

# Recordation Standards and Evaluation Guidelines for Stone Circle Sites

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**RECORDATION STANDARDS AND EVALUATION GUIDELINES FOR STONE  
CIRCLE SITES**

**INTRODUCTION**

As most recently chronicled in Deaver and Peterson (1999) the history of archaeological approaches to recording stone feature sites reveals a lack of consensus among cultural resource professionals as to the appropriate methods, as well as, the goals driving various approaches. We do not propose that the recommendations made herein for recording tipi rings represent a general consensus on methods. The bulletin does, however, respond to calls from consultants and agencies for a predictably acceptable level of standard site recordation for compliance purposes, and to 22-3-423 Montana Codes Annotated, which directs the MT SHPO to develop procedures and guidelines. Our recommendations represent compromise rather than consensus at this point.

MT SHPO advocates careful consideration of both the scientific and the historic values of stone circle sites, and the preservation of these values when possible. Where impacts can not be avoided, data collection serves to preserve some of those values, primarily scientific, to a degree. Our recordation recommendations attempt to balance the goals of preservation with other needs, recognizing that the surface features at stone circle sites have values separate from the artifacts and acknowledging that collection of all data at often overwhelmingly large sites is not always possible or desirable. The purpose of collecting the data recommended here is, in part, to standardize surface attribute data-sets in order to facilitate inter and intra -site pattern analysis. The contribution of this resource to our understanding of prehistory will likely depend upon a cumulative, consistent and detailed body of data collected on feature/site patterns and related artifacts within a landscape context.

As guidelines, our recommendations in no way absolve professionals from their responsibilities to approach each resource in a proactive rather than rote manner. Archaeologists are free, indeed expected, to develop site-specific research designs. "It should be recognized that creative and innovative research comes from archaeologists and not procedures (Aaberg 1996)." Research domains and data needs should also be reviewed and adjustments made to the standardized approach as our understandings

and needs change. Our current recommendations derive from two associated efforts.

First, in the summer of 1995 the MT SHPO funded a study of stone circle sites at the Benjamin Ranch near Shelby (Aaberg 1996). Two major goals were specified in the Scope of Work. The first goal was the recordation, evaluation and nomination to the National Register of a number of previously known stone circle sites, at the request of the owners. The second was the field-testing and critique of a number of surface attribute recording tasks and techniques. While the nominations and associated Multiple Property Document were subsequently placed on hold an interest in a standardized recording approach did continue to grow.

The second effort took place in January of 1998, when the Montana State Office of the BLM sponsored a stone ring workshop aimed at developing BLM guidance for inclusion in the MT BLM Handbook for Inventory and Compliance (H-8110). Tom Roll (MSU), Ken Deaver (Ethnoscience), John Brumley (Ethos Consultants) and Steve Aaberg (Aaberg Cultural Resource Consulting) were participants, Mitzi Rossillon (Renewable Technologies) facilitated, while Gary Smith (BLM), Jerry Clark (BLM) and Mark Baumler (MT SHPO) observed. BLM requirements for recording and evaluating stone circle sites were developed as a result, reflecting a mixture of both compromise and consensus among the expert participants.

Being committed to a more fruitful and consistent approach to recording ring sites the MT SHPO endorses the BLM efforts and hereby adopts with minor changes the recommendations for *recording* and *testing* stone circle sites. The SHPO recommendations for stone circle feature recordation are extracted directly from BLM H-8110 Draft 2001 except where *italicized*. *Italics* indicate a minor change by SHPO from the BLM requirements of which the reader should be aware, if they are operating under BLM permit or requirement. The following recordation procedures and accompanying forms (also developed by the BLM) should be used for recording all stone circle sites in Montana. Two phased levels of recordation (I. Inventory Phase and II. Testing Phase) are identified for sequentially collecting information about two different kinds of data 1) surface feature attributes and 2) artifacts/datable materials.

## Requirements for the Recordation of Archaeological Properties with Stone Circle Features (BLM/MT SHPO)

**I. Inventory Phase** - For sites containing stone features/tipi rings the following types of data should be collected for all identifiable features within an established site boundary: site map and feature attributes (in accordance with categories contained in section B.1.Generic Data). Investigators are also expected to complete, in addition to the generic ring data, the standard site form (*the standard site form could be any approved agency site form, preferably the State CRIS form*).

