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United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

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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 Paleo-Indian Cultures of the Colorado Plains, ca. 11,500-7500 BP

B. Associated Historic Contexts

Sub-context: Clovis Culture: 11,500-11,000 B.P.
Sub-context: Folsom Culture: 11,000-10,000 B.P.
Sub-context: Plano Culture: 10,000-7500 B.P.

C. Geographical Data

The Plains Region of Colorado is that area of the state within the Great Plains Physiographic Province, comprising most of the eastern half of the state (Figure 1). The Colorado Plains is bounded on the north, east and south by the Colorado State Line. On the west, it is bounded by the foothills of the Rocky Mountains.

☐ 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.

Barbara Sudler — 6-6-90
Signature of certifying official — Date

State Historic Preservation Office
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.

John Jr Kneed — 7/18/90
Signature of the Keeper of the National Register — Date

Introduction

The Paleo-Indian Stage extends from at least 11,500 years ago to 7,500 - 8000 years ago. The stage begins with the initial human occupation of North America towards the end of the Pleistocene (ice age) Epoch, and includes the beginning of the Holocene (recent) Epoch. Humans living during this time are often characterized as "Big Game Hunters" (e.g. Jennings 1974), due to the association of distinctive projectile points with large mammals, including several species of Pleistocene megafauna which became extinct during the period. This characterization is somewhat misleading, and is in part due to the nature of the archaeological record for the Paleo-Indian Stage. The antiquity of the period and intervening transformational processes limit the preservation of cultural deposits to the most durable material, primarily stone and bone. These factors also constrain the number, condition, and type of sites available for study. The most prevalent site type, and the first discovered Paleo-Indian sites are kill/butcher sites, generally consisting of the skeletal remnants of numbers of large mammals and the stone tools used to kill and process the animals. Habitation sites, while not common, do contain evidence that an array of faunal and floral resources were utilized, including small fauna. Nonetheless, technological change indicated by differing styles of projectile points, sometimes coupled with changes in the species of associated large mammals, is the basis for definition of cultural complexes during the Paleo-Indian Stage.

Most of the sites which contain definite evidence of the association of Paleo-Indians with extinct megafauna are located in the Great Plains. The plains of Colorado are in the central western portion of the Great Plains, and contain many important Paleo-Indian sites. The central position of the Colorado plains makes them pivotal to an understanding of Paleo-Indian culture history and process.

The Paleo-Indian Stage in Colorado has been divided into three periods, discussed below as sub-contexts. The Clovis culture, appearing at ca. 11,500 B.P., is the earliest undisputed occupation of North America. There is some potential that an earlier human occupation of North America will be defined in the future. The Clovis period is followed by the Folsom period, and the two span the end of the Pleistocene. Both cultures are marked by diagnostic lanceolate spear points which are fluted. The differences between Folsom and Clovis points are generally readily discernible. The Clovis culture is associated with mammoth, horse, and other

Pleistocene megafauna. Folsom sites are associated with extinct forms of bison.

The Holocene Paleo-Indian period is termed the Plano. The Plano cultures produced large, parallel or oblique flaked unfluted lanceolate spear or dart points. Associated mammal remains include extinct forms of bison and modern taxa. The Clovis and Folsom cultures were apparently continuous across the Great Plains, and essentially continent wide. Post-Pleistocene culture history diverges for the southern plains and the northern or northwestern plains. The southern plains has two well accepted cultural complexes (Plainview and Firstview), while the northwestern plains has five or more (Agate Basin, Hell Gap, Alberta, Cody, and Frederick). The differing yet contemporaneous northern and southern plains Plano cultures share a boundary or interface in northern Colorado.

The Paleo-Indian Stage ends sometime around 7500-8000 B.P. with a technological shift from lanceolate projectile points to side-notched and stemmed Archaic Stage styles. At this time, only modern fauna are present on sites.

Setting:

The Great Plains physiographic province extends from central Canada to central Texas and from the Front Range of the Rocky Mountains to the eastern forests. The portion of Colorado in the plains includes approximately half the state, from the Rocky Mountains on the west to the state boundaries on the north, east, and south (Figure 1). The Colorado plains occupy the central western portion of the Great Plains. Some authors classify Colorado as part of the Central Plains (Wedel 1961, Greiser 1985, Gunnerson 1987), while others divide it between the northwestern and southern plains (Frison 1978, Bamforth 1988). There is no formally recognized topographic or hydrologic boundary between the southern and northern plains. The Colorado plains are drained by two major river systems which originate in the Rocky Mountains - the South Platte drains the northern portion of the Colorado plains, and the Arkansas drains the southern portion. The headwaters of the Republican and Smoky Hill rivers drain the central eastern portion of the state.

Elevation of the Colorado plains generally ranges from 3386 feet in the southeast corner to 5400 feet along the Front Range, although the divide between the Platte and Arkansas rivers reaches a maximum elevation of 7500 feet. The Colorado plains are characterized as short-grass prairie. The short-grass prairie receives from 12-16 inches of annual precipitation. Vegetation is dominated by Bouteloua and Buchloe, (grama and buffalo grass), with numerous other grasses, forbs, and succulents present. Cottonwood and willow are found along drainages, and topographic irregularities such as Pawnee Buttes, Cedar Point, and Two Buttes support woodlands dominated by pines and junipers, thought to be relicts. The Platte/Arkansas divide supports a Ponderosa Pine forest. Junipers grow on the higher elevations of hills and canyon rims in the southeast portion of the Colorado Plains.

Studies of the paleo-environment during the late Pleistocene and early Holocene indicate that the Great Plains were substantially wetter and cooler than today (cf. Bamforth 1988, Dort and Jones 1970, Wells 1970, Wendorf and Hester 1975). A study of lakes in the Front Range of the Colorado Rockies indicates that the ice age alpine glaciers and permanent snow fields had retreated to essentially their present positions by ca. 12,500 B.P. (Pennak 1963). Away from the mountains, continental glacial cover was restricted to the northern plains states during the ice age, but the cooling effect of glacial activity reduced the elevation lines for many plant species, pushing northern deciduous and coniferous trees south onto the plains. Since the end of the ice age, the climate on the plains has, with some variation, gone through continuous change to a warmer and drier state. The types of plants found in the plains from 11,500 - 7500 B.P. are generally the same as the potential natural vegetation for the present, however the plant associations and densities certainly differed. By most accounts, the plains were open grasslands, and not heavily forested. Wooded areas were more common than are present today, and occurred along water sources such as terrace and playa edges, and around physiographic features like ridges, buttes, and other topographic irregularities.

The major biotic event which accompanied this period of warming and drying was the extinction of a number of species of mammalian megafauna. The extent to which Paleo-Indian hunters contributed to extinctions is unknown but widely debated. Also unknown and in need of further study are the types of adjustments which took place in plains ecosystems with the elimination of the

megafauna, and the effect of those ecosystem adjustments on Paleo-Indian adaptations.

Bamforth's recent reconstruction of southern plains paleoenvironmental changes indicates that as the climate became warmer and drier, overall forage production declined. Forage for ungulates became progressively concentrated in a shorter period of the year (seasonal), and more spatially erratic and variable. Megafaunal extinctions reduced the abundance and dispersion of available animals in a given region. The climatic effect on bison was that individual bison became smaller and smaller through time, but apparently aggregated into larger and larger herds and became more mobile (Bamforth 1988:148-149).

Current Status of the Pre-Clovis Sub-Context

The advent of human occupation of the western hemisphere has been and continues to be a complex issue which stimulates much attention, research, and controversy. A long history of investigations at possible pre-Clovis sites in North America has failed to locate any undisputed pre-Clovis components. Currently, the best data supporting a pre-Clovis occupation in North America is from Meadowcroft Rockshelter in Pennsylvania (Adovasio et al. 1980). Carefully controlled excavations at Meadowcroft have produced a series of internally consistent radiocarbon dates, with associated artifacts, indicating human occupation of the shelter from 13,000 to 16,000 years ago. Among the artifacts from the early levels is an unfluted lanceolate projectile point.

A few sites in South America also provide intriguing evidence for a pre-12,000 B.P. occupation. Monte Verde in Chile and Taima-taima in Venezuela apparently contain deposits which are older than the Clovis complex of North America. At Taima-taima, El Jobo complex artifacts are associated with a butchered mastodon, with a minimum date of 13,000 years B.P. (Bryan et al. 1978). El Jobo projectile points are unfluted lanceolate forms. The Clovis complex does not occur in South America.

Meltzer (1989) has recently examined many of the theoretical and substantive issues involved with defining a pre-Clovis occupation of the Americas. He acknowledges that a pre-12,000 B.P. human occupation of North America does not now exist publicly (1989:471). Meltzer also points out that while there is currently no compelling evidence for a pre-Clovis or pre-12,000 B.P.

migration, there is also no compelling reason to deny a pre-Clovis occupation (1989:484).

There has been a recent spate of research in portions of North America on a possible pre-Clovis culture. Much of the research has taken place in Alaska and the Yukon, since the Bering Strait is the acknowledged path of entry into the new world. Three sites in the Colorado plains have played a large role in this research: Selby (5YM36), Dutton (5YM37), and Lamb Spring (5DA83). The heightened effort to locate pre-Clovis materials stemmed from the discovery of an undisputed human artifact, a flesher made of caribou bone, in the Canadian Yukon. The bone was mineralized, and dated to 25,000-30,000 years B.P. (Irving and Harrington 1973). Subsequent investigations in the Yukon located other definite megafaunal bone artifacts and butchered bones, although none of the material was located in an in situ primary context.

This apparent bone-tool culture, present in North America at such an early date, coupled with the fact of bone-tool technology as an adjunct to lithic technology in the Clovis and later Paleo-Indian cultures, led researchers with the Smithsonian Institution to examine Pleistocene bone fragments at plains sites in greater detail. The Dutton, Selby, and Lamb Spring sites all contained deposits of Pleistocene fauna in strata older than 12,000 B.P. At the Dutton site deposits were below a level with Clovis age artifacts, and at Lamb Spring the deposits were below a Plano bison kill, in a level dated to ca. 13,000 years ago. All three sites contained bone fragments which were possibly modified by humans. Some of the faunal remains had green bone spiral fractures, polish, edge rounding, striations, or impact depressions. Bone flakes and "cores" were present in two concentrations at Lamb Spring. The contention was made that some of the modified bones were bone expedience tools and the byproducts of manufacture and resharpening of expedience tools (Stanford 1979:120, Stanford et al. 1981a:23). This assertion was based in part on replicative experiments (Stanford et al. 1981b). Stanford recognized that all the modified bone from these sites falls into a grey area, with the attributes characteristic of modification either by humans or by natural agencies (1982:69).

