouri. Although dug with little vertical control, these reports represent the most complete record of sheltered site deposits, most of which are within Flat Creek drainage basin. Similar studies concerning dry shelter sites located along the upper White River and its tributaries in southwest Missouri and northwest Arkansas (south of Flat Creek), which contained well-preserved perishable materials, included Bushnell (1915), Harrington (1924, 1960), Dellinger and Dickinson (1942), Lasiter (1946), and Scholtz (1975).

During the 1950's, the University of Missouri conducted extensive surveys and site excavations in the areas inundated by Table Rock Lake (Chapman 1956; Chapman et al. 1960). Although many of the more systematic survey and excavation methods of today were not utilized, this work represents the most intensive study of prehistory in the Southwest Drainage Region and ultimately resulted in one of the major chronologies for southwest Missouri. Many of the diagnostic projectile point types for this area were described from Table Rock site collections (Marshall 1958). Regional overviews include Chapman's (1975, 1980) syntheses of prehistoric archaeology in the Southwest Drainage Region.

Specific studies relating to the shelters proposed for nomination include Harvey's Masters Thesis (1960, 1962) analyzing archaeological remains from 10 rock shelters in eastern Barry County, one of which (Lohmer Rockshelter, 23BY506) is located in Flat Creek watershed. Spears, Myer, and Davis (1975:55) report 160 sites in the Flat watershed, most of which were recorded by Adams (1958). Very little professional work has been conducted in Bull Creek watershed. King Cave (23CN54), located in Bull Creek watershed, was dug in 1938 and later reported by Lee Adams (1958:183-189). Swan Cave in the watershed of the same name was briefly mentioned by Perttula et al. (1982:196).

There are no modern, systematic archaeological surveys of sheltered sites in the state of Missouri, which is an obvious gap in the state plan for cultural resources (Weston and Welchman 1987). The SMSU rock shelter and cave survey project (Ray and Benn 1989) was designed to fill in this gap for a portion of the

James and White River watersheds located at the interface between the Springfield and Salem plateaus in southwest Missouri. Objectives of the survey were to determine the distribution and density of sheltered sites relative to environmental variables such as topography, aspect, and bedrock strata and to evaluate the impacts vandals and other historic disturbances have had on archaeological deposits in caves and rock shelters. The project produced a systematic site data used for the assessment of the conditions and rates of destruction of sheltered sites in the western Ozarks.

From early December 1988 to early March 1989 the SMSU survey of sheltered sites covered selected portions of Flat, Bull, and Swan creek drainage basins. These investigations included a literature search, records check, intensive pedestrian survey, inventory, and evaluation of 45 sheltered sites (Figures 3, 4, 5). The survey covered a total of 170 km (105 mi) and 42 spot checks in portions of Barry, Christian, Douglas, Stone, and Taney counties. The field reconnaissance consisted of twenty-nine continuous, linear transects: 7 in Flat Creek, 11 in Bull Creek, and 11 in Swan Creek. Supplementing the survey transects were the 42 spot checks of previously recorded sites and speleological records: 19 in Flat Creek, 10 in Bull Creek, and 13 in Swan Creek. Of the 42 spot checks, 18 resulted in the discovery of a new site or the relocation of a previously recorded site.

As a follow-up to the survey, Southwest Missouri State University sponsored a field school during the summer of 1990 with the goal of investigating 21 shelter sites qualifying for nomination to the National Register. Sites chosen for excavation came from a list of surveyed sites with intact deposits (Ray and Benn 1989:205). Some sites were in the Mark Twain National Forest (one of the field school's funding agencies); the rest on private land were available through permission of the their landowners. Investigations at each site entailed making a detailed map of the shelter and its surficial deposits, then excavating a one meter unit to expose buried layers and obtain a sample of cultural materials. Excavation recovery techniques included passing the soil matrix through one-quarter inch wire mesh, retaining soil samples for processing by flotation in the laboratory, and making detailed soil descriptions of shelter strata. Preliminary analysis of the excavated materials shows that most sites yielded diagnostic lithic artifacts from stratified contexts, and every site preserved organic remains (carbon, terrestrial snails and bones). This information will permit us to connect site functions to potential age and environmental contexts.