A. Site Maps - Sketch maps for each site should include at the minimum:

1. Site number, date, name of recorder, north arrow, and scale. Indicate orientation of map to magnetic and/or true north.
2. Sketch of locations of all features and artifact concentrations. Sketch should be to scale and based on *taped* distances and compass bearings.
3. Datum- identify and plot on sketch map a datum from which measurements or points can be referenced. A datum can be a stake placed in the site, a natural or cultural point (a natural boulder or a fence corner), or a center point of a stone ring. (*There may be situations where a datum is unnecessary such as use of GPS instrument mapping with less than .5 meter plus or minus accuracy, or inappropriate, such as in the case of Native American concerns. In either case the recorder should explain the rationale used for deciding on an appropriate course of action.*)
4. Modern features - plot modern features (such as roads, fencelines, and powerlines) on map to facilitate relocating sites and orientating viewer to features recorded.
5. Topographic and other natural features - plot distinct natural features like creeks or prominent boulders on map and sketch topography with approximations of contour lines.
6. Artifacts collected - plot (*tape and compass from datum or GPS*) all collected artifacts on map and label.

B. Feature Attributes - Feature maps; i.e., tipi quick maps are not necessary at the inventory phase. Generic attribute data should be recorded using the form provided and appended to the site form.

1. Generic Data (at a minimum, the following categories should be recorded for all features).
  - a. Ring Number (keyed to site sketch map).

- b. Ring Interior Diameter (*taped*). Record interior diameter (inside edge to inside edge) along the north-south line (0°- 180°) *and the east- west line (90° - 270°)*.

*These measurements must be taped.* It is somewhat subjective in that interior edges should be defined by stones most obviously within the ring. Stones which are part of the feature but have obviously been scattered beyond the best defined portions of the ring are not used to determine ring diameter.

- c. Rock Depth (using generic categories like deep, moderate, shallow).  
Rock depth is a visual observation.

“Deep” means the proportion of the most stones visible above the sod line is 25% or less. “Moderate” means the proportion of most stones visible above the sod is 25% to 75%. “Shallow” means the proportion of most stones visible above the sod line is more than 75%.

- d. Rock Count (number of visible stones that can be attributed to an individual ring).
- e. Gaps (note presence/absence of small breaks in wall). (*Cardinal orientation of gap should be noted - N, NW or SE etc.*)

A wall gap is defined here as a void between stones, which exceeds roughly 50cm and is less than 90° of the stone circle.

- f. Definition: Note whether the tipi ring has good, moderate, or poor definition.

Tipi ring definition is a subjective observation of feature distinctiveness of outline or detail, based on the number of stones and the spacing of stones. A feature with good definition generally has closely spaced stones. A feature with moderate definition has more widely spaced rocks but the feature has an obvious circular or oval shape. A feature with poor definition has gaps in the circumference and widely spaced stones.

- g. Shape: Note whether the tipi ring resembles a circle, oval, or has an irregular shape.

The shape of the feature is determined from a visual assessment. No measurements are taken. Irregular shapes include anything other than obviously circular or oval configurations. Features recorded as irregular may display subtle departures in shape from other tipi rings; e.g., flattened on one end, concave on one edge. Irregular shaped features are not

necessarily poorly defined features whose shape result from post-occupational disturbance.

- h. Configuration (note the completeness of ring in general categories of  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , full).

Tipi ring configuration is a visual observation. If feature stones form a  $360^\circ$  circle, regardless of the definition or number of stones, it is described as full. If a roughly  $90^\circ$  segment of the feature has no stones, it is  $\frac{3}{4}$ , if about 50% of a circle is present, it is  $\frac{1}{2}$  and if only 25% of the circle is present the feature is  $\frac{1}{4}$ .

- i. Associated Features (note number of features; i.e., cairns, clusters, hearths, internal rock features, pits, etc., and also the location in general categories, inside, outside, on wall).

Associated features should be no more than 2 meters outside of the wall of a stone ring. For purposes of completing the included form use the following operational definitions for features:

Cairns: A man-made pile of rocks.

Cluster: A pile of rocks located along and/or comprising a portion of the wall of a stone ring.

Hearths: An identifiable grouping of rocks which exhibit use as a hearth; e.g., rocks are fire cracked or reddened.

Internal Rock Feature: An identifiable group of rocks, function unknown, located inside a stone ring.

Pits: A man-made depression located within or outside of a stone ring.

- C. Cairns: Use the enclosed form. This form has categories for cairn number, definition, shape, diameter, height, sodding, surface rock count, rock type, and average rock size. Most categories required by this form are self explanatory with the exception of “definition” and “sodding.”

