LATE PUEBLO III SITES IN LOWER SAND CANYON LOCALITY, MONTEZUMA COUNTY, COLORADO – PRELIMINARY REPORT OF THE ARCHAEOLOGICAL SURVEY OF 2009

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Abstract

The largest settlement or community center in the thirteenth century A.D. in the Lower Sand Canyon locality, the part of the central Mesa Verde region, was Castle Rock Pueblo (Site 5MT1825). In the vicinity of Castle Rock Pueblo, there were several dozen smaller sites, including habitations as well as limited activity sites that probably created a community. Thirteenth century A.D. (Late Pueblo III period) was a time of environmental, demographic, and social changes in the Mesa Verde region. Conflicts and violence occurred as well, and the manifestation of these may be observed in archaeological data, e.g. defensive architecture and location of sites in defensible locations. This paper presents the results of a survey of the sites conducted by the author in 2009 and are supported by data from other surveys, reports from archaeological excavations of a few sites, as well as early accounts from the nineteenth century A.D. Each site is analyzed in terms of the location, accessibility, layout, availability of water, and presence or absence of traces of defensive architecture, including walls enclosing villages, towers, underground tunnels, and loopholes.

INTRODUCTION

During the thirteenth century A.D. (Late Pueblo III period) the Mesa Verde region (Fig. 1) was faced with many changes including environmental, demographic, and social changes. In the central Mesa Verde region settlement locations shifted from the mesa tops and uplands to canyon rims, cliff alcoves, and overhangs (e.g., Kuckelman 2002, 2006; Lipe and Varien 1999b; Varien 1999; Varien et al. 1996). Also many types of defensive architecture – including towers, underground tunnels connecting two or more structures in a settlement, loopholes, and massive stone walls that partly or fully enclosed villages – were constructed in the Mesa Verde region (Kenzle 1993, 1997; Lipe and Varien 1999a, 1999b; Thompson et al. 1997; Varien et al. 1996).

One of areas within the central Mesa Verde region (Fig. 2) in the Late Pueblo III period where we can find examples of such architecture as well as situation of sites in hard to access and relatively easy to defend locations is the Lower Sand Canyon locality. The sites in this area include one large site,

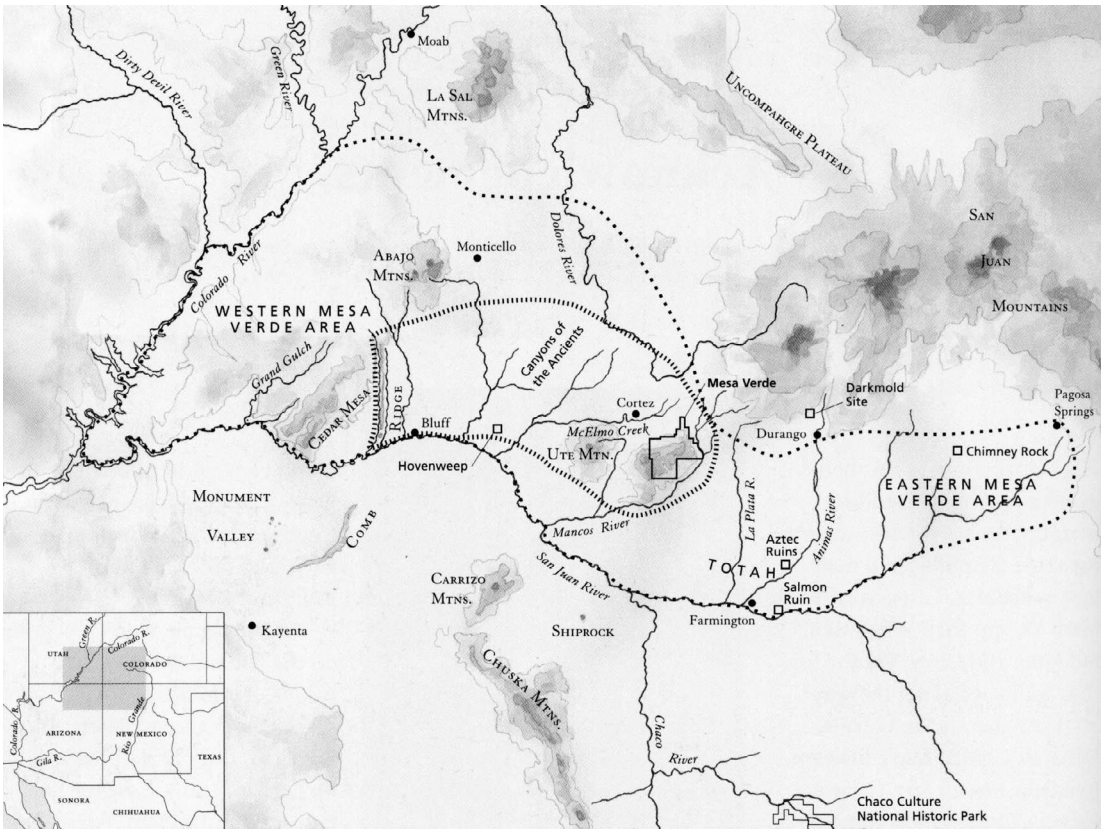

Fig. 1. The location of Mesa Verde region in North American Southwest (after Noble, ed. by 2006: Map.1).

