

The Coffin Bison Kill (5JA7): bridging perspectives on the past at the door to North Park, Colorado

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Abstract:

A growing body of research is geared towards bridging the blurred perspectives of archaeology and ethnohistory into cohesive statements about the pre- and post-contact history of the Northern Great Plains to elaborate upon the highly dynamic cultural interactions among and between the Native groups who occupied this region, and the myriad Euro-Americans that infiltrated and settled it. This paper seeks to add to the data pool available to these discussions by presenting preliminary results from surveys and test excavations at the Coffin Bison Kill (5JA7), a Late Prehistoric- through Protohistoric-era (ca. 460–120 cal B.P.) bison kill-butcherery that is situated at the head of the North Platte River Valley in northern Colorado. This region, and perhaps this site, both feature prominently in Euro-American historical accounts and Native American ethnogeography, and its archaeology can offer a unique window into late period cultural evolution, particularly with regard to the complexities born of US Western expansion.

Keywords: Protohistoric | bison | kill-butcherery | North Park | ethnogeography

Article:

Site setting and history

The Coffin Bison Kill is located in Jackson County, Colorado, 0.5 km north of Watson Mountain and roughly 1.1 km northeast of where the North Platte River emerges from North Park between Watson and Independence Mountains, along and northeast of a prominent granite boulder wall that extends west from the foot of Pinkham Mountain (Figure 1).

Initial work at the site was completed by its namesake, the Coffin family (i.e. Major Roy G, A Lynn, and Judge Claude C Coffin), sometime during the early-middle twentieth century (Gantt, 2002: 14–16; Gilmore et al., 1999: 330; Johnson, 1972: 99, Lischka et al., 1983: 84). The exact dates and scale of that work are unknown, although Roy's son, VO Coffin, donated some 550 projectile points to the Fort Collins Museum (now the Fort Collins Museum of Discovery) in 1976, representing around 18% of the total points (including two metal heads) collected from the site by the family (ca. 2800–3000 total; Gantt, 2002). These artifacts, local physiography, and remnant structural features suggested the site served as a pound or corral used for periodic drive

hunts. Documentation of the Coffin's excavations is unknown, however, and no further work beyond occasional site visitations was ever pursued (Lischka et al., 1983).

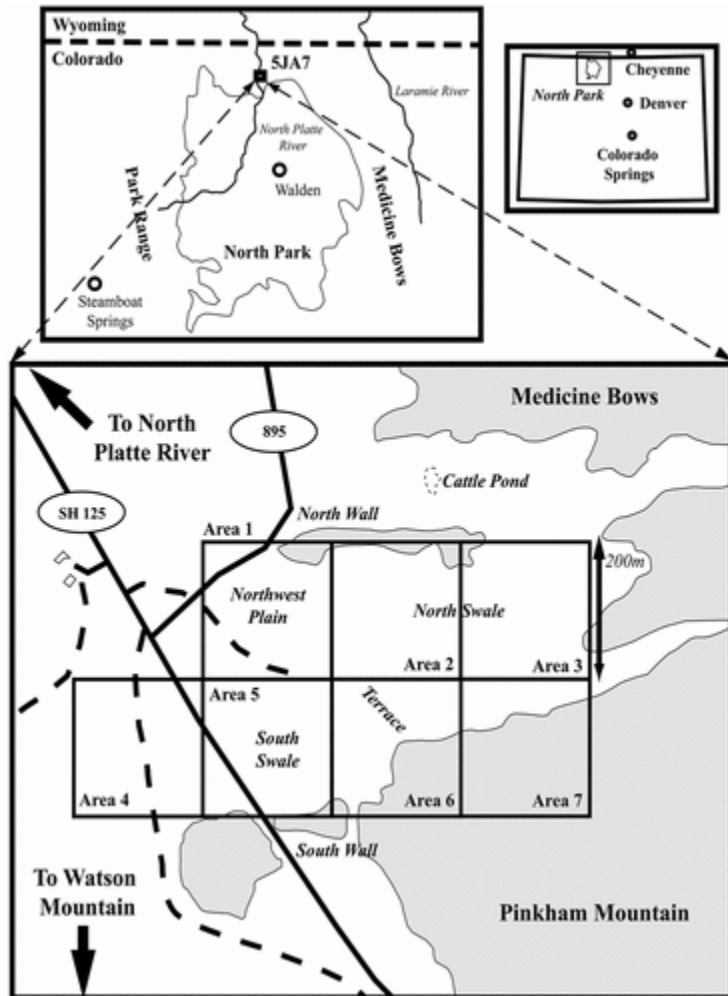


Figure 1. Location map of the Coffin Bison Kill (5JA7) including the 2009–2010 survey parcels.

The Coffins perhaps learned of the kill through connections with Clarence B Fugate (an ancestor of the current landowner), listed on an early twentieth century land patent, who served in the Colorado National Guard with Roy Coffin during World War I (Gantt, 2002; Jefferson County Sheriff's Office, 2009). Fugate was also Deputy Sheriff, and later Sheriff of Jefferson County within the timeframe that Claude Coffin was a judge in the Colorado 8th Judicial District (Gantt, 2002) which included Jackson County, so it is probable that the Coffins and Fugate were at least acquainted. A photograph taken in 1927 (Johnson, 1972: 100) and an 8 mm film dated to the same timeframe (currently housed at the Fort Collins Museum of Discovery) both show members of the Coffin family gathered around standing wickiups in proximity to the site (see Maggard, 2011), and it is likely that initial work efforts commenced around that time.