Definition: Subjective observation of feature distinctness delineated into the following categories of good, moderate and poor. A feature with good definition has closely spaced concentrated stones clearly visible on the landscape. Moderate definition has more widely spaced rocks, not quite as concentrated, and less apparent. A feature with poor definition has only a few rocks, is one course high, and the rocks are further apart.

Sodding: Subjective observation of degree of sodding divided into none, light, and heavy. None refers to features where the rocks at the base of the stones are exposed. Light describes features where

the base of the rocks are sodded. Heavy is limited to features where the base and a good portion of the stones are sodded.

- D. Alignments (plot feature on site sketch map and describe on site form in narrative form - length, number of markers and approximate distance between markers).
- E. Cultural Material (note the presence and approximate abundance for the following categories [None = 0, Sparse = 1-10, Moderate = 11-100, Abundant = 100+], for all the following artifact types for the site as a whole).
  - i. Fire-cracked Rock
  - ii. Bone
  - iii. Coarse-Grained Debitage
  - iv. Fine-Grained Debitage
  - v. Patterned Tools (note location in site or within feature).

*When impacts to stone ring sites can not be avoided, or when an eligibility determination is otherwise required, proceed to Phase II - Testing. Collecting information on the subsurface artifactual assemblage(s) and detailed surface feature attribute recordation is the first step in assessing stone ring site eligibility.*



Figure 1: Ring Divided into Octants - see II.A. below

**II. Testing Phase** - To determine a site's eligibility to the National Register additional data must be collected. The purpose of this information is to determine the probability of the presence or absence of essential data sets for specific research questions, and to acquire information that will allow the researcher to formulate an efficient and productive data recovery plan should a subsequent mitigation phase be necessary.

A. Detailed Data - For the evaluation phase, record at the detailed level, all rings within the direct impact area or, if a land exchange, all rings within the area proposed for exchange from Federal (*or State*) ownership (see the Ring Attribute Form Detailed Data).

Use site map requirements at Section I.A. Distances between rings, features, or artifact concentrations must be taped. The investigator may use GPS units or survey instruments in place of data derived from taped distances.

Collection of these data attributes requires the stone ring to be divided into eight 45 degree, pie-shaped segments or octants of equal size. Octants are defined according to compass orientation with 0 = magnetic north and sector lines drawn from the center of the ring to the following azimuth points: Octant 1; 0-45°, octant 2; 45-90°; octant 3; 90-135°, octant 4; 135-180°, octant 5; 180-225°, octant 6; 225-270°, octant 7; 270-315°, and octant 8; 315-360°. See figure 1 above.

For each ring subject to the detailed recording the following data should be recorded:

1. Ring Number (keyed to site sketch map).
2. Ring Diameter (4 inside and 4 outside diameter - measured, not just paced). Record N-S, NE-SW, E-W, SE-NW.
3. Wall attributes (record the following attributes by octant of ring wall)
  - a. Rock Count - A simple count of the number of rocks per octant. If one rock spans more than one octant count and include in just one octant.

- b. Stone Depth - Record the depth of a stone per Octant. Requires partial removal or disruption of the stone to obtain measurement.
  - c. Rock Size - Select a representative stone per Octant and measure its length.
  - d. Wall Gaps (record size and location of gaps in each octant).
  - e. Type of Coursing: Identify coursing - single, clustered, multiple
  - f. Associated Features (note type and location of associated features - azimuth, distance from center, inside or outside wall). Associated features must be no more than 2 m from ring wall.
  - g. Associated Artifacts (note presence and abundance categories, as for generic data, for all materials types and plot all artifacts collected). Artifacts must be located within the ring.
4. Additional Considerations. Note any unusual circumstances in setting, associations or feature attributes (*see Timmons 2001 below in references for useful FCR feature attribute recognition observations which will facilitate evaluation*) and include narrative analysis in the site evaluation section of the standard site form. Include the following considerations:
- a. Geographic Context - Compare the site to properties of the same type previously recorded in the region. This will require that the researcher conduct a file search for the area surrounding the newly reported site. This comparison will permit the researcher to state whether the site occurs in a typical or unusual setting, landform, distance to water, topography, *or plant community* for similar sites in this area.
  - b. *Formal tools and features not already plotted under 3 (i.e. that are not located within rings) should be recorded and plotted on the site map.*
  - c. *A minimum of one sample transect across the site within the APE should be conducted in order to quantify the nature, diversity and density of cultural materials outside rings. Describe the material, platform type, size grade, and reduction stage of lithic debitage. Describe the quantity, material and nature of FCR (heat spalled or rapidly cooled water fractured, terms defined below in references Rennie and Hughes 1999) etc. Locate transect on map.*
- B. Subsurface testing - *Sub-surface testing is not required for sites where avoidance will occur. While subsurface testing is a important element in determining the need to invest in additional mitigative artifact assemblage data recovery, subsurface artifact potential alone will not address the potential importance of stone features*