Greatly increasing the likelihood that the modified bones from the Colorado sites are the product of natural formation processes is the recent collapse of the foundation for a pre-Clovis bone-tool technology in North America. The bone artifacts from the Yukon, including the fossilized caribou flesher, have been reevaluated.

New radiocarbon dates indicate the artifacts are less than 2000 years old (Nelson et al. 1986).

The criteria necessary to accept a site as a pre-Clovis manifestation are indisputable cultural material (artifacts or human bones) in an undisturbed primary context, with clearly defined stratigraphy or geological association, with secure and reliable associated absolute dates. As Meltzer (1989) pointed out, one site meeting these criteria will suffice to prove the case for a pre-Clovis occupation.

Sub-Context: Clovis Period (11,500 - 11,000 B.P.)

The first well-defined culture in the New World, and in the Colorado Plains, is the Clovis complex. Remains associated with the Clovis complex are rare, but are found throughout North America, including all 49 continental states of the U.S., and Canada and Mexico (Wormington 1957:42, 64-84, Greiser 1985:54). Clovis remains have not been found in South America. This culture is also sometimes called the Llano complex, named for its appearance on the Llano Estacado of Texas and New Mexico (Sellards 1952).

Origins of the Clovis culture are still debated. It may have derived from a previous North American complex, or undergone basic development in Siberia. The archaeology of Siberia is poorly known. Clovis Fluted Points are the diagnostic artifact of the period (Figure 2). Specimens are basally ground, basally concave, and usually between three and six inches long (Jennings 1974:83). It is often pointed out that the technique of fluting is a new world development. Unfluted or basally thinned points which are otherwise similar to Clovis points have been found in association with Clovis points outside of Colorado (Eighmy 1984:35).

Because so few Clovis sites have been identified, much of our knowledge of the culture comes from Blackwater Draw Locality #1 in New Mexico, the type site for the Clovis complex, and other sites on the Llano Estacado of New Mexico (Hester et al. 1972, Hester 1975). In addition to fluted points, tools associated with the Clovis complex include stone scrapers, blades struck from cores, gravers, hammerstones, flake knives, unifacial and bifacial knives, choppers, hammers, grinding stones, and bone artifacts. At Blackwater Draw two polished bone pieces which are considered to be probable projectile points were also recovered. Ivory and bone

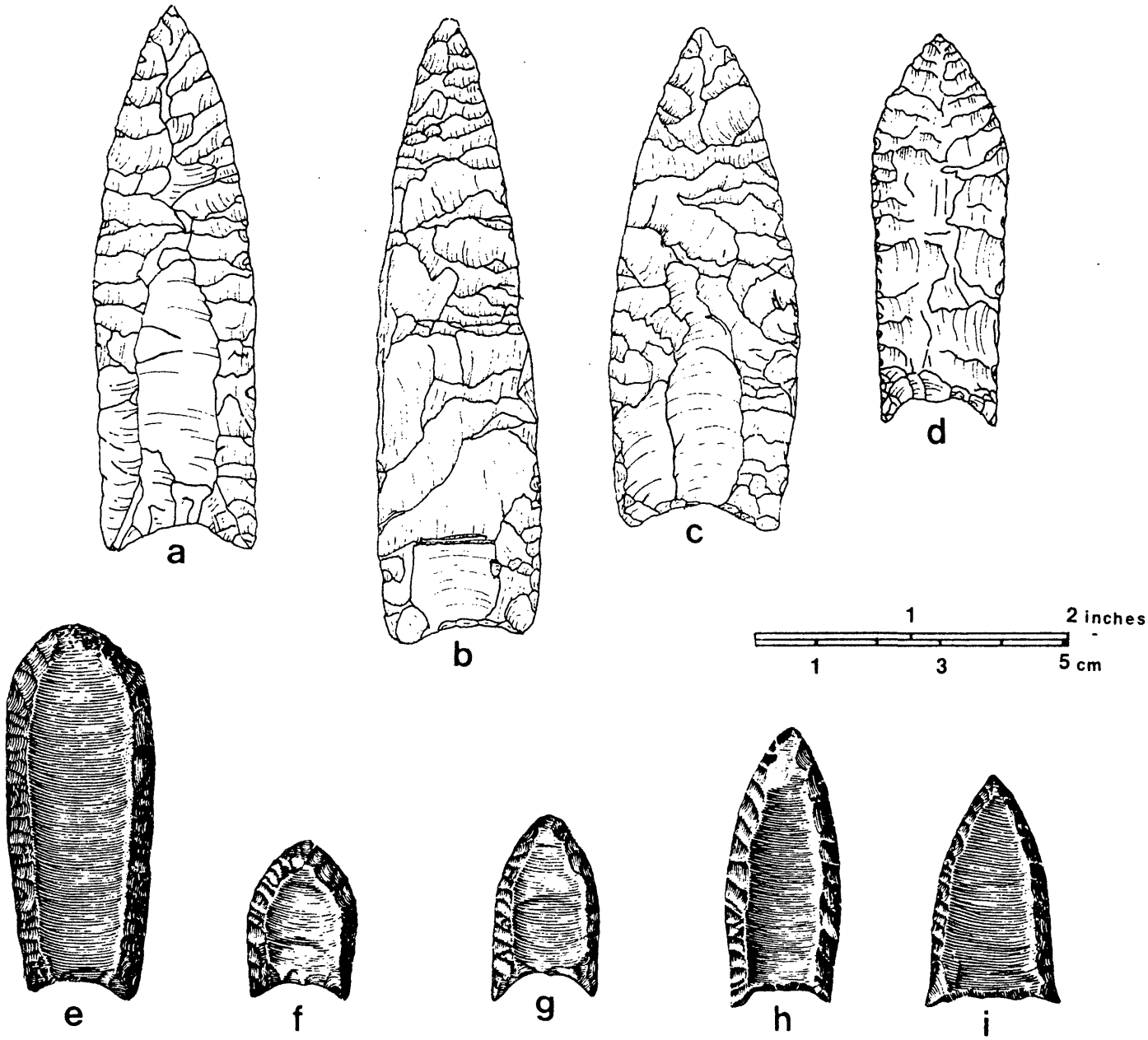

Figure 2. Diagnostic artifacts of the Clovis and Folsom complexes. a: characteristic Clovis point, b-c: Clovis points from the Dent Site, d: Midland point, e-i: Folsom points from Lindenmeier (a-d are after Wormington 1957; e-i from Wilmsen and Roberts 1978).

foreshafts and points have also been recovered from the northwestern plains (Frison 1983). Clovis economy was based on hunting, and Clovis camp and kill sites are often associated with mammoth remains, although other fauna were utilized. Sites were often located next to water sources, and bog traps for mammoths were used. Clovis peoples used high quality lithic materials, from widely separated sources. Clovis bands were probably small, perhaps averaging two dozen members.

In addition to the Clovis kill and camp sites in New Mexico, Clovis kill and camp sites are known from Arizona (Naco, Lehner, Leikem, and Murray Springs sites) and Oklahoma (Domebo site). Two sites in Wyoming are regarded as Clovis. The Sheaman site is a Clovis camp (Shaw and Frison 1979), and the Colby site, a processing site, contained two piles of stacked mammoth bones, one with a Clovis point under the lowest bones. The bone stacks may represent meat caches (Frison 1976, 1978).

Surface finds of Clovis Fluted Points are not uncommon throughout the Plains Region. Surface collections of Clovis material in Colorado are known from the Hahn site (5EP1), Bijou Creek, 5MR338, and the Klein II site (5WL1368). Testing at the Klein II site has not located subsurface Clovis material. On the Colorado plains, Clovis sites with intact deposits are so far limited to northeastern portion of the state: the Dutton and Claypool sites in far eastern Colorado, the Drake Cache site west of Sterling, and Dent and possibly the Fox site on the Kersey Terrace, near Greeley (Figure 1). Excavation has been conducted at the Dent, Dutton, Claypool, and Drake Cache sites.

The Claypool site (5WL18) is a deflated multi-component site in a dunal area around a playa. Two Clovis points were recovered by Bert Mountain, who also found a mammoth skeleton eroding from a marl deposit in the 1950's. Investigations at the site by the Smithsonian institution indicate the mammoth bones and Clovis points may have been contemporaneous (Stanford and Albanese 1975).

The upper level at the Dutton site (5YM37) contains materials which Stanford (1979:115-116) identified as belonging to the Llano [or Clovis] complex. A Clovis projectile point, a horse tooth and a chert flake were found in the spoil dirt from construction activity at the site. The soil matrix still adhering to these three items was from a level which, during excavation, produced additional Clovis material: a chert core-chopper, two plano-convex scrapers, a retouched flake, bone fragments, and pressure retouch

flakes. The flake found in the spoil dirt pile fit onto the core, providing a clear association of the Clovis point with that level (Stanford 1979:115-116). Radiocarbon dates of 11,170±150 and 7880±150 years B.P. were obtained from mammoth bone collagen from the level just below the Clovis component (Gunnerson 1987:10-12). Stanford's excavations were directed at the pre-Clovis level, and it remains undetermined whether the Dutton Clovis component is a kill site or camp site.

Two known property types currently exists for the Clovis complex in the Colorado Plains region: kill sites and cache sites.

Property Type: Clovis Sites
Sub-Property Type: Kill Site

Cassells states that Clovis kill sites are usually found along tributaries of major streams in areas of ponded or slow moving water. Mammoths were likely killed with spears while they were bogged down in mud (Cassells 1983:44). The Dent site, the original Clovis find, is at the mouth of a small gully where a small drainage joined the South Platte River. The site was excavated in 1932 by Regis College and the Denver Museum of Natural History.