Joe Ben Wheat of the University of Colorado officially documented the site in August 1954, probably as a result of improvements to Colorado State Highway 125 made during that time. It is, however, widely assumed that the area had been collected for many years prior (Lischka et

al., 1983). According to Don Gore of Walden, Colorado (interviewed in Johnson, 1972), road construction in fact destroyed several site features, including remnant stone circles. Others assumed that it also impacted most, if not all, of any remaining bone deposits (Firebaugh et al., 1981).

Local legend also holds that standing burned posts, apparently representing the remains of a corral used to trap game, were present until at least the early twentieth century (Mark Mitchell, 2009, personal communication). A Bureau of Land Management inventory sheet was not completed until 1976, and few data are available from it. The only subsequent professional work is reported here and in more detail in Byerly (2010).

Regional history and ethnogeography

North Park (a.k.a. “New Park” or “Bull-pen”) and the North Platte River Valley figure prominently in the accounts of some of the explorers that traversed western North America during the early-to-mid nineteenth century (e.g. Frémont, 1845; James, 1905; Sage, 1854). This is because the North Platte served as a natural travel corridor from the Great Plains into the Rocky Mountains (Frison, 2007: 4), and its headwaters in the expansive North Park basin fostered abundant game in all seasons (Frémont, 1845: 281–282; Sage, 1854: 232). North Park also offered convenient passage into the equally game-rich “Old Park” (i.e. Middle Park) and “Bayou Salado” (i.e. South Park) beyond. For these and probably other reasons, the region played significantly into Native American ethnogeography.

The Northern Arapaho, for example, referred to the passage between the Laramie Plains and North Park (i.e. the North Platte River Valley) as the “buffalo trail” (*henéceibó’ó*) or “buffalo pass” (*betsééib-íít* and/or *henéceiθésoo’*) and, emphasizing the area’s game abundance, named North Park itself the “buffalo road” (Cowell and Moss, 2003: 356, 362, 365; Toll, 1962). According to Toll (1962), the Northern Arapaho specifically referred to the point where the North Platte River crossed the Medicine Bows as “the door” (*tecénoo*), “a place in Wyoming on the North Platte, on the road near Saratoga and Encampment, Wyo....that lead[s] into North Park through the mountains” (Cowell and Moss, 2003: 362). This place was also used for hunting: “On the east side of the mountain the Arapaho used to drive game through a gap, where some of the hunters would be stationed to kill game” (Toll, 1962: 20). This aptly describes the passage between Independence and Watson mountains, or that between Watson Mountain and the Medicine Bows, and it may also specifically reference the location of the nearby Coffin Bison Kill, as contended by Lischka et al. (1983). Indeed, the setting of the “buffalo circle” (*koo’éínoo-woo*) or the “trap” (*cóoó’*), known in recorded Arapaho ethnogeographic accounts, may in fact refer to a supposed corral that once existed at the site (Cowell and Moss, 2003: 367). Cowell and Moss (2003: 362) note that the Arapaho concept of the “door” represented the point from which bison originally issued from the earth, and served as an important spiritual symbol. The Coffin Bison Kill may thus have been much more than simply a strategic point to drive and trap bison, but one of greater cultural importance. The idea of the passage between North Park and the North Platte River Valley as a “door” or “gate” was also echoed by both Frémont (1845: 282) and Sage (1854: 232) during their early nineteenth century explorations in the North Platte River Valley, although their descriptive emphases are on Northgate Canyon. In this sense, either the northern or southern entrance of the canyon could also be “the door” from the perspective of

the Northern Arapaho, or simply the entirety of the valley itself. A Wyoming Cultural Resource Office (WYCRO) record indicates that a presumed bison kill (48CR8386) is, indeed, situated just outside the northern entrance to the canyon.

It is, moreover, not necessarily solely the Arapaho who may have considered the region and the Coffin Bison Kill in particular, to be culturally significant. The North Platte River Valley was part of the home/hunting ranges of both the Eastern Shoshone and White River Ute (i.e. Yampa and Parianuche) (Decker, 2004; Larson and Kornfeld, 1994; Reed, 1994; Simmons, 2000). The Northern Arapaho maintained variably cooperative relationships with Utes depending on hunting-ground access, but were regular enemies of the Eastern Shoshone (see Rhode, 2012; cf. Smith, 1974). Brown Ware from the nearby Sue Site (5JA421) tentatively dated between 1150 and 1270 A.D. (680–800 cal B.P.; Brunswig and Sellet, 2009: 17; cf. Brunswig, 2012: 30 (ca. 600–700 cal B.P.)), suggests a surprisingly early presence of hunter-gatherers thought to be ancestral to historically known Numa in North Park. This presence could reflect *in situ* development of resident Archaic hunter-gatherers integrating Numic material culture, or perhaps the replacement of these people (e.g. Larson and Kornfeld, 1994; Reed, 1994).