*themselves, or whether or not adequate data recovery has been achieved.* For most projects, subsurface testing will be restricted to the actual project impact area for a variety of reasons some related to land ownership but also due to the scope of the project. Therefore, a testing effort may only evaluate the *subsurface* potential of a portion of the site. These instructions recommend the excavation of 1 square meter per ring or a maximum of 20 square meters within the impact area. For testing projects, where there is no specific impact area; e.g., land exchanges, investigators should employ a sufficient number of formal units to determine eligibility. We recommend a minimum of 1 square meter per ring, to a maximum of 20 square meters per site, where the impact area cannot be clearly defined.

At a minimum, subsurface testing at stone feature sites should include the following elements:

1. Test units should be formal excavation units (such as 50 cm x 50 cm or 1 m x 1 m units), but the total area excavated must be *minimally* 1 square meter per ring in the impact area to a maximum of 20 square meters (see previous discussion). *Auger or shovel probes may be appropriate to investigate subsurface boundaries but only controlled formal excavation units should be placed within site boundaries and features.*
2. Testing should be conducted both within and between features in the impact area.
3. Test units should be dug as a single level to a depth of 2 cm to 3 cm below the feature stones to assure that the cultural level has been sampled *when the site occurs on a uniform upland glacial till landform.* In the very rare circumstance that the site or at least the impact area is deflated, and ring wall stones are 2 cm to 3 cm above ground surface (slightly pedestaled), subsurface testing may not be warranted and careful surface examination of artifact densities may be sufficient. *When the site is located on other than glacial till surfaces, the depth of the test units will depend on the depositional context and should likely proceed to at least one sterile level, i.e., to at least 20cm. While "many sites in northern Montana are characterized as occurring in rolling settings... Glacial terrain includes a variety of landforms and where specifically a site occurs could have implications for artifact preservation through deposition, explanations for site selection, potential for stratified deposits, and so forth (Aaberg 1996:37)."*
4. All sediment from test units should be screened through 1/4-inch mesh. *It is strongly recommended that where feasible investigators should use 1/8-inch mesh for all or a defined identified sampling of each test unit.*
5. If cairns occur within the impact area, a minimum of 1 square meter should be used to test one or more of these features.

6. Lithic material recovered from test units should be counted by material type (in some areas such as northern Montana it may be appropriate to lump all local fine grained material and simply count the number of fine versus coarse-grained debitage) and artifact type (flakes, shatter, cores, and patterned tools). The counts should be recorded by test unit provenience. All patterned tools should be identified as to type, material and provenience. *Given the guidance of the experts above it is strongly recommended that more detailed debitage recordation and analysis become standard - including minimally material type, platform type, reduction stage and size grade.*
7. Bone recovered from test units should be counted and identified (taxon, element) where possible. The counts should be recorded by provenience. *It is strongly recommended that bone and other organic samples be collected for C-14 or AMS analysis in this phase.*
8. Fire-cracked rock from test units should be counted and recorded by provenience. *(The following should be recorded for FCR - number of spalled and or rapid-cooled water fracture patterned fragments, hard or soft and/or material type, and size in 5cm increments minimally, See Rennie 2001.)*
9. If subsurface features are encountered in the test units, the feature fill should be collected and returned to the lab for further processing. In the field, the feature should be photographed or drawn and profiled. In the lab, the fill should be floated for macro-plant remains, a sample should be submitted for radiocarbon analysis if sufficient carbon *or other datable material* is present and all lithic, bone and FCR items should be tabulated and added to the counts for the appropriate test units.
10. Artifacts recovered from test units should be cataloged and curated to *professional* standards. FCR and stones used from construction of cairns or stone rings will generally not be saved for eventual curation.
11. *Scaled Feature plan maps i.e. "Tipi Quiks" or the equivalent should be made of all features when formal test units; i.e. units equal to or greater than 50 cm x 50 cm are employed within the feature. Scaled feature plan maps are also recommended for unusual features, such as medicine wheels, circles with interior alignments, etc. Photo boom generated Plan Maps are also acceptable.*

These stone ring site recordation and testing recommendations should be regarded as a minimum standard for collecting information relevant to Criterion D values. Possible Criteria A, B and C values must also be addressed in eligibility assessments. However, even for Criterion D values we do not propose a cookbook, or "one size fits all" approach for resolving eligibility. Rather eligibility should be considered in the context of *site specific* research designs, evocative qualities, cultural landscapes and Native American values.