Example: The Dent Site (5WL269)

The Dent site contained the remains of one male mammoth and 11 female, mostly immature mammoths. Two Clovis points were found in situ, indisputably associated with the mammoth bones. This was the first accepted evidence of human artifacts associated with mammoth (Figgins 1933). A third fragment of a point or knife was also located at the site, and a scraper of the same material as one of the points was recovered from the bluff above the site. The site has been dated to 11,200 B.P. There has been some discussion as to whether the site is actually a kill site or not (cf. Cassells 1983:45-49). The material at the site is secondarily deposited, but the primary site of deposition could not have been far away. All of the material at the site, including the cultural material, was secondarily deposited together. Cassells attempts to explain the presence of the points as coincidence. One or more of the mammoths had been speared during a failed hunt, and carried the points until a later catastrophe unrelated to humans caused death. Recent investigations at the site indicate that there could have been a bog-like ford present, affording the opportunity for a Clovis trap. The group of mammoths is a classic matriarchal herd

unit. The three points all exhibit butchering use-wear (B. Brunswig, personal communication). It thus seems more likely that the Dent site is in fact a kill site, where a matriarchal herd was trapped in a backwater, dispatched by Clovis hunters, and primary butchering was completed.

Sub-Property Type: Cache Site

Only one Clovis cache site has been identified in the Plains Region of Colorado. This is the Drake Cache site, also known as the Piel site, located about 12 miles northwest of the South Platte River on a low ridge overlooking two small playas.

Example: The Drake Cache (5LO24)

The Drake Cache, or Piel site, consisted of a pit containing 12 Clovis points. C.O. Drake, a local collector, discovered the site and recovered the projectile points which were reported to be made of Alibates dolomite and covered with a heavy coat of red ocher. The points were found in a small prepared pit which measured no more than five feet on a side and also contained small chunks of ivory in association with the projectile points. The points were immediately under the surface, with one sticking straight up through the surface.

Information regarding the site is very limited. According to data in the state site files, Mr. Drake reported the site to a local archaeologist who informed the Office of Public and Contract Archaeology (OPCA), University of Northern Colorado. Bruce Lutz of OPCA conducted test excavations at the site in January of 1978. There is no professional report of this excavation, but on the site inventory record Lutz reported finding several artifacts on the surface which may or may not have been associated with the cache, but no subsurface remains. Dennis Stanford of the Smithsonian has casts of the projectile points.

Significance

Clovis sites in the Plains Region of Colorado are very important to our understanding of New World prehistory and therefore, those sites which contain data on relevant research questions, (or which have yielded data important to our

understanding of prehistory) are considered nationally significant sites and eligible for inclusion on the National Register of Historic Places under Criterion D. At present, kill sites and cache sites are the only known Clovis property types in the Colorado Plains region. Additional site types, which are yet undiscovered in this region, may include camp sites, butchering sites, quarries, and burial sites.

Kill sites of the Clovis complex can provide researchers with important information on prehistoric subsistence, hunting and butchering technology, and seasonality. They can also provide researchers with much needed chronometric dates and stratigraphic information which can further refine the age and duration of the period. Cache sites, such as the Drake Cache site, can provide us with additional information on projectile point or other tool technology and manufacture. They can also be very important in their potential to provide information on Clovis complex social or ritual behavior based on the nature and treatment of cached items.

There are only three or four Clovis sites in the Colorado plains with intact cultural deposits, all in northeastern Colorado. Due to the scarcity of these sites, even small Paleo-Indian sites or sites which are severely deflated have potential for providing important information. In addition, all property types, including isolated finds, are important in furthering our understanding of Paleo-Indian settlement systems and site distribution.

A number of important research problems for the Clovis sub-context were presented by Eighmy (1984:47-48) in "The Colorado Plains Prehistoric Context", and the following list contains those problems as well as others suggested by additional research.

Research Problems for Clovis Complex Sites:

1. The age and duration of the Clovis Complex and the antiquity of man in the New World.

2. The relationship between environmental and cultural changes during the Clovis Period.

3. Seasonality of kill sites.

4. Lithic source identification, utilization, and distribution.

5. Clovis Period subsistence.

6. Formation processes of Clovis sites, the rate of site destruction, and nature of site transformations.

7. The extent to which Clovis hunting practices affected the extinction of the mammoth on the plains.

8. The origin of the Clovis Complex: whether it evolved in North America from a previous unspecialized complex, or originated in the Old World and spread rapidly through North America after the entrance of man.

9. Clovis complex ritual and belief systems.

10. Social organization of Clovis peoples.

Registration

There are very few Clovis sites in eastern Colorado. The data base is severely constrained, and has apparently been limited to the property types most easily preserved. Clovis sites are important resources at either the local, state, or national level of significance, and almost all have potential for yielding information useful in the study of important research problems.

Nationally significant Clovis sites contain the potential to yield important information on the prehistory of the region, as well as on the development of culture in the New World. Only two property types are currently known for the Colorado Plains region: kill and cache sites.

Because they are so rare, all Clovis sites with intact cultural deposits are eligible for inclusion on the National Register of Historic Places. Intact cultural deposits are buried, relatively undisturbed remains of indisputable artifacts, human bone, butchered animal bone, or remains which are securely dated. Those sites with undisturbed, stratified (or single component) deposits will of course contain the greatest potential for addressing a wide range of research questions. Clovis sites from which all data has been removed, through complete excavation, should generally be considered not eligible, even though they have

yielded information important to prehistory. Exceptions to this might be important sites which retain their integrity of setting even after excavation.

Most known Paleo-Indian sites in the Plains Region of Colorado have been exposed by wind or water erosion, and have been collected by amateurs. Clovis sites which have been disturbed through surface collection and/or excavation (by collectors or professionals) may still have intact remains which are not disturbed, and unless it is clear that all cultural material has been removed (e.g., the site has been bulldozed), they should also be considered eligible. Many Paleo-Indian sites are located on deflated dunes, or are secondarily deposited and may have lost contextual information, but for such sites the excavation and recovery of artifacts can still provide professionals with information on technology, tool kits, lithic material sources and distribution, provided materials from different cultural complexes are not mixed. These sites, therefore, are also eligible for inclusion on the National Register.

Diagnostic Paleo-Indian artifacts are sometimes found on sites with later prehistoric artifacts (Archaic or Late Prehistoric), without surface indication of a separate Paleo-Indian component. These sites should be considered potentially eligible until testing can be conducted to determine if there is a separate Clovis component present. If no specific Paleo-Indian component is present, the artifacts from this period do not meet the requirements for registration as a National Register property.

Clovis points which are found without other associated material are called isolated finds. Isolated finds do not, by definition, contain any potential for buried or undisturbed cultural material. They are rarely, if ever, left in situ and are not eligible for inclusion on the National Register of Historic Places. They do, however, contain information on technology, lithic materials used, and the distribution of various Paleo-Indian complexes.

Sub-Context: Folsom Period (11,000 - 10,000 B.P.)

Evidence of the Folsom complex appears in the High Plains at ca. 11,000 B.P., by which time the mammoth was extinct. The complex disappeared sometime slightly before 10,000 B.P.. Folsom peoples

specialized in the hunting of Bison antiquus with fluted projectile points which are smaller and of finer workmanship than Clovis points (Wormington 1957:29,30).

Sites of the Folsom complex are identified by the presence of diagnostic Folsom Fluted Points (Figure 2e-i); finely retouched, basally concave and basally ground projectile points under three inches in length, with long flutes extending almost the entire length of the blade (Eighmy 1984:38). Unfluted projectile points which are otherwise identical to Folsom points, are called Midland Points (Figure 2d). They are sometimes found together with Folsom Fluted points, and the two point types are generally considered to be contemporaneous. Sites with Midland points are however taxonomically placed in the "Midland complex" (Gunnerson 1987:15-16), and the relationship between the two complexes is unresolved.

A great variety of lithic tools are associated with the Folsom complex (Figure 3): At the Lindenmeier Site, associated artifacts included channel flakes, knives, flake knives, gravers, spokeshaves, end scrapers, side scrapers, stone drills, burin-like pieces, choppers, abrading stones, pigments and pigment grinding stones. Bone tools such as awls, pointed ribs, beads, needles and engraved pieces were also present (Wilmsen and Roberts 1978). Faunal species recovered from Lindenmeier indicate that in addition to bison, pronghorn, deer, camel, rabbit, fox, wolf, coyote, turtle, and prairie dog were all utilized by Folsom peoples (Wilmsen and Roberts 1978:46).

Surface finds of Folsom Fluted points are widespread, indicating that this complex extended across the Northern and Southern Plains, and onto the western slope of the Rocky Mountains in Colorado (Wormington 1957:29; Frison 1978:114). Undisturbed sites with intact Folsom deposits are, however, rare. Folsom sites are present in Wyoming (Hanson, and Folsom components at the Agate Basin and Carter/Kerr McGee sites), North Dakota (Moe site), New Mexico (Folsom site), and Texas. Several Folsom sites are also present in the San Luis Valley of Colorado (Linger, Zapata, and Cattle Guard sites). In the Colorado Plains, four sites with intact Folsom deposits have been identified and excavated. All four of these excavated plains sites are located in northeastern Colorado; Lindenmeier and the Johnson site are drained by the Cache la Poudre, and Fowler-Parrish and the Powars site are on the South Platte River. Thus, while surface finds of Folsom points are found throughout the Plains Region of Colorado, known sites with