The Northern Arapaho emigrated from the Great Lakes region into these territories sometime between the seventeenth and eighteenth centuries (Trenholm, 1986), and tensions between the groups were likely high during this period. Indeed, Simmons (2000) maintains that the Arapaho and their allies the Cheyenne would not have hesitated to invade the game-rich territories traditionally held by the Utes, and certainly North Park and the surrounding area were prime points of contention (see Simmons, 2000: 46). It remains unclear, however, to what scale resources like the Coffin Bison Kill were shared and/or contested between these and perhaps other groups during the early seventeenth through late nineteenth centuries, particularly with added pressures related to Euro-American expansion, deeper integration of horses into cultural milieus, as well as added social stresses from other groups (e.g. the Comanche and Lakota; see Newton, 2011).

As a first step toward evaluating the potential of the Coffin Bison Kill, and the keystone landscape it occupies, to address such questions, a limited collection and test excavation project was conducted at the site between 2009 and 2010 to elaborate on its prehistoric and historic records. Specifically, efforts were geared towards (1) identifying distinct activity areas that could speak to intrasite use patterns, (2) assessing the age and composition of kill events to provide temporal perspective and gauge the intensity of site-use, and (3) detecting potential indicators (i.e. metal projectile points, dress artifacts, etc.) of known Native American groups that might have actually utilized the site.

Survey and test excavation

Moderate-grained pedestrian survey (i.e. 5-meter interval) and very limited subsurface testing (i.e. 67 probes (0.3 m × 0.3m × 0.5 m)) was conducted to delineate potential activity areas, assess subsurface potential, and elucidate the age(s) of kill events to better integrate the site into regional historical and ethnohistorical records.

The surveyed areas encompass six minor landforms, including a granite boulder wall (hereafter “south wall”) in the southern portion of the site; a u-shaped swale (hereafter “south swale”) cross-cut by erosional drainages stemming from a spring or seep issuing from a gap in the south wall (Figure 2); a broad, flat terrace or bench (hereafter “terrace”) composed of mixed-material alluvial lag cobbles and gravel, that thins into a low ridge bordering the south swale to the north; another U-shaped swale (hereafter “north swale”) north of the terrace; a granite boulder wall (hereafter “north wall”) that borders the north swale in the northern site area; and a gently sloping portion of the North Platte River alluvial plain adjacent to the heavily vegetated river bank (hereafter “northwest plain”).



Figure 2. Overview of the south swale and south wall from the terrace at the Coffin Bison Kill.

Most shovel tests (82%) yielded material to 50 cmbs in all tested areas, although much of this material was found in the upper 30 cm of deposit. Surface artifacts nonetheless account for some 72% all of documented items (Table 1). Over half of positive tests produced sparse debitage (1–13 pieces), approximately 46% yielded bone (1–67 fragments), and a little over a third contained charcoal. Select metal detection failed to identify additional metal projectiles or other potential Euro-American trade goods.

Flaked stone

Debitage primarily reflects late stage reduction (88%), and is mostly chert (63%). A significant majority is located on the terrace (48%), as well as in and along the north swale and wall (27%). Obsidian flakes are concentrated in this latter area, particularly along the eastern extent of the north wall.

Collected projectiles ($n = 19$) include Late Prehistoric Plain side-notched (64%), tri-notched (21%), and Cottonwood (14%) varieties. An Early Ceramic-era (ca. 1750–700 cal B.P.; see Gilmore et al., 1999) arrow point, and two probable Late Archaic (ca. 3150–1750 cal B.P.) dart point fragments were also recovered (Figure 3). Three of the side-notched projectiles were collected in a single shovel test (0–46 cmbs) excavated in the south swale near the south wall. Another side-notched point and a corner-notched form were observed but not collected in the northwest plain. Other flaked stone tools include early-to-late stage bifaces ($n = 21$), including fragments of probable “Shoshone knives”, unifaces ($n = 6$), and retouched or edge-damaged flakes ($n = 7$), all made of chert or quartzite.