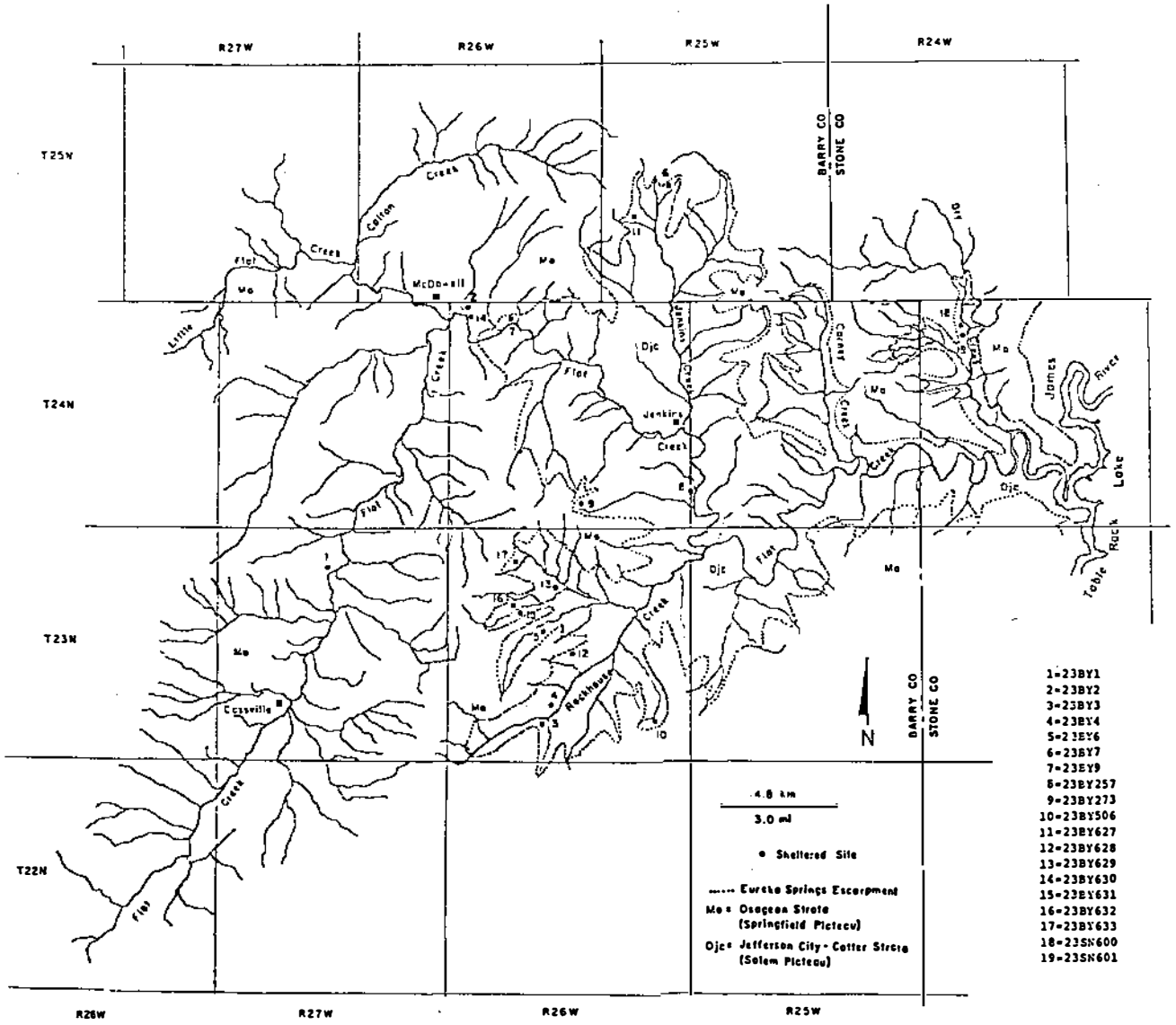

Figure 3. Distribution of sheltered sites in Flat Creek drainage basin.