## ELIGIBILITY CONSIDERATIONS

The BLM tipi ring workshop participants highlighted a number of current research interests relevant to assessments of information potential (i.e., Criterion D). The following paragraph is paraphrased from BLM Archaeologist Jerry Clark's "Summary Results from the Tipi Ring Symposium Bozeman, MT January 6-8, 1998," dated February 4, 1998:

Symposium observers noted that participants emphasized the need to understand the potential contribution of stone ring sites from the perspective of a "cumulative body of data collected from stone features across the glaciated plains. Less emphasis should be placed on absolute dating with more work on relative chronology and the use of feature patterns to find associations among tipi rings (Clark 1998)." It appears that the participants felt that the most important research domain involved the distribution of tipi rings on the landscape, and decision making related to the placement of rings within a site, and the site at a given location. Inter-site and intra-site feature distribution should be approached with both cultural and natural factors in mind, as well as, the relationship of the ring site to other site types (e.g. bison kills). The following are unranked research issues identified by the BLM symposium participants: What does variability in tipi ring size represent? (Here Clark pointed out participants were not interested in the old question revolving around horse verses pre-horse rings but rather intra-site questions such as contemporaneity). What were the general land use and resource distribution decision matrixes used by prehistoric peoples? What can be learned about prehistoric population demography, mobility, aggregation and dispersion factors from ring studies? Questions revolving around social organization, age and gender task areas, and intra-group proximics were identified as research areas. Participants' also noted traditional lithic technology analysis could be, and should be, tied to age, gender and activity areas with the resulting need for more micro-debitage data recovery.

The fact that stone circle sites as the primary representative of prehistoric habitation loci on the plains often "evoke strong feelings of association with past peoples and patterns of subsistence (Schwab and Bik 1994 IN Aagberg 1996:7)" was not explored as a quality of significance at the BLM symposium. Nonetheless, as a component of a cultural landscape and a possible Traditional Cultural Property we believe such values need to be considered at stone ring sites (see for example Aaberg 1996). Native American consultation should attempt to elicit those possible values as well as oral histories of particular ring sites. Examples include the Sits in the Middle site (24TL0212) at the Benjamin Ranch and the Lonesome Lake TCP District (24CH0348, 24CH748 and 24CH787) (Aaberg 1996, Boughton 1999 respectively).

For an archaeological site to be eligible for listing in the National Register under Criterion D, the potential to provide important information, information from that site must fit within a framework of important research questions, as well as, retain integrity of Location, Association and Material to the degree that data is preserved.

Under Criterion A, association with broad historical patterns, the site may be a type-site, or may have significant associations with on-going cultural traditions. In the latter case, information gathered from Native American consultants is requisite. Because archaeological sites have traditionally been included in the National Register if they have yielded, or have the potential to yield, information important to the understanding of the history or prehistory of the Montana the most appropriate context for an archaeological site eligibility evaluation is a *site specific* research design. Archaeological site reports should evaluate the potential of the site to yield important information by explicitly answering the following sorts of questions:

- 1) What kinds of data is the site **known** to contain? Discuss the major physical characteristics of the property. Describe and distinguish any contributing or non-contributing features (e.g., hearths, stone rings or alignments, FCR dumps, etc.). Address the following as appropriate: What types of artifacts were identified at the site? Are these datable or diagnostic finds? Can an assemblage (i.e. an inter-correlated group of artifacts) be identified? Can the artifacts or site formation processes be used to help establish a time frame for the site's occupation? What, if any oral history or written documentation is known?
- 2) What kinds of data might the site be reasonably **expected** to contain? Does the site contain a subsurface component? Is more subsurface testing necessary? Is the matrix and cultural deposition intact? Is there any indication that datable organics may be preserved? What types of oral documentation might exist for the site?
- 3) How does the known and expected data contribute to the general or specific understanding of the history or prehistory of Montana based on research needs or questions? Can the site contribute to our knowledge of settlement patterns, resource use, or inter-site patterns? Does the artifact assemblage have the ability to answer research questions on such topics as hunter-gather subsistence, lithic procurement or reduction strategies, trade, ethnicity, technological change, quality of life, consumer behavior, cultural values, etc? How is the site best understood in relation to other sites and or patterns?
- 4) Can the site be related to cultural historical contextual themes or questions such as differences between southern and northern McKean Complex hearth construction or Pelican Lake stone boiling patterns? Sites should be evaluated in terms of potential to add to our knowledge of cultural diversity and change through research questions tailored to individual site potentials.
- 5) What is the condition of the site and how does the site's condition affect its National Register significance? National Register integrity and intact cultural stratigraphy should not be assumed to be the same thing. Discuss the probable functions of the property during its uselife from the time of initial use or construction until its abandonment, noting the potential to analysis reuse, recycling or temporary abandonment episodes. Discuss site formation processes and subsequent land use history of the location, assessing impacts on the preservation of artifacts, features,