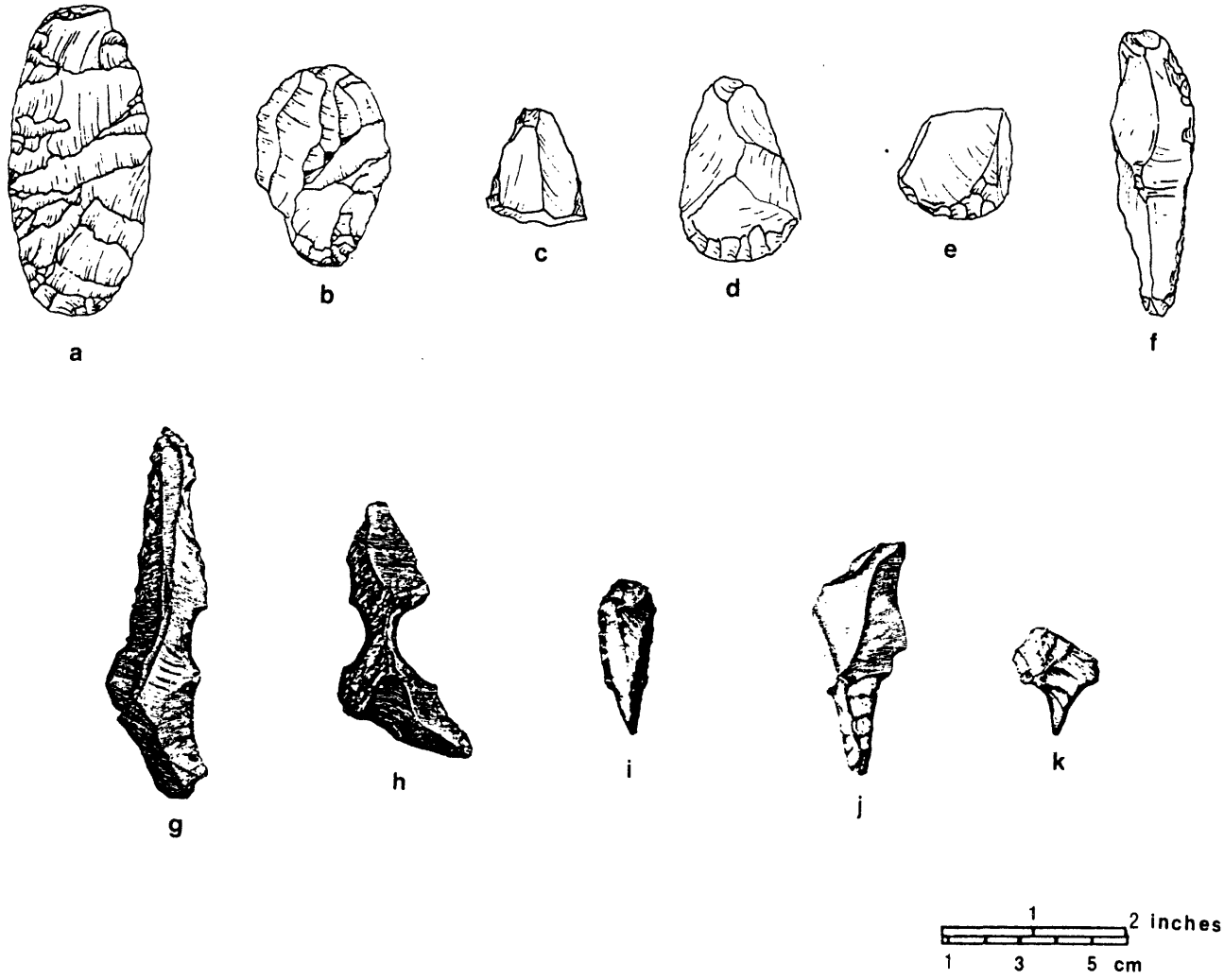

Figure 3. Representative Folsom tools from the Lindemeier Site. a-b: bifaces, c-e: distal edge tools, f: double edge tools, g-h: notches, i-k: tips (a-f are after Wilmsen and Roberts 1978; g-k from Wilmsen and Roberts 1978).

intact deposits are limited to a fairly small portion of the northeastern Colorado plains (Figure 1).

Within Colorado, and elsewhere (cf. Hester 1975:248-254) three types of Folsom sites are represented: camp sites, kill sites, and isolated finds.

Property Types: Folsom Sites
Sub-Property Type: Camp Sites

Only three Folsom camp sites are known in the Colorado plains: Lindenmeier, Johnson, and Powars. They are identified by the presence of Folsom points in association with lithic flakes and tools, bone tools, and faunal remains which are dominated by bison. Cultural features may also be present. Features at Folsom camp sites in Colorado are limited to hearths and ash lenses (Eighmy 1984:39), however, the Midland level of the Hell Gap site in southeastern Wyoming was found to contain two dwelling structures defined by circular alignments of post holes (Irwin-Williams et al. 1973:47).

On the Llano Estacado (Staked Plains of Texas and New Mexico), camp sites tend to be located on ridges, dunes, or hills which overlook a stream channel or pond (Hester 1975:248-254) In the Colorado plains, camp sites are similarly situated, being found eroding from stream terraces or low hills.

Example: The Lindenmeier Site (5LR13)

The Lindenmeier site is one of the most famous prehistoric sites in the country, having been the first Paleo-Indian camp site excavated. Our knowledge of the lifeways of Folsom peoples is based almost entirely on information from excavations at this site (Wilmsen and Roberts 1978). Lindenmeier is located in the transition zone between the Plains and Mountains regions, in a small valley drained by the Cache la Poudre. The site was found eroding from the banks of an arroyo. Materials recovered from the site have provided important data on domestic activities, tool production, and social organization during Folsom times.

This exceptionally large and well-preserved Folsom campsite was originally investigated by F.H.H. Roberts of the Smithsonian Institution between 1934 and 1940 and provided archaeologists with their first information on Paleo-Indian technology and lifeways.

The site has been placed on the National Register of Historic Places and remains the best example of a Folsom camp site yet discovered.

Robert's excavations revealed the presence of two separate areas to the site: a camp site and a kill site. The camp site contained animal bones, some of which had been cooked; lithic debitage; and whole, broken, and unfinished artifacts. A wide variety of stone and bone tools, as described above, were also recovered. The remains indicated a hunting and gathering economy, with bison as the single most important faunal species represented. A later re-examination of materials from the site by Wilmsen (Wilmsen and Roberts 1978:179) resulted in the identification of separate activity areas and a suggestion that stylistic variation in Folsom points at the site reflect the presence of different groups of Folsom people aggregating seasonally at Lindenmeier. Seasonal aggregations of Folsom peoples are linked to communal bison procurement. The site produced the first radiocarbon date for the Folsom culture: 10,780±375 B.P. (Haynes and Agogino 1960, Holliday and Johnson 1986). It has since yielded several dates, with an average of 10,580+60 B.P. (Haynes et al. 1988).

Sub-Property Type: Kill Sites

Folsom kill sites in the Colorado Plains include only the Fowler-Parrish site and a component of the Lindenmeier site. Folsom kill sites are identified by the presence of animal bone indicating the location of a kill, and by the absence of indications of long-range habitation. Extensive deflation and previous heavy surface collection at Fowler-Parrish have limited the data present at that site (Agogino and Parrish 1971). The site was apparently a bison kill near a playa, with two bone levels. Some of the Folsom points were unusual in that they showed oblique flaking (diagonally flaked, from upper left to lower right across the margins of the point face). At Lindenmeier, the remains of surface fires and hacked and split bison bone, some charred, indicated that some processing of bison also occurred at the kill site.

On the Llano Estacado, Hester (1975) found that kill sites tend to occur at the edge of a pond or stream channel. Both Folsom kill sites in the Colorado Plains Region are located near water sources.

Example: Lindenmeier Site (5LR13)

The Lindenmeier site contains a Folsom kill site which is separated spatially from the camp site. This kill site contained the remains of a least nine individuals of extinct bison which were trapped and killed in a marshy area of the valley. Also present were camel remains, as well as Folsom points, scrapers, blades, knives, and gravers. The kill site at Lindenmeier contained no evidence for extensive habitation, but the presence of dismembered and cooked bison bone indicated that butchering occurred and that some meat was cooked at the kill location.

Significance

Like Clovis sites, Folsom sites in the Plains Region of Colorado are very important to our understanding of New World prehistory and therefore, those sites which contain data on relevant research questions, (or which have yielded data important to our understanding of prehistory) are considered nationally significant sites and eligible for inclusion on the National Register of Historic Places under Criterion D. Nationally significant Folsom sites include camp sites and kill sites. Another property type, isolated finds, contain important information, but are not eligible for inclusion on the National Register since their information potential is limited and they are generally collected. Additional site types containing important data, such as butchering sites, burial sites, and quarries, may also be present but are yet undocumented in the Colorado Plains.

Folsom camp sites can provide researchers with information on the paleo-environment, seasonality, technology, subsistence, and may also provide important information on the social aspects of Paleo-Indian life. They can provide us with important chronometric dates and stratigraphic information needed to further refine the ages, duration, and contemporaneity of the Folsom and Midland complexes.

Folsom kill sites can also provide information on subsistence, hunting and butchering technology, and seasonality. Like camp sites, they can provide researchers with much needed chronometric dates and stratigraphic information relating to specific Paleo-Indian complexes.

Only four known Folsom sites are present in the Colorado Plains, therefore, even small kill or camp sites, or sites which are severely deflated have potential for providing important information. In addition, all property types, including isolated finds, are important in furthering our understanding of Paleo-Indian settlement systems and site distribution.

A number of important research problems for the Paleo-Indian Period were presented by Eighmy (1984:47-48) in "The Colorado Plains Prehistoric Context", and the following list contains several of those problems, as well as others specifically applicable to the Folsom sub-context. Because all cultures of the Paleo-Indian Period followed a hunting-gathering mode of subsistence and site types are similar for all three sub-contexts, a number of these research issues can be applied to any of the complexes being examined.

Research Problems for Folsom Sites:

1. The age and duration of the Folsom complex.

2. The relationship between environmental and cultural changes during the Folsom Period, and the extent to which Folsom hunting practices affected the extinction of the camel and other megafauna on the Plains.

3. Seasonality of habitation and/or kill site occupations.

4. Lithic source identification, utilization, and distribution.

5. Subsistence and the importance of plant resources in Folsom diets.

6. Formation processes of Folsom sites, the rate of site destruction, and nature of site transformations.

7. The taxonomic/temporal relationship between Folsom Fluted points and Midland unfluted points.

8. Folsom culture ritual and belief systems.

9. Social organization of Folsom peoples.

Registration

Undisturbed sites with intact Folsom deposits are rare, with only four Folsom camp and kill sites known in the Colorado Plains region. The data base is severely constrained, and limited to the types of properties most easily preserved. Folsom sites are important resources at either the local, state, or national level of significance, and almost all have potential for yielding information useful in the study of important research problems.

Nationally significant Folsom sites contain the potential to yield important information on the prehistory of the region, as well as on the development of culture in the New World. Site types defined in the previous section include campsites, kill sites, and isolated finds. Although they differ in content, all of these site types have the same registration requirements.

Because they are rare, all Folsom sites with intact cultural deposits are eligible for inclusion on the National Register of Historic Places. Intact cultural deposits are buried, relatively undisturbed remains of indisputable artifacts or human bone, butchered animal bone, or remains which are securely dated. Those sites with undisturbed, stratified (or single component) deposits will of course contain the greatest potential for addressing a wide range of research questions. Sites with these characteristics are usually excavated by professional archaeologists very quickly after their discovery, and although this does result in the recovery of significant data, the complete excavation of these sites can result in the complete destruction of their integrity. Folsom sites from which all data has been removed, through complete excavation, should, therefore, generally be considered not eligible, even though they have yielded information important to prehistory. Exceptions to this might be important sites which retain their integrity of setting even after excavation.