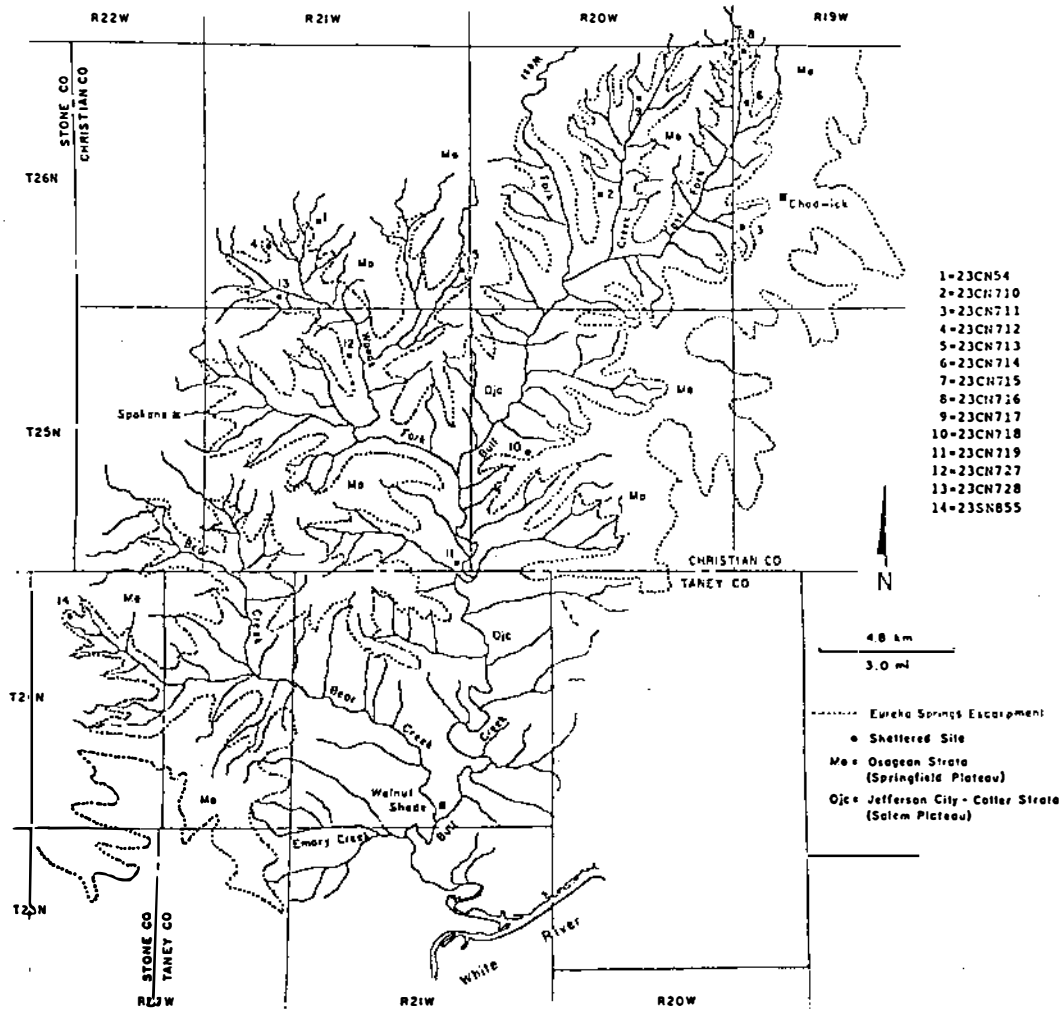

Figure 4. Distribution of sheltered sites in Bull Creek drainage basin.