and other relevant data categories. Discuss any human impacts that have either enhanced or detracted from preservation. Remember, only the potential to yield important information is required for sites significant under Criterion D. Archaeological sites significant under D must retain integrity, in this sense must be intact, to that degree only.

For purposes of consideration, general questions can be organized into several Research Domains from which specific research interests or questions could be derived. The following scheme for example is patterned after Foor's Southwestern Montana Prehistoric Sites Draft Overview and Management Plan, prepared for the BLM and USFS (Foor 1994).

### ACHAEOLOGICAL SITE RESEARCH DOMAINS

The following are broad research areas from which specific questions could be developed from the information known about a site at the point of evaluating its potential contribution under Criterion D. There may be overlap, for example, A.2. and B.2.

#### Site Formation/Preservation Research Domain

1. What geological and biological processes can be identified in the formation and preservation of the site? Can the sedimentary or erosion sequence of the landform be identified and understood?
2. If cultural activity influenced the formation, preservation or impacts to the site formation process - can those events be documented? Have those activities affected all areas of cultural deposition uniformly?

#### Assemblage Research Domain

1. Can the materials and features at a site, and the activities they represent, be dated either relatively or "absolutely"?
2. Do those materials or features represent one, or more, periods of use; and if more than one can they be separated in space or chronology?
3. Can the material or feature patterns be compared to other local sites or inter-regional sites in a fashion so as to address inter-assemblage or intra-assemblage variation?
4. Do those materials or features have the potential to address questions regarding culture change processes - diffusion, innovation or syncretism?

#### Cultural Ecology Research Domain

1. During what season(s) of the year was the site occupied?
2. What information does the site potentially contain regarding environmental change?
3. What resources or other values brought humans to this site?

4. How has human use of the site changed through time and what effects have these uses had on the environment or site? Are there inter-site variations in human use by resource or site type, landform, or time period?
5. Does the site have the potential to add to our knowledge about the collection, processing, storage, and movement of resources?
6. Is there potential information regarding the movement or pattern of people's occupation of a landscape?
7. What could this site tell us about intercultural relationships or exchange?
8. How has the pattern of human demography changed?
9. Can changing settlement or use patterns be related to natural or cultural factors?
10. Are materials or features spatially patterned so that activity areas can be identified? How was space used? Did that use change through time, by season; is it different from similar sites in the region? Are there intra-regional variations that this site may help identify?

#### Traditional Cultural Property Research Domain

1. What values do on-going cultural traditions ascribe to the site?
2. What continuity or compatibility do ongoing cultural traditions recognize in the site?
3. Can oral or traditional or historical knowledge be related to the site?
4. How would archaeological data recovery affect those traditional values?

#### Model Building Research Domain

1. Given answers, or the potential to answer above questions, would conclusions support current understandings of cultural use, continuity and change, or are new models needed?

### **STONE CIRCLES- SOME QUESTIONS**

Many archaeologists believe that the answers for some if not many of the recurring questions about stone rings (or tipi rings) are either known or are not knowable (given the state of archaeology today). However for many professionals and certainly for our public many of the existing "answers" are not satisfactory or as clear-cut as some would have us believe. We offer a variety of questions here as a reminder of just how open the field of inquiry is, and just how broad the interest is in stone circle features sites.

#### Individual Ring/Household:

- Are rings frequently or rarely reused for occupation? Why?
- Are tipi ring constructions associated primarily with winter occupations? Only in particular areas?
- To what extent do rings reflect the exact size, shape, and construction of a tipi?
- Are specific kinds of rocks chosen for use in the construction of stone circles? Hearths? Sweat lodges?
- To what degree are stone circles a result of normative versus idiosyncratic behavior?