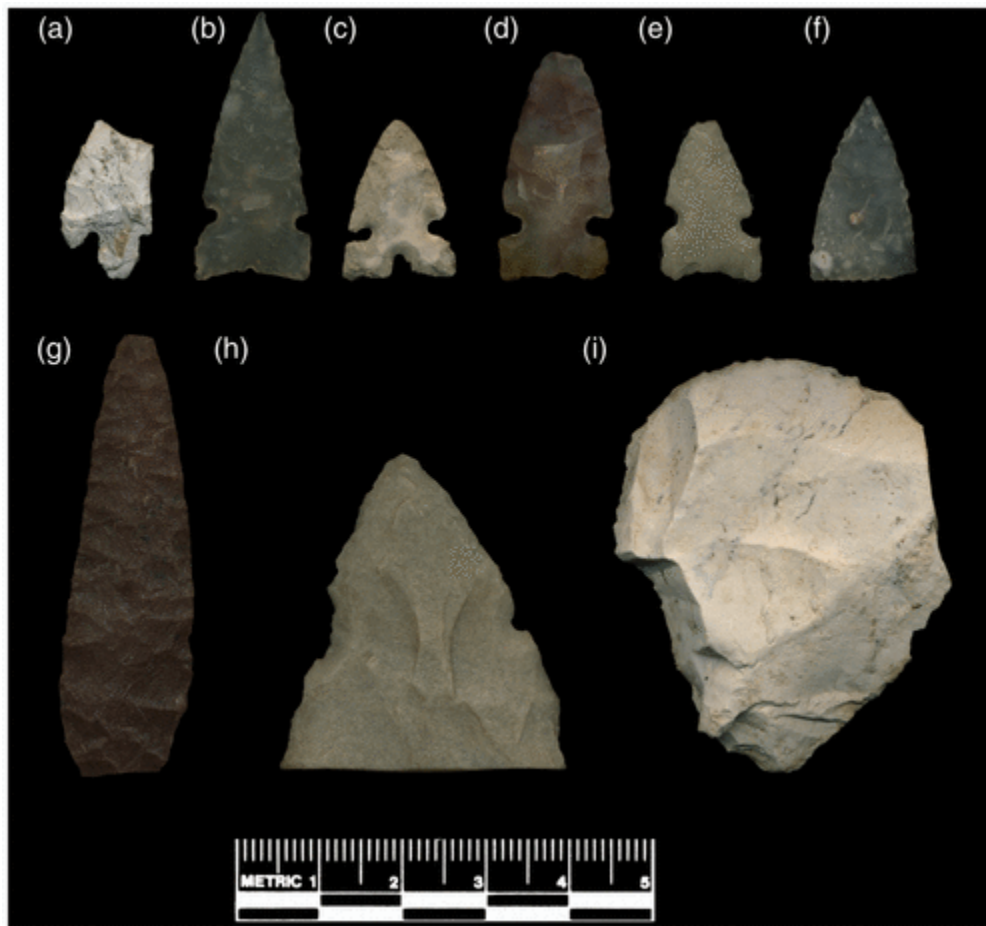


Figure 3. Select lithic artifacts from the Coffin Bison Kill: (a) corner-notched point, (b–c) tri-notched points, (d–e) side-notched points, (f) cottonwood point, (g–h) bifacial knives, (i) scraper.

Flaked stone artifacts are made of chert, quartzite, obsidian, and quartz crystal (Table 2). Among the cherts, four “sources” were identified: the Hartville Uplift in Wyoming (Guernsey and Hartville formations); Flattop Butte in northeastern Colorado (Chadron formation of the White River Group); Kremmling in Middle Park (Troublesome formation); and Trout Creek on the western edge of South Park (Manitou Limestone). One of the large bifaces collected by the Coffin family, and currently housed at the Fort Collins Museum of Discovery, appears to be Bridger Formation “Tiger Chert” that could have come from any number of sources in southwest

Wyoming, northwest Colorado, or northeast Utah. These areas are all within roughly 95–350 km of the site. Workable quartzite cobbles are abundant in local alluvial deposits (Black, 2000).

Table 1. Summary artifact data, Areas 1–6.

Artifact	Northwest plain			North swale and wall			South swale and wall			Terrace			Total
	Surface	Subsurface	Total	Surface	Subsurface	Total	Surface	Subsurface	Total	Surface	Subsurface	Total	
Projectile point	—	—	—	1	—	1	4	3	7	11	—	11	19
Biface	3	2	5	4	—	4	2	—	2	10	—	10	21
Uniface	1	—	1	1	—	1	1	1	2	2	—	2	6
Utilized/Damaged flake	1	—	1	2	—	2	1	—	1	3	—	3	7
Debitage	18	12	30	60	39	99	37	25	62	148	29	177	368
Bone	14	11	25	26	92	118	25	151	176	23	63	86	405
Ceramic	—	—	—	1	1	2	—	—	—	1	2	3	5
Total	37	25	62	95	132	227	70	180	250	198	94	292	831

Energy dispersive X-ray fluorescence analysis of the scant obsidian debris conducted by Richard Hughes identified three sources, including Teton Pass and Obsidian Cliff in northwest Wyoming, and Cerro del Medio in north-central New Mexico, all of which are between 475 and 565 km from the site (see Byerly, 2010).

Analysis of select artifact frames housed at the Fort Collins Museum of Discovery by Sarah Millonig and Vlisha Stanerson (see Byerly, 2010: 69–82), representing a portion of the collection donated to the museum by VO Coffin, mirrors the assemblage reported here. Among a total of 181 artifacts, they primarily identified Late Prehistoric side-notched projectile points (65%), fewer tri-notched forms (8%), and only one Early Ceramic period Foothills, Mummy Cave, Rose Spring, or Hogback Phase corner-notched variety (see Benedict, 1996: 48). Bifaces (6%) and unifaces (3%) were also represented, and among the former at least three are reminiscent of classic “Shoshone knives.” Toolstone profiles are likewise complimentary, with nearly equal representation of various chert (48%) and local quartzite (46%), and the remainder including yet unsourced obsidian (4%), and other unknown material (2%).

Ceramics

Two thick-walled Brown Ware sherds, representing fragments of undecorated utilitarian vessels, were recovered from the surface near the north wall. One is a body sherd and possesses a smooth interior and moderately sorted, very coarse-grained paste including crushed-rock (possibly pink granite) temper with quartz and feldspar inclusions. Its exterior is brown, and the interior gray. Another specimen is a possible vessel base fragment with a rough interior and smooth, slightly incised exterior. Its paste is poorly sorted and very coarse- to medium-grained with quartz and schist inclusions. Its exterior color is light grayish brown and its interior is black.

Perfunctory examination indicates that both are consistent with Shoshone Intermountain flat-bottomed or “flower-base” ware, although the fragments are too small to confidently distinguish from Ute Uncompaghre Brown Ware (Summer Moore, 2009, personal communication).