Most known Paleo-Indian sites in the Plains Region of Colorado have been exposed by wind or water erosion, and have been collected by amateurs. Folsom camps and kill sites which have been disturbed through surface collection and/or excavation (by collectors or professionals) may still have intact remains which are not disturbed, and unless it is clear that all cultural material has been removed (e.g., the site has been bulldozed), they should also be considered eligible. Many Paleo-Indian sites, such as the Fowler-Parrish Folsom site, are located on deflated dunes, or are

secondarily deposited and may have lost contextual information, but for such sites the excavation and recovery of artifacts can still provide professionals with information on technology, tool kits, lithic material sources and distribution, provided materials from different cultural complexes are not mixed. These sites, therefore, are also eligible for inclusion on the National Register.

Diagnostic Paleo-Indian artifacts are sometimes found on sites with later prehistoric artifacts (Archaic or Late Prehistoric), without surface indication of a separate Paleo-Indian component. These sites should be considered potentially eligible until testing can be conducted to determine if there is a separate Paleo-Indian component present. If no specific Paleo component is present, the artifacts from this period do not meet the requirements for registration as a National Register property.

Folsom isolated finds are diagnostic artifacts (e.g., Folsom or Midland points) without other associated material. Isolated finds do not, by definition, contain any potential for buried or undisturbed cultural material. They are rarely, if ever, left in situ and are not eligible for inclusion on the National Register of Historic Places. They do, however, contain information on technology, lithic materials used, and the distribution of various Paleo-Indian complexes.

Sub-Context: Plano Period (10,000 - 8000 B.P.)

A number of named Paleo-Indian projectile point styles are known from the plains after the end of the Pleistocene. Some of these are illustrated in Figures 4 and 5. Several of these point styles have been correlated with culture complexes based on stratified radiocarbon dated sites, however the culture history for this period is complex and less distinct than the Pleistocene cultures. The number, names, dates, and relationships of the Plano cultures are viewed differently by different scholars, and resolution of the numerous issues will depend on future research. As with Clovis and Folsom, the names of Plano projectile point types (often named for the site from which they are first recovered) have also been commonly used as names for culture complexes. Culture complexes, or assemblages of recurring cultural traits, are often named and used in the literature as though they were taxonomic units (Gunnerson 1987:3). Some complexes have been

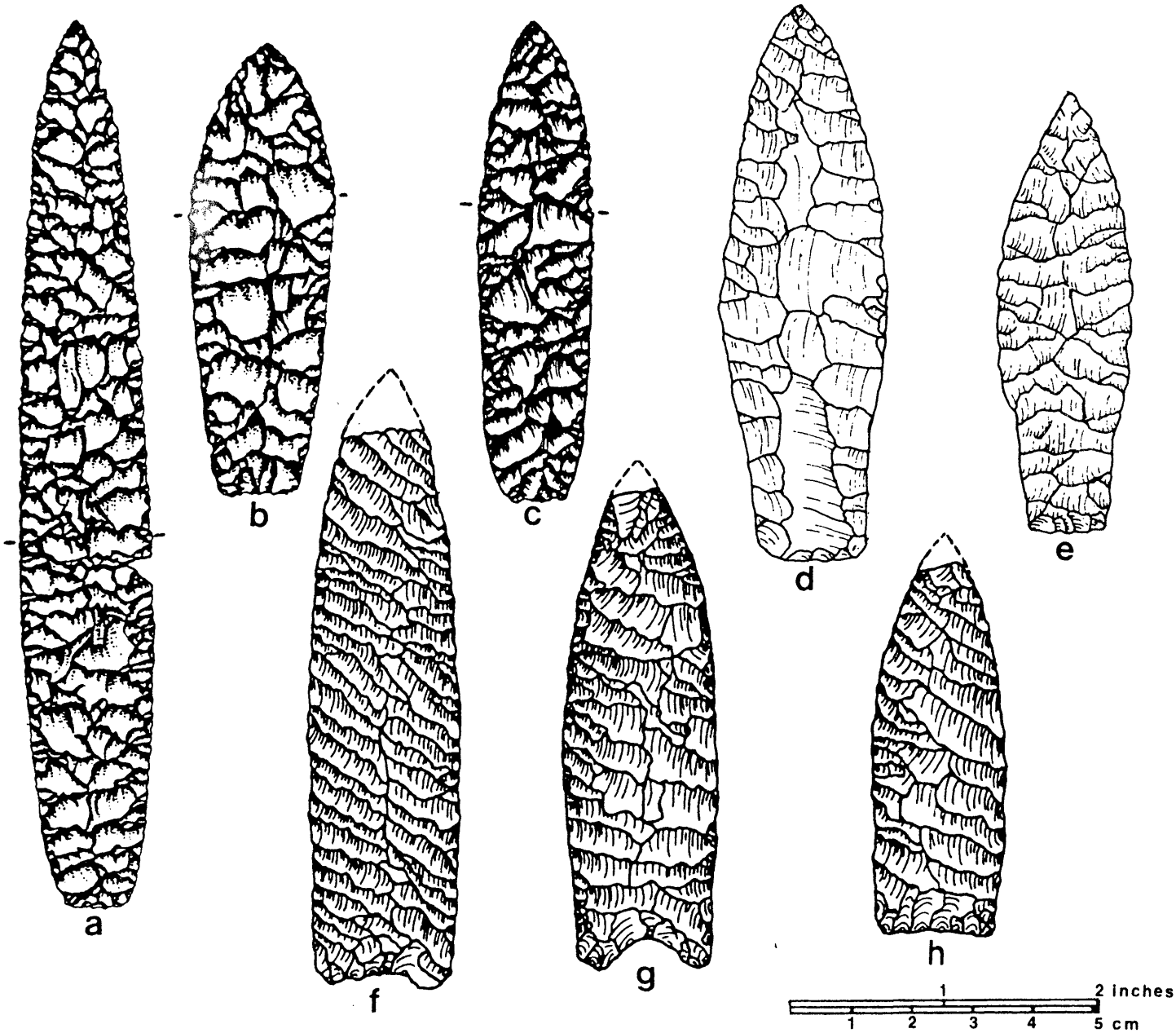

Figure 4. Representative Plano projectile points. a-c: Agate Basin points from the Agate Basin Site, Wyoming (Frison 1978), d-e: Hell Gap points (after Bell 1958), f: Angostura point, g: Jimmy Allen point, and h: Frederick complex point (f-h are from Greiser 1985).

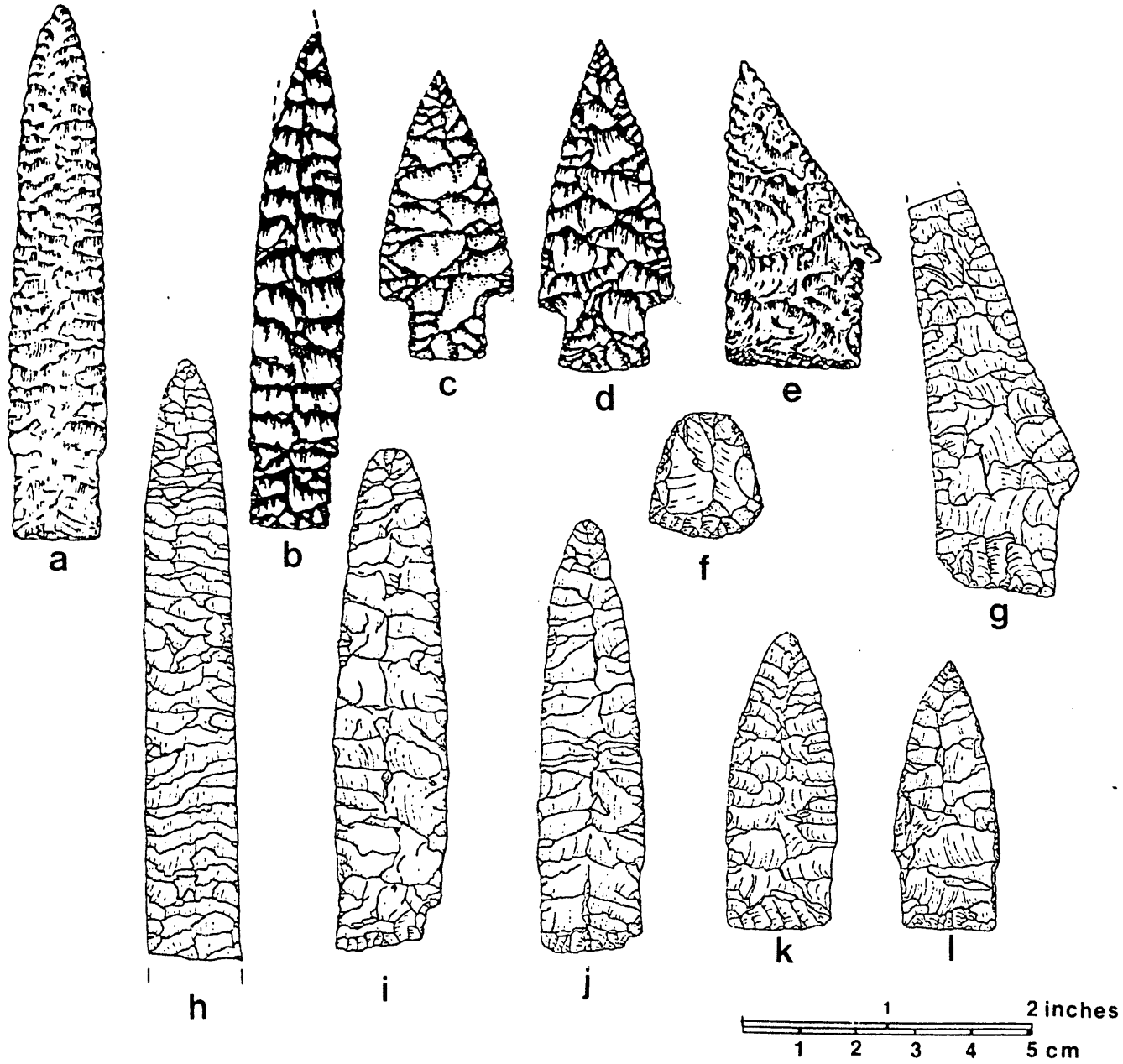

Figure 5. Cody Complex artifacts. a-b: Eden points, c-d: Scottsbluff points, e: Cody knife, f-l: Cody Complex artifacts from the Claypool Site (A & e are from Wormington 1957; b-d are from Frison 1978; and f-l are illustrated from collections at the University of Colorado Museum at Boulder).

defined with a single point type as their principal distinguishing trait, while other complexes contain more than one point type.