- Does stone density in a stone circle correspond most closely with prevailing wind direction and intensity?
- What activities occur within a stone circle?
- Are activities within a stone circle spatially patterned?
- How often, where, and when does microdebitage occur in stone circles? Are microdebitage assemblages consistent with macrolithic assemblages?
- What activities occur adjacent to stone circles?
- Are activities outside a stone circle spatially patterned?
- Are activities, as reflected by patterned cultural materials, inside and outside of stone circles oriented largely in relationship to the doorway location?
- In what direction does the opening of a tipi ring face? Why? Is doorway orientation associated with wind direction? What determines the number and placement of rocks in a stone circle?
- Are small rings (<3m) associated with sweat lodges or other specialized activities?
- Are large rings (>8m) associated with ceremonial or other non-domestic activities?
- Where are the most artifacts found in a ring (hearth, wall, opposite door, etc)? Why?
- Are interior hearths indications of winter occupation?
- What artifacts were curated to and from stone circle habitation sites?
- Are ethnographic estimates of number of persons/tipi valid for prehistoric stone circles?
- Are there seasonal variations in stone circle size, form, and material content? If mobility does not explain the use of round house forms, why are tipis so popular in Northwestern Plains prehistory?

#### Intra-site stone circle variation:

- Are large ring sites composed of multiple overlapping and/or contiguous small ring sites? Do the rings in large ring sites cluster in patterned ways indicative of discrete occupations (i.e. spatial patterning, relative depth of burial, density of stones, etc.)?
- Are large ring sites evidence of year-round or seasonal population aggregations? How do cairns function in relationship to rings?
- Do the activities undertaken within different rings at a site vary in kind or frequency?
- Are some rings non-domestic in nature? Where, when and why do these occur?
- What is the nature of camp arrangements? How and why do these occur and vary?
- Is there seasonal variation in stone circle site arrangements?
- Is there evidence of social stratification in ring size, form and contents? Why or why not?
- Are artifact assemblages found outside of rings different from those found within rings? How? Why?
- Which artifacts are discarded at tipi ring sites and which are not? Why?

#### Inter-site/Landscape stone circle variation:

- Where are ring sites located? Why? What are the most important environmental factors in ring site location (water, pests, wind direction/intensity, temperature, etc.)? Where are large ring sites located? Why?
- Where are small ring sites located? Why?

- What do single ring sites represent? Are the activities undertaken within single ring sites different in kind from those of multi-ring sites?
- Are different activities reflected at large ring sites versus small ring sites?
- Is the number of rings per site a single or multi-modal distribution? Why?
- Does stone circle site and/or feature density vary directly with utilized resources such as game, lithics, fuel, and water?)
- Does stone circle site location vary seasonally?
- Are tipi ring sites situated with respect to gathering more than to hunting?
- Do stone circle sites situated in areas of topographic heterogeneity differ in kind from those in areas of topographic homogeneity, or are there simply more of them?
- Do rings in the exposed uplands typically employ more stones than rings in the sheltered lowlands? Does the frequency of associated artifacts decrease from lowland to upland settings and, if so, does this reflect a decrease in occupation intensity or duration? Do ring sites in proximity to kill sites typically contain higher densities of cultural material than those that are not?
- Are stone circle sites located in proximity to “travel routes” different from those situated away from such routes?
- Are stone circle sites in Northern Montana substantially different from those in Southern Montana? Western Montana? Why or why not?
- To what extent can stone circle sites help to identify tipi ring habitations at sites without stone circles (e.g., “cultural material scatters”)?
- Are the artifact and feature assemblages of stone circle and non-circle habitation sites different? How? Why?

#### Chronology/Cultural Change/Culture Association:

- Are there stone circles older than McKean or Oxbow?
- Which “archaeological cultures” are associated with stone circle sites? Are there any Plains “archaeological cultures” after 4,000 B.P. that are not associated with stone circle sites?
- Does the settlement pattern of stone circle sites vary among different “archaeological cultures”? Ethnographically known cultures?
- Does the construction method of stone circles vary among different “archaeological” or ethnographic cultures?
- Are there periods of time when stone circles were more or less popular?
- How do stone circle sites reflect differences in the nature and degree of utilization of an area or region through time by different “archaeological cultures”?
- If tipi rings are part of a plains adaptation, why do they occur outside the plains?
- Can stone circle sites on the Plains representing seasonal visits by groups living in Western Montana be distinguished from those of year-round Plains residents? Are ethnographic models of tipi use consistent with stone circle data? Why are prehistoric rings seemingly indicative of less variation than historic accounts?
- What evidence is there of separate stone circle using cultural traditions represented by mobile bison hunters in the north and more sedentary and diversified collectors in the south?