Three much smaller and unidentifiable Brown Ware fragments were recovered from subsurface contexts (29–50 cmbs) along the north wall, including a probable exterior body sherd that was recovered from a shovel test, and two additional body fragments from another shovel test atop the terrace.

Faunal remains

Eighty-eight complete and fragmented bones (Total Number of Specimens (NOST); see Byerly and Meltzer, 2005) were identified on the surface (of which 83 were collected), all representing bison, bos/bison, horse/mule, deer, unspecified carnivore, and unspecified large- (e.g. bison, horse/mule, and/or elk) and medium-sized (e.g. deer and/or antelope) mammals, as well as an unidentified rodent (Table 3). Approximately 48% of these are identifiable to element, with high-density astragali representing the most common element across classes (14%).

Table 2. Flaked stone artifact data, Areas 1–6.

	Chert	Quartzite	Obsidian	Quartz crystal	Total	%Total
Debitage						
Angular	4	2	—	1	7	1.9
Primary	7	1	—	—	8	2.2
Secondary	27	2	—	—	29	7.9
Tertiary	193	96	27	8	324	88.0
Total	231	101	27	9	368	
%Total	62.8	27.4	7.3	2.4		
Tools						
Projectile point	13	6	—	—	19	35.8
Biface	16	5	—	—	21	39.6
Uniface	6	—	—	—	6	11.3
Utilized/Damaged flake	3	4	—	—	7	13.2
Total	38	15	—	—	53	
%Total	71.7	28.3	—	—		

Equid bones, all found on the northwestern extent of the terrace, consist entirely of distal hindlimb elements, except one maxillary molar, likely from a single individual; all are bleached and heavily weathered. At the time of fieldwork, the site area was leased for hunting wild and bred game, but was also used historically to graze cattle. The presence of all remains, save bison, is therefore also explainable by modern and early twentieth century activities.

The few identified bison specimens were recovered from the south swale and on the terrace, as were most bos/bison bones. Fragments of unspecified large mammal bone (probably also from bison) were particularly, and surprisingly, prolific in buried contexts on and around the terrace, especially its western edge.

Collected bones do not retain direct evidence of butchery or carnivore activity, although approximately 17% display green fracture, and another four specimens are burned. Most (76%) are heavily weathered (Stage 5; see Rapson, 1990: 370) and four are differentially weathered, ranging from moderate (Stage 3) to heavy (Stage 5) per aspect. A singular bos/bison mandibular dentary was recovered from the south swale, but this specimen was not useful for estimating

mortality season as it could not be confidently speciated and is also from a breeding-aged adult (Group 4, > 3 years). A tooth root fragment, also from the south swale, was cut and polished, and may represent bead production detritus, be the remains of a pendant (see Johnson and Lyons, 1997: 67) or dress piece, or may have been intended as a projectile (Figure 4).



Figure 4. Cut and polished tooth root from the Coffin Bison Kill.

Of the 317 bone fragments from shovel and auger tests, approximately 66% are completely unidentifiable to class (see Table 3). A complete bison cervical unearthed between 25 and 45 cmbs; fragments of a bos/bison proximal metacarpal uncovered in the upper 19 cm of deposit; and a rodent cranium found between 0 and 30 cmbs, are the only class-identified specimens. All were found in the south swale.

Radiocarbon assays

Four bones, including the three elements securely identified as *Bison bison* and *Equus caballus*, were submitted for bone collagen accelerator mass spectrometry (AMS) radiocarbon dating (Table 4). Three of these were surface collected along the north wall and in the north swale, and a fourth was recovered between approximately 23 and 45 cmbs in the south swale, along the southern foot of the main alluvial terrace. The two surface bison bones were green fractured, indicating possible butchery by humans. An assayed horse phalanx was one of a few equid distal elements found that presumably eroded out of the alluvial terrace or from steeper upslope contexts. A dated bison cervical recovered subsurface appeared to be conjoined, *in situ*, to another vertebrae, which was left in situ. Given the limited scale of evaluations, these specimens were sampled because they were deemed to possess the best potential to assess the ages of bison kill-butcher events and, perhaps, timing of the incorporation of horse-mounted hunting in these events.

Table 3. Faunal data, Areas 1–6.

Class	Northwest plain			North swale and wall			South swale and wall			Terrace			Total
	Surface	Subsurface	Total	Surface	Subsurface	Total	Surface	Subsurface	Total	Surface	Subsurface	Total	
BB	1	—	1	—	—	—	4	3	7	2	—	2	10
BI	—	—	—	—	—	—	1	1	2	1	—	1	3
CR	—	—	—	1	—	1	—	—	—	1	—	1	2
EQ	—	—	—	—	—	—	—	—	—	10	—	10	10
OD	2	—	2	—	—	—	—	—	—	—	—	—	2
RO	—	—	—	—	—	—	—	1	1	—	—	—	1
UD	—	—	—	1	—	1	5	—	5	1	—	1	7
UL	3	—	3	14	21	35	10	35	45	3	47	50	133
UN	8	11	19	10	71	81	5	111	116	5	16	21	237
Total	14	11	25	26	92	118	25	151	176	23	63	86	405

BB: bos/bison, BI: Bison bison, CR: unspecified carnivore, EQ: Equus sp., OD: Odocoileus sp., RO: unspecified rodent, UD: unspecified medium (e.g. deer, sheep, etc.), UL: unspecified large (e.g. bison, horse, etc.), UN: totally unidentified. Numbers reflect NOST (total number of specimen) values (i.e. NISP + NOS).