Castle Rock Pueblo (Site 5MT1825), that might have functioned as a community center and at least 41 other small sites. All of these sites might have formed a community of allied sites.

An archaeological survey of sites in the Lower Sand Canyon locality was undertaken by Radosław Palonka, Institute of Archaeology, Jagiellonian University, Krakow, Poland in April and May 2009 as a part of research for doctoral dissertation focused on defensive architecture and location of sites in the central Mesa Verde region. The surrey was with help and assistance of Crow Canyon Archaeological Center, Cortez, Colorado. The detailed description of each of the 42 sites analyzed in total within the Castle Rock Community of the Lower Sand Canyon locality is provided in the dissertation[1]. The data for analysis of sites also came from the nineteenth and early twentieth century preliminary descriptions of sites as well as from unpublished site files and survey reports (e.g., Adler and Metcalf 1992; Gleichman and Gleichman 1989) of archaeological surveys undertaken in the area since 1965 by several American institutions. In the 1980s and 1990s, the Crow Canyon Archaeological Center Cortez, Colorado conducted limited excavations in some of the sites (Varien, ed. by 1999).

[1] R. Palonka, *Defensive Architecture and the Depopulation of the Mesa Verde Region, Utah-Colorado,USA in the XIII Century A.D.* Unpublished Ph.D. dissertation, Institute of Archaeology, Jagiellonian University, Krakow, 2009.

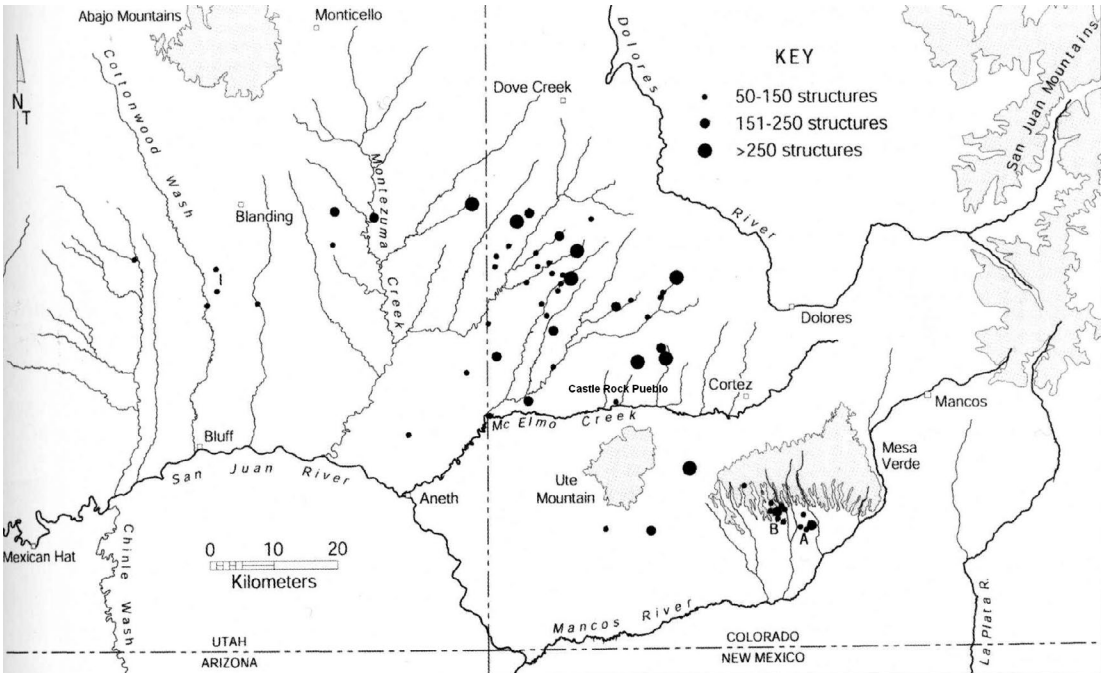

Fig. 2. Map of the central Mesa Verde region showing large sites and community centers (with Castle Rock Pueblo) dating between A.D. 1225 and 1290 (after Varien et al. 1996: Figures 7.8 an 7.9).

LOCATION OF SITES IN LOWER SAND CANYON LOCALITY

The Lower Sand Canyon area is in Montezuma County, in the southwestern part of Colorado, and encompasses the central and southern part of Sand Canyon and smaller adjacent canyons, especially East Rock Canyon (East Fork Canyon) that drains southward toward McElmo Creek, the seasonal stream and small unnamed canyon between Sand Canyon and Goodman Canyon. McElmo Creek is in the southern part of Lower Sand Canyon, flows westward from the Montezuma Valley, and empties into the San Juan River in southeastern Utah.