- What does it mean to find a particular style of point on a tipi ring site? Are multiple point styles indicators of mixture or of recycling? Does one point = one time = one culture?
- Why are so few stone circles attributed to protohistoric occupations? When and why did the construction of stone circles for tipis end?
- Can different tribal identities be recognized?

## CONCLUSION

The minimum recordation and testing standards provided here are anticipated to add incrementally and cumulatively to our knowledge and understanding of stone circle sites. Recordation and testing alone will, of course, neither preserve many sites nor greatly increase our understanding of prehistory. Two recent successful data recovery efforts illustrate the productivity possible at stone circle excavations when extensive rather than minimal effort is expended. 24BH2317 which radiocarbon dated 3940 $\pm$ 60 BP (uncalibrated AMS) very likely "is presently the oldest dated tipi ring in Montana and the only one as probably constructed by McKean phase peoples (Brumley and Dickerson 2000:74)." 24GL0040 which dated to 170 $\pm$ 50 BP in a corrected conventional radiocarbon analysis, on the other hand likely represents the very latest protohistoric period (Lewarch et.al. 1998). In each case the sites appeared to be the very sort of tipi ring site often dismissed during recordation with no indication whatsoever that one was of the earliest periods of use while the other, the latest. In each case the responsible agency pursued a careful phased assessment, which ultimately lead to a commitment for extensive data recovery. While artifact densities were indeed low, important environmental and behavioral information was recovered at both sites. Sometime ago Davis made the observation that "Perhaps a key to understanding tipi rings lies in interpreting the data represented by the observed paucity of associated cultural materials (1983:1-3)." Beyond the need for more careful recordation, assessment and, where warranted, subsequent extensive recovery of site attribute and artifactual data as advocated here, stone circle sites also provide "a greater and arguably more representative distribution of habitation sites than any other site type defined on the Northern Plains - and possibly the United States (Deaver and Peterson 1999: 4-48)." Investigation of settlement strategies built on the consistent collection of comparable data sets, will likely, as the BLM symposium experts concluded, be more fruitful than isolated individual site recovery strategies alone.

Finally, and although these standards largely address criterion D values, the associative values of rings sites can not be ignored for stone circles signify "a former way of life in the plains and the mountains and, at the same time symbolizes the struggle by Native Americans to preserve, sustain, and nourish traditional cultural practices (Davis 1985:27)."

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1999 *The Results of the Archaeological Investigations in the Quinn Creek Sites (24JF110 and 24JF111)*. Montana Dept. of Natural Resources and Conservation. DNRC Project No. 99-3-3.

"1)Water Fractured: From a side view fracture lines tend to appear sinuous or

jagged. In plan view, fracture plane surfaces tend to appear rough, hackly or undulating...pieces tend to be blocky ...not flake like. This fracture pattern is generally interpreted as resulting from stone boiling where heated stones fracture while immersed in water.

2) Heat Spalled: From a side view heat spalled fractures tend to appear flat, concave or convex. In plan view fracture plane surfaces tend to appear smooth. Heat spalled fractures tends to produce generally straight and or sharp edges that continue for long stretches without being interrupted by perpendicular fractures. Heat spalled pieces can superficially resemble flakes...but exhibit no evidence of flake manufacture such as platforms, bulbs of percussion, or radial lines...Heat spalled fracture is generally interpreted a resulting from stones heated more on one surface than another, but does not indicate stone boiling activities.

3) Bedding Fracture: Characterized by fracture surfaces that follow bedding planes or pre-existing faults in the stone...and can result under either set of the conditions that create the other two fracture types (Rennie and Hughes 1999:35)."

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Following Timmons 1) - 7) are recommended observations useful in recognition and integrity assessment of eroding FCR features. While developed for inundation/draw down effects they have general utility. They are summarized and taken out of context here:

- 1) Density of FCR/sq. m, more than 15/m implies FCR not scattered
  - 2)Wide range in fragment size from under 1cm to more than 10cm implies no sorting
  - 3) FCR supported by other FCR implies feature may be articulated
  - 4) FCR refits or fracturing in place, implies articulation
  - 5) Absence of fine wind blown sediments under FCR - implies recent exposure
  - 6) Any calcium carbonate is on bottom of FCR, implies FCR has not been turned over
  - 7) Presence of under 2cm bone or flakes - implies lack of sheet washing
- (Timmons 2001: 10-11)