Table 4. Radiocarbon dates.

Landform	Specimen #	Laboratory #	Item and depth	Conventional age (B.P.)	Sigma and probability	Calibrated age range (A.D.)	Median calibrated age (A.D.)	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)
Terrace	122	Beta-276998	Equid 2nd phalanx (surface)	190 ± 40	1σ (0.64) 2σ (0.53)	1735–1805 1710–1818	170 1764	−15.2	5.5
Terrace	204	Beta-276999	Bison tibia (surface)	220 ± 40	1σ (0.45) 2σ (0.48)	1763–1801 1726–1813	1782 1770	−14.3	7.2
South swale	23	Beta-270153	Bison metatarsal (surface)	100 ± 40	1σ (0.61) 2σ (0.68)	1812–1895 1801–1939	1854 1870	−17.3	8.3
South swale	43.1	Beta-276997	Bison cervical (23–45 cmbs)	370 ± 40	1σ (0.66) 2σ (0.53)	1453–1521 1446–1530	1487 1488	−20.3	6.9

Dates calibrated using Calib.7.0.2 (IntCal13); only the highest probability calibrations are shown. Specimens 122 and 204 are statistically equivalent at the 95% confidence level according to an unpaired *t*-test ($t_s = 0.28$, $df = 1$, $\chi^2 = 3.84$).

Table 5. Contingency table analysis results for summary artifact data, Areas 1–6.

Artifact	Northwest plain			North swale and wall			South swale and wall			Terrace		
	Surface ^a	Subsurface ^b	Total ^c	Surface	Subsurface	Total	Surface	Subsurface	Total	Surface	Subsurface	Total
Expected values												
Projectile point	1.48	0.17	1.42	3.80	0.92	5.19	2.80	1.25	5.72	7.92	0.65	6.68
Biface	1.76	0.12	1.57	4.51	0.61	5.74	3.33	0.84	6.32	9.41	0.44	7.38
Uniface	0.46	0.06	0.45	1.19	0.31	1.64	0.88	0.42	1.81	2.48	0.22	2.11
Utilized/Damaged flake	0.65	0.00	0.52	1.66	0.00	1.91	1.23	0.00	2.11	3.47	0.00	2.46
Debitage	24.33	6.09	27.46	62.46	32.16	100.52	46.03	43.85	110.71	130.19	22.90	129.31
Bone	8.14	18.39	30.22	20.90	97.09	110.63	15.40	132.39	121.84	43.56	69.14	142.31
Ceramic	0.19	0.17	0.37	0.48	0.92	1.37	0.35	1.25	1.50	0.99	0.65	1.76
Freeman–Tukey deviates												
Projectile point	-1.63	-0.30	-1.58	-1.61	1.16	-2.25	0.74	1.28	0.59	1.06	-0.90	1.52
Biface	0.90	1.94	1.99	-0.13	-0.86	-0.66	-0.64	-1.08	-1.98	0.26	-0.66	0.95
Uniface	0.73	-0.11	0.74	0.02	-0.49	-0.33	0.29	0.78	0.28	-0.16	-0.37	0.07
Utilized/Damaged flake	0.52	0.00	0.66	0.38	0.00	0.21	-0.01	0.00	-0.66	-0.12	0.00	0.44
Debitage	-1.31	2.03	0.52	-0.28	1.18	-0.13	-1.36	-3.18	-5.26	1.53	1.24	3.88
Bone	1.82	-1.85	-0.94	1.10	-0.50	0.71	2.19	1.58	4.47	-3.54	-0.72	-5.28
Ceramic	-0.32	-0.30	-0.58	0.71	0.25	0.60	-0.88	-1.45	-1.65	0.19	1.24	0.90

^aInter-area test between surface items; $G = 38.83$, $df = 18$, $p = 0.00$, significant value ($p < 0.05$) = ±1.57.

^bInter-area test between sub-surface items; $G = 46.74$, $df = 18$, $p = 0.00$, significant value ($p < 0.05$) = ±1.57.

^cInter-area test between total items; $G = 117.56$, $df = 18$, $p = 0.00$, significant value ($p < 0.05$) = ±1.57.

Observed values are presented in Table 1. Significant Freeman–Tukey deviates bolded and underlined.

Assuming the buried bison indeed reflect hunting by humans, and likewise supposing that surface specimens were in fact butchered, at least three kill-butchery events are evident, spanning the late fifteenth through the mid-to-late nineteenth centuries. Further accepting that dated horse specimens represent the incorporation of mounted hunting into drive milieus (a contentious argument considering the history of the ranch), these data imply this strategy was in place locally by at least the late eighteenth century (also see Newton, 2011). If the youngest assayed bison specimen accurately reflects the last, or at least one of the last kill events in the region, then drive hunts ceased around the time that Euro-American explorers entered North Park.