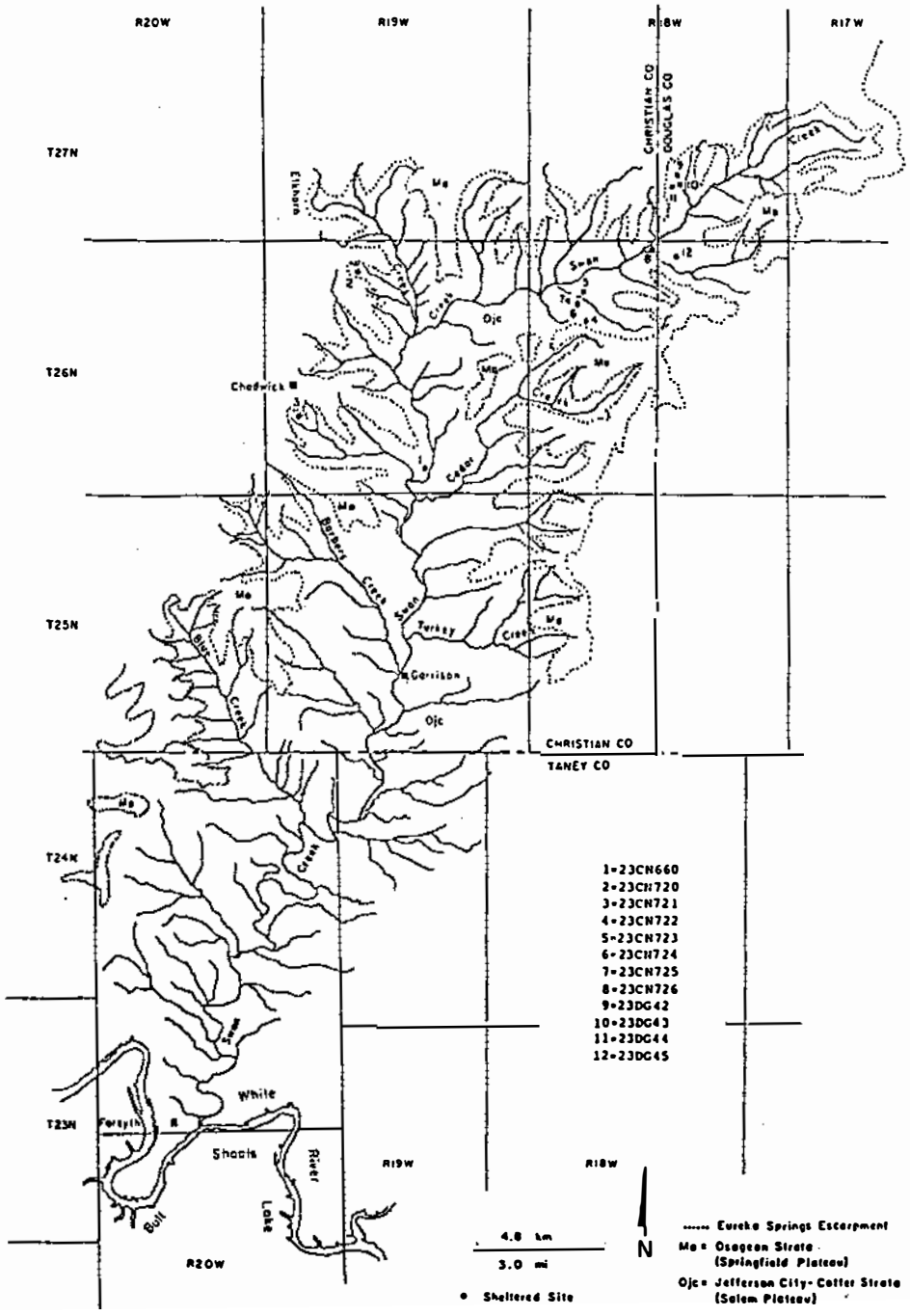

Figure 5. Distribution of sheltered sites in Swan Creek drainage basin.

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