A sequence of several cultural complexes are known for the northwestern plains (Irwin-Williams et al. 1973, Frison 1978). The Agate Basin cultural complex dates to over 10,000 B.P. defined by the presence of long, narrow, delicately retouched projectile points which are lenticular in cross-section and have rounded bases (Figure 4a-c). At the Agate Basin site in Wyoming this complex is stratigraphically immediately above the Folsom occupation. Folsom has abruptly disappeared from the plains, and the Agate Basin projectile point, lacking flutes and a concave base, is radically different from Folsom points, making relationships between the two cultures difficult to determine (Frison and Stanford 1982, Frison 1983). Investigations at the Hell Gap site in Wyoming indicate that the Midland point (Figure 2d) may represent a cultural complex following Folsom, rather than being a part of the Folsom culture. If so, then a Folsom - Midland - Agate Basin continuum may have existed. The Agate Basin complex is known in Colorado from the Frazier site on the Kersey Terrace of the South Platte River. The Frazier site is a secondary butchering area where at least 43 bison of an extinct form were processed. The site has a minimum date of 9650 B.P.

The Hell Gap complex dates from ca. 9500-10,000 years ago, and is known from several sites in Wyoming and the Jones-Miller site in Colorado (Stanford 1974, 1975, 1978). In Wyoming, Hell Gap components are present at the Hell Gap site, the Agate Basin site, and the Carter/Kerr-McGee site. The Casper site in Wyoming is a bison trap in a parabolic sand dune. The Hell Gap point is technologically derived directly out of Agate Basin. Hell Gap points are very similar to Agate Basin, differing only in the presence of a straight, expanding base with a noticeable shoulder (Figure 4d-e). Frison (1978:172) sees this as an improvement in hafting technology. Tool assemblages at Agate Basin and Hell Gap bison kill/butcher sites are very similar. The Jones-Miller site is a bison impoundment, apparently using a snow corral.

The Alberta and Cody complexes are also known primarily from bison kill sites. The Alberta complex is dated from 9000-9500 years B.P. at Hell Gap, and somewhat earlier at Hudson-Meng in Nebraska (9820 B. P.) and at the Horner site in Wyoming (10,060 B.P.). The Horner site contains both Alberta and Cody complex bison kills which may have incorporated artificial structures such as corrals. The Alberta point is like the Hell Gap, but is

relatively large and heavy, and has a true parallel-sided stem. Stanford sees the Alberta complex as related to both Cody and Hell Gap, and transitional between the two (1981).

The Cody complex, with its distinctive Eden and Scottsbluff projectile points and Cody knives, has been dated to ca. 8800 B.P. and 9000 B.P. at the Horner and Finley sites in Wyoming. Scottsbluff points (Figure 5c-d) are relatively wide with parallel-sided or triangular blades, and generally exhibit horizontal-parallel flaking producing a lenticular cross-section (Wormington 1957:48). Eden points (Figure 5a-b) have been found associated with Scottsbluff at a number of sites and have some of the same features. They are, however, much narrower in relation to length, exhibit a less strongly indented stem, and tend to have a diamond-shaped cross-section produced by horizontal collateral flaking (Wormington 1957:124). The Hell Gap site sequence puts the Cody complex as lasting from 8400 -8800 B.P. Cody knives (Figure 5e,g) have been recovered from both the Alberta and Cody components at Horner, and from Hudson-Meng, a single component Alberta bison kill, indicating a strong relationship between the two complexes. The Claypool, Lamb Spring, and Frasca sites in eastern Colorado have Cody complex components, as does the Caribou Lake site in the Front Range of the Rocky Mountains.

Little data is available about terminal Paleo-Indian complexes on the northern plains. Several complexes have been named, including Angostura, Fredrick, Meserve, Pryor Stemmed, Lusk, and Frontier, all occurring between ca. 7500 B.P. and 8500 B.P. (Frison 1978, Gunnerson 1987). These later complexes are characterized mainly by various parallel-oblique (diagonal) flaked projectile points (Figure 4f-h) recovered from sites in Wyoming, Nebraska, and South Dakota (Frison 1983:120). The area occupied, economy, chronology, and relationships of these complexes are virtually unknown. No sites in Colorado have been definitely identified representing the late complexes. Frison (1978:37) acknowledges that the numerous named point styles may be local or regional variants of a single Paleo-Indian manifestation. Greiser (1985:79) agrees that Frederick, James Allen, Angostura, and Meserve points are typologically similar, but disagrees with the inclusion of Lusk points in the same complex.

On the southern or central plains the Plainview complex follows the Folsom culture. The Plainview occupation centers around 10,000 B. P., with starting and ending dates undetermined (Holliday and Johnson 1981, Bamforth 1988). Technologically,

Plainview points seem to be more directly related to Folsom points than Agate Basin points are (Frison 1983:114). Plainview points are ungrooved, but are shaped similar to the fluted Folsom forms (Wormington 1957:107). The Firstview complex post-dates the Plainview, and lasts until approximately 8000 B.P.. The Olsen-Chubbock bison kill in east central Colorado is the type site for the Firstview complex (Wheat 1972). Firstview is stratigraphically above Plainview at Lubbock Lake, and a substantial and growing body of data indicates this is the sequence throughout the southern and south central plains (Johnson and Holliday 1981, Bamforth 1988). Wheat (1972:154) originally defined the Firstview complex as including Firstview, San Jon, and probably Milnesand projectile point styles. Firstview points (Figure 6c-d) are basically lanceolate or leaf-shaped, with a straight base, and stems, if present at all, which are produced not by chipping but by heavy edge grinding (Wheat 1972:125). San Jon points (Figure 6a-b) are similar to Firstview, but relatively short and narrow, with shoulders (if present) produced by chipping and heavy edge grinding (Wheat 1972:125-126). Milnesand points are relatively broad lanceolate specimens with bases which range from slightly concave to slightly convex (Wheat 1972:146). In a later examination of the Olsen-Chubbock projectile points, Wheat (1975) suggested that San Jon points may be reworked Firstview points.

The Kersey complex has been postulated by Wheat (1979:152) as a regional development of the stemless lanceolate projectile point tradition, based on excavations at the Jurgens site. The Kersey point (Figure 6e-g), like Firstview, has a squared base and lacks a true stem, but has a hafting area marked by lateral grinding. Kersey points are relatively long and narrow (Wheat 1979:77). Stemming of projectile points of the Firstview and Kersey types occurs only on reworked broken points. Milnesand points were reworked but were not stemmed, and retained their lanceolate shape. The Kersey and Firstview complexes of the southern and central plains parallel the stemmed projectile point tradition known as Alberta-Scottsbluff-Eden of the north central and northern plains (Wheat 1979:152). It is probable that the South Platte drainage was the area of interaction between the northern and southern Plano complexes.

Paleo-Indian adaptations during the Holocene seem to vary little from earlier cultures in terms of diet, overall technology, and settlement. There was an obvious decrease in the diversity of fauna hunted after 10,000 B.P., due to extinctions, but the pattern of communal bison procurement, dating at least to the Folsom

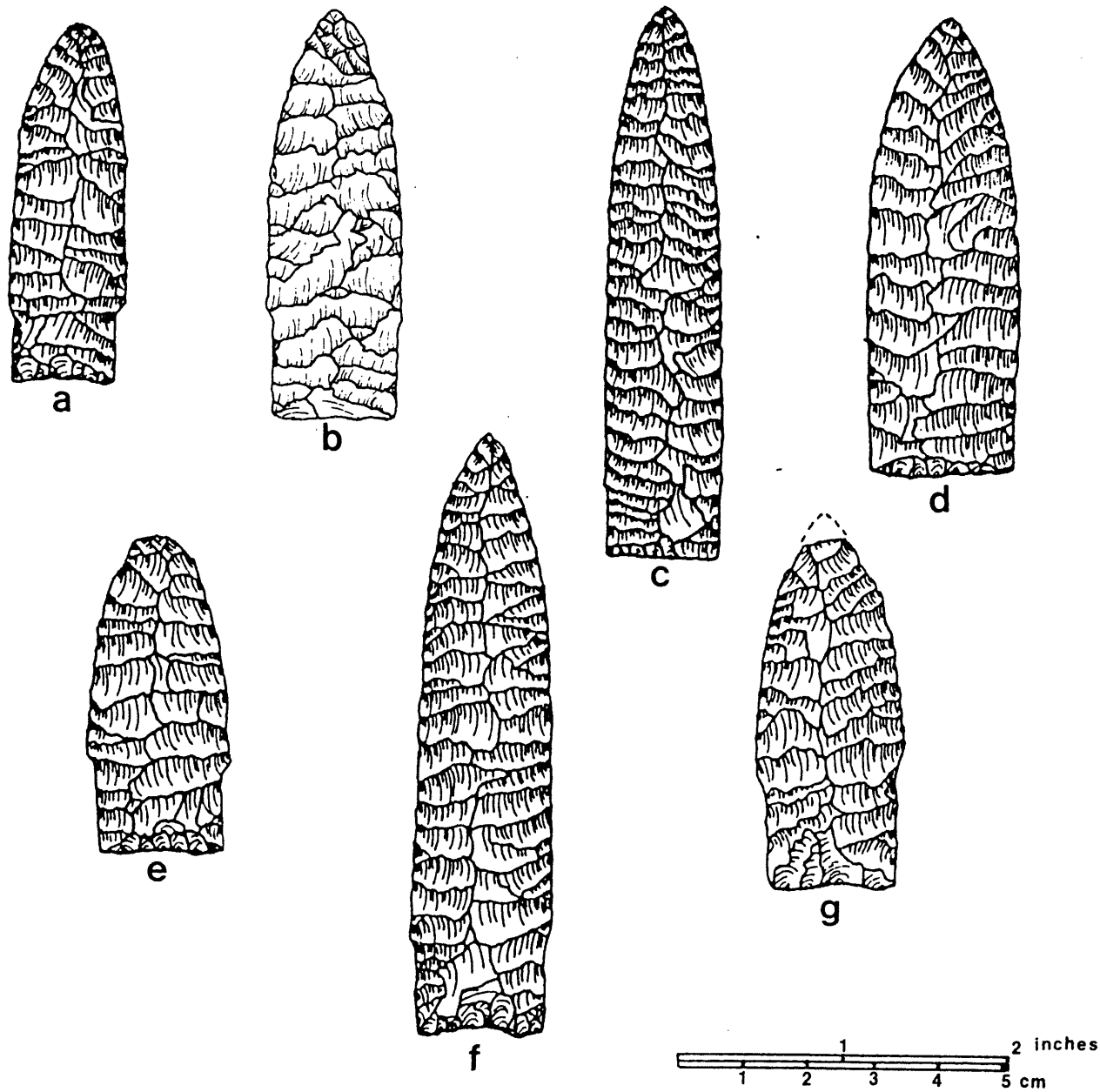

Figure 6. Southern and central plains point types defined by Wheat. a-b: San Jon points from the Olsen-Chubbock Site, c-d: Firstview points from the Olsen-Chubbock Site, and e-g: Kersey points from the Jurgens Site (a, c-g are from Greiser 1985, and b is after Wheat 1979).

period, continues. Seasonal aggregation of Paleo-Indian bands for communal hunts is assumed. Common figures presented for group size are about 25 to 200 people, depending on season. Social organization was probably simple, and group membership flexible, but communal hunts imply some mechanisms of social control and organization. Utilization of high quality lithic material from sources considerable distances apart continues throughout the Plano.