Conclusions

Ethnographic and historical information identify the Coffin Bison Kill as an important point in the cultural landscapes of the indigenous groups that utilized Northern Colorado and Southern Wyoming during the Late Prehistoric and Protohistoric periods, as well as a significant landmark for eighteenth century Euro-American explorers and trappers. Its prevalence in these records suggests that the site represents a palimpsest archaeological context from which to partially disentangle the tumultuous evolution of Native subsistence economies and social interaction during the period of Euro-American infiltration. This preliminary investigation validates this potential by demonstrating the preservation of buried archaeological deposits containing significant data that can contribute to these research pursuits.

Activity areas

Archaeological material, particularly bone and lithics, are abundant across the surveyed areas, but most profuse in contexts with minimal vegetation cover, such as on the terrace and along the boulder walls. Subsurface testing revealed that buried materials are present to depths of at least 50 cmbs, despite the effects of ranching activities, road construction, and previous collections. Items are nonetheless most abundant in the upper 30 cm of surface deposit.

Contingency table analysis, incorporating *G*-test scores and Freeman–Tukey deviate calculations (Gould, 1996), was employed to compare inter-area differences in artifact frequencies (Table 5). This test is similar to chi-square, but performs better when expected frequencies are low. Calculated deviates enhance test results by identifying cells within a contingency table that are significantly smaller or greater than expected (Meltzer, 2006: 204).

Test results indicate that significantly more bone than expected was recorded in the south swale and wall area, which also contained significantly less flaked stone debris than other site areas. Debitage and projectile points were, conversely, significantly more frequent on the terrace (see Table 5), suggesting distinct activity areas. These data imply that if a buried bonebed, or a palimpsest of several bonebeds, is preserved at the Coffin Bison Kill, it is probably in the south swale. The terrace may have conversely served as a camp or convenient reduction/retooling area.

Given the nature of local topography and its similarity to that surrounding other proximate pound sites (e.g. Willow Springs (Bupp, 1981)); considering the abundance of hunting weaponry and carcass processing tools previously recovered; and taking into account data gathered during the

2009–2010 evaluations reported here, it is most probable that animal trapping occurred in the south swale, with the south wall serving as a convenient hunting blind and the wall gap a suitable nick point through which large numbers of animals could have been driven and, subsequently, dispatched in a constructed corral.

A local businessman and hunter, Mark Mitchell, reports having previously observed bone in and around the gap in the south wall which would have served well as both a natural drive chute and archery blind. The ground in the gap, softened by spring water, may have helped mire and slow animals entering a corral constructed at the base of the south wall slope. In such a scenario, both the south wall and the terrace could have served as shooting vantages. The terrace also appears to have served as a temporary camp where tools were finished and/or maintained and meat perhaps processed and consumed, although no fire features were found in this area of the site. Excavations did, however, reveal sparse charcoal along the north wall and it is probable that this landform, and other granite walls at the foot of the Medicine Bows, served as convenient semi-sheltered camping locales.

These data do not, however, address whether an artificial corral was constructed at the site or, for that matter, the potential course of drive routes. Assuming that an artificial corral was in fact constructed in the south swale (see Byerly, 2010: 84), local topography suggest five possible courses: (1) over the ridge connecting Watson and Pinkham Mountains through the gap in the south wall; (2) concurrent with the route of Colorado State Highway 125 over the south wall; (3) around the western extent of the south wall from the southeast; (4) through the “gate” between Watson and Independence Mountains from the southwest; and (5) from the valley, perhaps across the North Platte River. The first or second such routes seem most probable given the natural bottleneck formed by the course of the river, and the visual and physical barrier created by the wall from the south and north, respectively. GIS-based analyses such as that in Byerly et al. (2005) could help evaluate optimal drive routes, while remote sensing of the south swale area could help investigate the presence or absence of remnant corral features, such as post holes.

Age and composition of kill-butchery events

The only speciated bones retaining damage from probable human processing are bison, although unidentified large, medium, and totally unidentified mammal fragments also display burning and fresh fracture, suggesting that smaller artiodactyls (e.g. elk, deer, and/or antelope) were also probably exploited.

Radiocarbon assays on modified bone suggest at least two episodes of probable bison hunting during the mid-to-late eighteenth and mid-to-late nineteenth centuries, and at least one instance of bison presence during the late fifteenth century. Sparse corner-notched projectiles in both the museum collection and that amassed during this survey suggest that hunting probably also occurred during the Early Ceramic period (ca. 1750–750 cal B.P.; Gilmore et al., 1999), but evidence for earlier site-use is ambiguous. Statistically significant contemporaneity between horse and bison bone dated to the late eighteenth century ($t_s = 0.28$, $df = 1$, $\chi^2 = 3.84$) suggests that horse-mounted hunting may have occurred at the site by at least that time.

Equid remains are present in other protohistoric contexts in Northern Colorado and Wyoming, including Lykins Valley (5LR263), River Bend (48NA202), and at 48SW8319 (Buff, 1983; Eckles et al., 1994; Newton, 2008: 92–98). At both Lykins Valley (eighteenth century) and 48SW8319 (mid-seventeenth century), specimens display evidence of possible butchery, suggesting that the animals were utilized for food (Eckles et al., 1994; Newton, 2008). The equid bones from the Coffin Bison Kill are not butchered, although their extensive weathering may preclude positive identification of such. The spatial distribution of these bones further suggests that the animal eroded out of the western edge of the terrace or washed in from an upslope context as a complete to near-complete skeleton; a curious setting for the natural deposition of a large carcass. Indeed, as noted by Newton (2008: 46), the seemingly odd inclusion of discrete equid elements in the abovementioned sites and others (e.g. the Biesterfeldt Site in North Dakota) implies that “horses may have received unusual treatment compared to other animals that protohistoric groups introduced into their camp locations.”