Property types for the Plano are essentially the same as those known for the Clovis and Folsom periods. Kill sites, processing sites, camp sites, and combinations of the types are present, as are isolated finds. In addition, a Plano burial site is known from eastern Colorado.

The Plano period ends with a shift to Archaic Stage notched and smaller stemmed projectile points between 7500 and 8000 years ago. Whether this represents population movement or technological change within a population is undetermined. The change in projectile point styles is apparently accompanied by a change in subsistence to utilization of a broader spectrum of floral and faunal resources, with floral resources becoming a significant part of the diet. The megafauna hunted during the Paleo-Indian Stage are extinct.

Property Type: Plano Sites
Sub-Property Type: Camp Sites

Only two Plano campsites have been recorded in the Colorado Plains, the Jurgens site (5WL53) located on the Kersey Terrace of the South Platte near Greeley; and the Claypool site (5WN62) located near a stream and playa in a sand hill area. Sites of this type are often located on terraces or near water sources. As the Claypool material was recovered from a disturbed context (e.g., a deflated sand dune), our best information on Plano camp sites, or habitations, is from the Jurgens site, where portions of bison and other animal kills were brought for processing and disposal. No cultural features, such as hearths or habitation structures, have been found at Plano campsites in Colorado, although Irwin-Williams et al. (1973:47) report evidence of three superimposed circular structures delineated by post holes and averaging about two meters in diameter in an Agate Basin occupation at Hell Gap, Wyoming. Artifact assemblages of Plano camp sites are indicative of a variety of activities, and the presence of several species of animal bone is also characteristic of this site type.

Example: Jurgens Site (5WL53)

The Jurgens site was excavated by Joe Ben Wheat and Marie Wormington in 1968 and 1970, revealing the presence of three distinct activity areas: a long-term camp or habitation, a short-term camp, and a butchering or processing locus (Wheat 1979). Wheat (1979) assigned the site to a regional variant of the stemless, lanceolate projectile point tradition of the central/southern plains, which he named the Kersey complex. Gunnerson (1987:23) notes that a radiocarbon date of 9070±90 B.P. from the Jurgens site was mistakenly reported as 9070 B.C. by Wheat.

Because of the types and proportions of bones present and the variety of stone tools identified, Areas 1 and 2 of the Jurgens site were interpreted as camp sites; a long-term camp and a short-term camp, respectively. The long-term camp, or habitation, consisted of an extensive bone bed containing the remains of more than 31 bison as well as deer, moose, pronghorn, elk, rabbit, beaver, muskrat, canid, birds, turtle, and fish. Stone and bone tools from this part of the site were used in butchering, preparing hides, tool manufacture and maintenance, and the grinding of seeds and other plant resources. Tools types included grinding slabs, bifacial knives (including stemmed and unstemmed varieties), scrapers, hammerstones, and a variety of other items. Recovered from the short-term camp were small portions of two bison and five pronghorns and a similar, but smaller, inventory of tool types. Of special interest in Area 2 were a bone atlatl hook and a stone tube which may have been a pipe (Wheat 1979).

Sub-Property Type: Kill Sites

Three Plano kill sites are presently known in the Colorado Plains Region. In Colorado and elsewhere in the Plains, evidence for well-organized hunting of large bison herds is found in sites where bison were driven into arroyos or other steep-sided natural features, trapped, and killed. Smaller kill sites are also known for this period. Like earlier kill sites, Plano kill sites are identified by the presence of bison bone indicating the location of a kill, and by the absence of lithic debitage or other indications of long-range habitation. Lithic tools from kill sites include typical hunting and meat processing tools. Projectile points predominate; scrapers, bifaces, and utilized flakes are also

present (Eighmy 1984:43). A possible ceremonial feature comprised of a shallow post mold and several non-functional artifacts was present at the Jones-Miller kill site (Stanford 1975). The Jones-Miller and Olsen-Chubbock kill sites occur along stream channels, while the Lamb spring kill is an open site near a spring.

Example: The Olsen-Chubbock Site (5CH1)

The Olsen-Chubbock site is a Plano kill site at which bison were driven into a narrow arroyo, killed and butchered. The site, located in extreme east-central Colorado, was excavated in 1958-1960 by Joe Ben Wheat of the University of Colorado Museum (Wheat 1972). The remains of approximately 190 bison were uncovered at the site. Few artifacts were present: 27 projectile points, four side or end scrapers, a flake knife, a few utilized and unutilized flakes, a hammerstone-anvil, three small used cobbles, and a limonite pebble. The only bone artifacts present were a well-made bone pin and four pieces of bone exhibiting cutting and/or polishing. Wheat's detailed analysis resulted in a reconstruction of the kill, butchering techniques, and estimates of the quantity of butchered meat. Based on the findings, including an estimated 150-200 people involved in the kill, Wheat (1972:123) concludes that Olsen-Chubbock was an organized, cooperative spring kill. The site yielded a radiocarbon date on bone collagen of 10,150±500 B.P. (Wheat 1972:156). The analysis of material culture from the site resulted in the definition of the Firstview complex, a complex based in the southern and south central plains.

Sub-Property Type: Butchering/Processing Sites

Plano butchering/processing sites are associated with kill sites, but are separate areas to which portions of animal carcasses were moved prior to the final disarticulation and meat removal. On these sites, the disarticulated bones are usually piled around the butchering center (Cassells 1983:63). In Colorado, butchering/processing sites are located on stream terraces. This site type is identified by the presence of disarticulated bison bone, representing only selected portions of the animal carcass, and a variety of butchering tools including stone knives, scrapers, choppers, etc. Projectile points exhibiting modification for use as knives, and bone tools made with little preparation other than breakage to form a cutting edge are also found at butchering and processing sites. Activity areas may be the only features on these

sites. In most cases, kill sites are expected to be located close by butchering/processing stations, but they often remain unlocated.

Example: The Jurgens Site

Area 3 of the Jurgens site was interpreted by Wheat (1979) as a butchering and processing area for animals obtained in a small mass kill (Wheat 1979:61). Over 3000 bone elements, mostly bison, were recovered from the extensive bone bed in this portion of the site. The partial remains of at least 35 bison were found at the site. Deer, elk, rabbit, rodents, pronghorns, and other mammal bone were also recovered, but were all few in number. Most of the bison skeletal remains were disarticulated. Front and rear quarters, segments of the axial skeleton, and a few skull portions were detached at the kill and transported to the butchering site for further processing. Projectile points, and stone and bone tools in Area 3 were used almost exclusively for butchering and meat processing. Grinding slabs used in meat processing were also recovered.

Sub-Property Type: Burials

Paleo-Indian sites of this type are quite rare in the New World, and in fact, only one has yet been recorded in the Western Plains: the Gordon Creek Burial. The site was located in the far northwest portion of the Colorado Plains Region (Figure 1), at the interface of the Plains and Rocky Mountains. Plano burial sites are distinguished by the presence of human skeletal remains and associated cultural artifacts.

Example: the Gordon Creek Burial (5LR99)

The Gordon Creek Burial was located in a small tributary of Gordon Creek, northwest of Ft. Collins, less than 25 miles from the Lindenmeier Folsom site. Although some material remained *in situ*, most of the skeletal remains and associated artifacts had eroded out of a burial pit exposed in the side wall of an arroyo. All of the skeletal material was deeply stained with hematite. Enough of the burial remained *in situ* to determine that the body had been interred on its side in a flexed position with the head north. No diagnostic artifacts were present, but a C-14 collagen fraction date of 9700±250 B.P. was obtained from a pelvic bone

(Anderson 1966). The date is considered to be reliable, placing the site well within the time frame for the Plano Sub-Context.

The individual was identified as a female, approximately 4 feet 11 inches tall and 26-30 years of age (Breternitz, et al. 1971). Artifacts associated with the burial included three bifaces, a polished stone, a hammerstone, an end-scraper, and utilized flakes (Anderson 1966). A later analysis of the material revealed that one of the bifaces had been used as a knife or scraper; the other two unused, perhaps having been made as grave offerings (Gillio 1970). Also found with the burial were two cut animal ribs coated with hematite and four elk incisors. One of the incisors had been perforated at the tip of the root; the other three had their roots broken off, indicating that they were torn from a necklace or clothing at the time of burial (Anderson 1966).

Significance

Plano Period sites in the Plains Region of Colorado are very important to our understanding of New World prehistory and therefore, those sites which contain data on relevant research questions, (or which have yielded data important to our understanding of prehistory) are considered nationally significant sites and eligible for inclusion on the National Register of Historic Places under Criterion D. Nationally significant Plano sites include camp sites, kill sites, butchering sites, and burial sites. Another property type, isolated finds, contain important information, but are not eligible for inclusion on the National Register of Historic Places since their information potential is limited and they are generally collected.

Additional site types containing important data, such as quarries, may be documented in the future. Many plains Paleo-Indian lithic artifacts are made of material from known quarries, such as Alibates dolomite from the Texas Panhandle and Knife River flint from North Dakota. In Colorado the Flattop chalcedony quarry is a known source of lithic material used by Paleo-Indians (Greiser 1983). The difficulty in documenting a particular quarry as an example of a Paleo-Indian site type stems from the fact that the quarries were used throughout prehistory, and there is currently no way to discern the Paleo-Indian components from later components. In addition, many quarries do not consist of limited discrete beds of material, but are deposits scattered over wide geographical areas.

Plano camp sites can provide researchers with information on the paleo-environment, seasonality, technology, subsistence, and may also provide important information on the social aspects of life during the Plano Period. They can provide us with important chronometric dates and stratigraphic information needed to further refine the ages, duration, and contemporaneity of the various Plano complexes.

Kill sites and butchering sites can also provide information on subsistence, hunting and butchering technology, and seasonality. Like camp sites, they can also provide researchers with much needed chronometric dates and stratigraphic information relating to specific Plano complexes.

Only one Paleo-Indian burial site has yet been discovered in Colorado. Additional sites of this type would be very important in their potential to provide information on Paleo-Indian ritual and belief systems based on the placement and types of artifacts interred with the deceased and the nature of the interment. The presence of skeletal material also provides a direct source for reliable dating and information on nutrition and health.

The best known Plano Period sites are large camps or kill sites, but even small sites, or sites which are severely deflated have potential for providing important information. This has been demonstrated through the analysis of materials from the Claypool site, which although from a disturbed context provided important information on Cody Complex tool technology (Bradley and Stanford 1987). In addition, all property types, including isolated finds, are important in furthering our understanding of Paleo-Indian settlement systems and site distribution.

A number of important research problems for the Paleo-Indian Period were presented by Eighmy (1984:47-48) in "The Colorado Plains Prehistoric Context", and the following list contains those problems related to the Plano Period as well as others suggested by additional research on the Plano.

Research Problems for Plano Sites:

1. The ages, duration, and contemporaneity of the various Plano complexes.

2. The relationship between environmental and cultural changes at the end of the Paleo-Indian Period.

3. Seasonality of habitation and/or kill site occupations.

4. Lithic source identification, utilization, and distribution.

5. Subsistence and the importance of plant resources in Plano Period diets.

6. Formation processes of Plano sites, the rate of site destruction, and nature of site transformations.

7. The taxonomic status of late Paleo-Indian complexes such as the Cody, Kersey, and Firstview, and the relationship of northern and southern Plains cultures.

8. The existence of late Plano complexes such as the Lusk and Frederick, which are postulated from surrounding areas.

9. Clarification of the relationship between projectile point styles, complexes, and cultures.

10. The extent to which Plano hunting practices affected the extinction of Pleistocene megafauna.

11. Late Paleo-Indian ritual and belief systems.

12. Social organization of Plano peoples.

Registration

There are relatively few Plano sites in eastern Colorado. The data base is severely constrained, and limited to the types of properties most easily preserved. Plano sites are important resources at either the local, state, or national level of significance, and almost all have potential for yielding information useful in the study of important research problems.

Nationally significant Plano sites contain the potential to yield important information on the prehistory of the region, as

well as on the development of culture in the New World. Site types defined in the previous sections include campsites, kill sites, butchering/processing sites, burials, and isolated finds. Although they differ in content, all of these site types have the same registration requirements.

Because they are so rare, all Plano Period sites with intact cultural deposits are eligible for inclusion on the National Register of Historic Places. Intact cultural deposits are buried, relatively undisturbed remains of indisputable artifacts or human bone, butchered animal bone, or remains which are securely dated. Those sites with undisturbed, stratified (or single component) deposits will of course contain the greatest potential for addressing a wide range of research questions. Sites with these characteristics are usually excavated by professional archaeologists very quickly after their discovery, and although this does result in the recovery of significant data, the complete excavation of these sites can result in the complete destruction of their integrity. Plano sites from which all data has been removed, through complete excavation, should, therefore, generally be considered not eligible, even though they have yielded information important to prehistory. Exceptions to this might be important sites which retain their integrity of setting even after excavation.

Most known Paleo-Indian sites in the Plains Region of Colorado have been exposed by wind or water erosion, and have been collected by amateurs. Paleo-Indian sites which have been disturbed through surface collection and/or excavation (by collectors or professionals) may still have intact remains which are not disturbed, and unless it is clear that all cultural material has been removed (e.g., the site has been bulldozed), they should also be considered eligible. Many Plano sites are located on deflated dunes, or are secondarily deposited and may have lost contextual information, but for such sites the excavation and recovery of artifacts can still provide professionals with information on technology, tool kits, lithic material sources and distribution, provided materials from different cultural complexes are not mixed. These sites, therefore, are also eligible for inclusion on the National Register.

Diagnostic Plano Period artifacts are sometimes found on sites with later prehistoric artifacts (Archaic or Late Prehistoric), without surface indication of a separate Plano component. These sites should be considered potentially eligible until testing can

be conducted to determine if there is a separate Plano component present. If no specific Plano component is present, the artifacts from this period do not meet the requirements for registration as a National Register property.

Plano points which are found without other associated material are called isolated finds. Isolated finds do not, by definition, contain any potential for buried or undisturbed cultural material. They are rarely, if ever, left in situ, and are not eligible for inclusion on the National Register of Historic Places. They do, however, contain information on technology, lithic materials used, and the distribution of various Paleo-Indian complexes.

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:

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

Specify repository: _____

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G. SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

The Colorado Plains Paleo-Indian Context is a refinement of the Colorado Plains Prehistoric Context which was identified in the statewide planning process (RP3). Identification of the Colorado Plains Paleo-Indian Context is based on extensive archaeological research which relates a common theme, place, and time. A long history of research, beginning with the excavations at Dent and Lindenmeier in the early 1930's and continuing through the present decade, has indicated that Paleo-Indian peoples followed a hunting-gathering economy which was distinct from other prehistoric cultures of the Plains: chronologically, stylistically, and economically.

Information for this document was obtained primarily through the collection and synthesis of existing data. The Colorado state site files, published literature, National Archaeological Data Base, and consultation with archaeologists and amateurs actively involved in research on Plains Paleo-Indian archaeology were major sources of input. Contacts were made with local museums and collectors to check for supplementary information not already available. In addition, a reconnaissance survey was conducted during which representative property types were visited and evaluated in the field. For properties (Paleo-Indian sites) which were visited, additional data was collected, including the updating of Colorado's state site forms and the assessment of their current condition.

The typology of significant property types is based on function and association with the Plains Paleo-Indian cultural system. The specific property types are recognized site types which have developed out of the continuing professional archaeological research in this area. The property types are inter-related in that each forms a component of the cultural system known as the Plains Paleo-Indian culture and a complete understanding of this culture requires the examination of all of the components. The three sub-contexts were identified based on stylistic and chronological variation within the Plains Paleo-Indian Context and are also recognized divisions within the Paleo-Indian stage.

The standards of integrity were based on the National Register standards for assessing integrity. Information on the conditions of existing properties was the basis for assessing the relative integrity of properties in the context.

COLORADO PLAINS PALEO-INDIAN SITES

A list of 50 Paleo-Indian sites on the Colorado Plains was generated from the Colorado Office of Archaeology and Historic Preservation site files. Two of the numbers listed are actually the same site: 5BA31 and 5LA1115 are both numbers for the Hackberry Springs site. The Selby site (5YM36) should now be regarded as a paleontological site only - it does not contain cultural material. Site 5DA90, a tested site, does not seem to have actually produced any Paleo material and probably should not be regarded as a Paleo-Indian site.

An additional eight plains Paleo-Indian sites (Claypool, Fox, Friehoff, Fowler-Parrish, Johnson, Hahn, Keenesburg, and Wetzel) have been identified from the published literature, the National Archaeological Data Base, and information provided by amateur archaeologists. Not included in these totals are the 13 Yuma County "blow-out" sites tested by Paul Gebhard in 1941.

Of the 55 known sites, four are Isolated Finds, and 16 are confirmed Paleo-Indian sites through formal investigations. Of these 16, only five have been thoroughly documented: 5LR13 (Lindenmeier), 5CH1 (Olsen-Chubbock), 5WL53 (Jurgens), 5WN18 (Claypool), and 5LR99 (Gordon Creek Burial). Eleven sites are probable Paleo-Indian, based on testing or repeated collection by amateurs. The remaining 24 sites have possible Paleo-Indian components, but their identification is based on the presence of projectile point fragments found on the surface.

The reconnaissance survey of plains Paleo-Indian sites has resulted in updated OAHP site forms for the following sites: Dutton, Selby, Dent, Powars, Frasca, Frazier, Jones-Miller, Olsen-Chubbock, Jurgens, and Lamb Spring. Site forms for the previously unrecorded Claypool (5WN18) and Fox (5WL1477) sites have been prepared. The Johnson, Fowler-Parrish and Wetzel sites remain to be formally recorded, as do the Gephard sites.

Confirmed Plains Paleo-Indian Sites:

Clovis

5YM37	Dutton
5WL269	Dent
5WN18	Claypool

Folsom

5LR13	Lindenmeier
5WL1369	Powars
	Fowler-Parrish
	Johnson

Plano

5WN18	Claypool
5WN26	Nelson
5WL53	Jurgens
5WL268	Frazier
5CH1	Olsen-Chubbock
5DA83	Lamb Spring
5LR99	Gordon Creek Burial
5LO19	Frasca
5YM8	Jones-Miller
	Wetzel

COLORADO PLAINS PALEO-INDIAN MATERIALS

Two approaches were used in documenting the provenience of Paleo-Indian materials in and from the Colorado Plains: a telephone survey of museums and institutions involved with the plains; and the tracking of collections from individual sites which have been formally recorded, tested, or excavated.

The museum survey indicates that very few Paleo-Indian artifacts are being curated in local museums. A few projectile

points from local collectors are curated, but none with associated notes or manuscripts, and none with provenience. The massive, well provenienced collections known from the very active amateurs on the plains are not making their way into museums. The collections seem to be split up among heirs or sold upon the collector's death.

Tracking of artifacts, field notes, and associated archival material from known sites indicates that most material is curated at the C.U. Museum, Denver Museum of Natural History, or the Smithsonian Institution. Materials from several sites is in the possession of the land owner. There are curatorial problems with materials from sites recorded/tested by C.S.U. and U.N.C. Collections from the former U.N.C. Anthro Museum are scattered, and the collections from plains sites have apparently disappeared.

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