Horses were re-introduced to the Great Plains by the DeSoto and Coronado expeditions (1540–1542 A.D.; Haines, 1938; Wissler, 1914), but the Utes probably first acquired them from the Spanish during the mid-to-late seventeenth century (ca. 1640–1680 A.D.) through raiding and skirmishes, including the Pueblo Revolt (Simmons, 2000). The animals were well integrated into Ute culture by the early eighteenth century, with further acquisition supported by an alliance with the Comanche prior to 1740 A.D. (Simmons, 2000). By the time the equid bones were deposited at the Coffin Bison Kill (ca. 1770 A.D.), most Ute bands in Colorado and Utah were participants in extensive and expansive trade and raid relationships with the Spanish at Santa Fe, and other Native American groups, including the Apache and Hopi (Simmons, 2000). The presence of horse at the Coffin Bison Kill by the mid-to-late eighteenth century does not, however, necessarily intimate Ute affiliation, as it is possible that other horse-mounted bison hunting groups utilized the site area at that time.

It is still unclear if bison was the only species hunted at the site, as well as the timing of these events. Without unambiguously butchered non-bison bone, or at least non-bison specimens from buried contexts, confidently identifying other prey species is currently problematic, especially considering that the North Platte River Valley has historically catered to ranching as well as subsistence and trophy hunting. This also complicates sorting out potential Protohistoric-era domesticates (e.g. horses and/or mules) in lieu of directly dating bones. Likewise, data sufficient to confidently resolve mortality season(s) are also currently unavailable. Only larger scale excavations can answer these questions, and test excavations demonstrate the presence of buried deposits that could preserve pertinent faunal data, particularly in the south swale.

Site ethnohistory

The identity of the Native American groups that participated in communal hunting at the site is unknown. Available archaeological evidence (e.g. “Shoshone knives” and Brown Ware) seems to implicate use by Ute and/or Shoshone hunter-gatherers, although it is probable that other groups (i.e. the Arapaho) also utilized the region. Archaeological indicators of the Arapaho are sparse in Colorado, however, and unknown elsewhere (Hanson, 1998), and it is probable that the most visible signatures (i.e. those related to subsistence and shelter) of the Historic-era Arapaho would be very similar to, if not entirely indistinguishable from, those of other contemporaneous

bison-hunting groups in the region, particularly the Cheyenne and Sioux with whom they were historically allied, and perhaps even the Shoshone, Ute, and Crow, with whom they were decidedly not allied (Trenholm, 1986).

Very similar material suites (i.e. coarse brown or gray ceramics, side- and tri-notched projectiles, and large bifacial knives) are, for example, present at Late Prehistoric and Protohistoric bison kill-butcheries, such as Piney Creek (Frison, 1967) and Big Goose Creek (Frison et al., 1978), attributed to various groups, including the Shoshone, Ute, and Crow. The most culturally-unique and archaeologically visible items were probably those incorporated into dress, specific ritual, games, or shelter adornment (e.g. beads and tinklers, dance ornaments, door chimes, etc.; see Horn, 1988 and Smith, 1974). Indeed distinct preferences for specific glass bead colors and metal bead styles are noted among Great Plains groups (Koch, 1977: 61–67). These inclinations seem to be visible archaeologically, but current data are yet too sparse to definitively assign affiliation at many bead-bearing sites (Von Wedell, 2011). Some games and dances are, however, known to have been well traveled among different groups (Smith, 1974) and their material correlates were likely not too distinctive.

Test excavations demonstrate that the north wall and perhaps the terrace are the most probable camping locales and those with the best potential to preserve additional such artifacts. A prospective step toward illuminating affiliation at the site is more intensive and controlled metal-detecting survey that, in combination with comprehensive studies of interregional variability in metal trade good morphology and source, may also help illuminate post-contact patterns in trade.

Smith (1974: 53) notes that the Uintah Ute would travel to hunt bison around Rock Springs, Wyoming in Shoshone territory after they became locally decimated in the Uintah Basin after the 1830s A.D., but that only the Colorado Ute (i.e. White River and Uncompahgre bands) would travel east of the Rocky Mountains to hunt on the plains, and risk conflict with the Arapaho. North Park and the North Platte River Valley are not mentioned specifically in available ethnographies for the Eastern Shoshone (e.g. Shimkin, 1947) or Northern Ute (e.g. Smith, 1974).

At best, available data suggest that the North Platte River Valley, including the door to North Park, was a shared and contested hunting ground and travel corridor throughout the eighteenth and nineteenth centuries, at the frontier of ever changing Native American cultural territories (e.g. Frison, 2007: 4; Simmons, 2000: 8). Increased Euro-American infiltration after the 1840s A.D. undoubtedly served to inflame the scale and frequency of intergroup tension and, conversely, perhaps also fostered unforeseen cooperation. The valley thus represents an information-rich landscape within which to illuminate the nature and evolution of Protohistoric- and Historic-era intergroup social dynamics and interregional lifeway patterns. This preliminary investigation demonstrates that the Coffin Bison Kill preserves information that can significantly enhance understanding of these topics.

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