The Lower Sand Canyon area is part of a larger area within the central Mesa Verde region[2] called the Sand Canyon locality (Gleichman and Gleichman 1992; Lipe 1992; Ortman 2008). The elevation of the area ranges between about 1700–1800 m (about 5600–5900 ft) near the McElmo Creek floodplain and about 1650 m (5400 ft) in East Rock (East Fork) Canyon to about 1850 m (about 6100 ft) and about 2100 m (about 6900–7000 ft) in the northern part of the area (Adler and Metcalf 1992:52–53; Gleichman and Gleichman 1992:58–62; Ortman 2008:127).

The term "Castle Rock Community" (Ortman 2008) refers to Castle Rock Pueblo and numerous small sites in the same vicinity in the Lower Sand Canyon area (Figs. 3, 4). The precise boundary

[2] The central Mesa Verde region is defined as the area between Mesa Verde National Park in southwestern Colorado and the Utah-Colorado border (Lipe 1995:143), but this definition was recently extended to include the area from the Mancos River and Mesa Verde National Park in Colorado to Cottonwood Wash in southeastern Utah (Varien 2000:6–7).

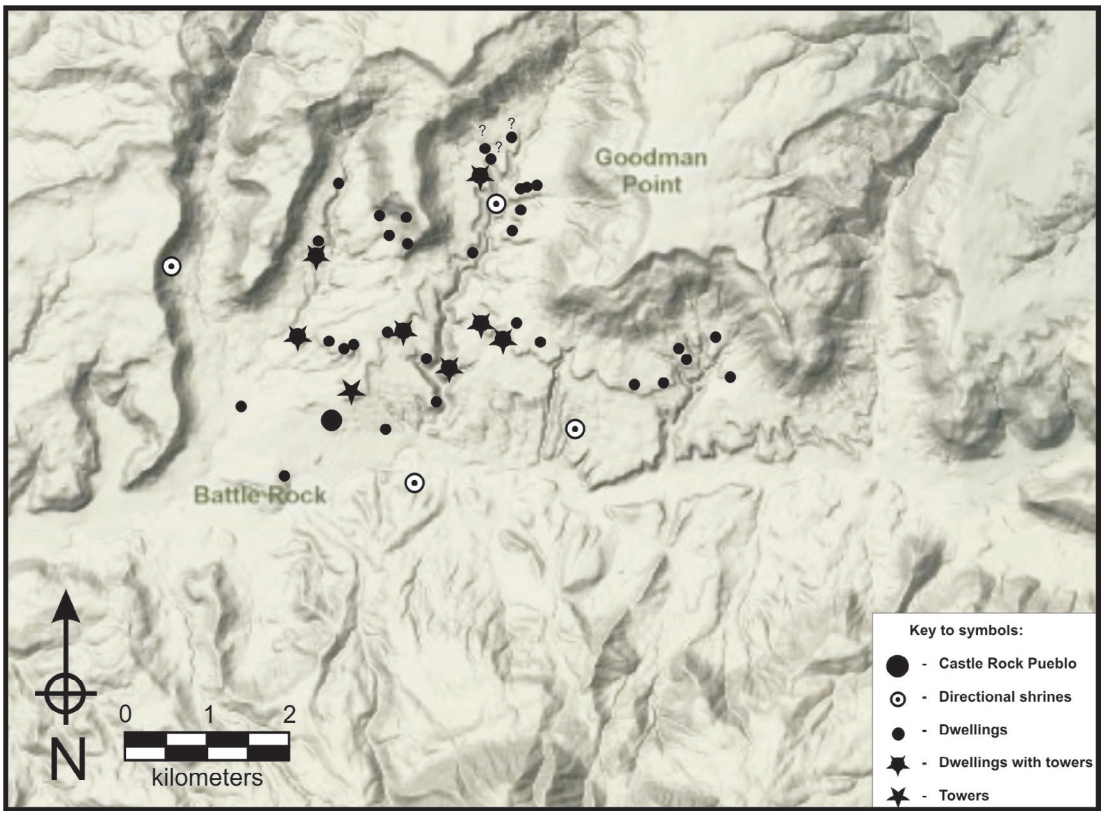

Fig. 3. Location of sites in the Lower Sand Canyon area dating to Late Pueblo III period analyzed in the article (sites with question mark are with not certain chronology). Topographic map from the Google Maps with drawings by R. Palonka, M. and M. Przybyła.

of the community is difficult to establish. In my analysis of sites from the Lower Sand Canyon area, I estimate the approximate area of the Castle Rock Community on the basis of Varien's estimates of the size of community catchments in the Mesa Verde region as four-five kilometer in radius from the community center (Varien 1999; Varien and Potter 2008) and the boundary of the Castle Rock Community follows Ortman's (2008) proposal of the boundary as marked by four shrines. The shrines are located roughly to the north, west, east, and south of Castle Rock Pueblo (see Figs. 3 and 4).

These shrines are dated to the Late Pueblo III period that may be considered as community boundary markers having ritual and spiritual functions and are also known from the ethnographic literature of different historic Pueblo societies such as the Hopi, Zuni, Keres, and Tewa (Ortiz 1969: 19–20; Ortman 2008:138–146). Such as these shrines probably functioned as well in the period before contact with Europeans (Ortman 2008). The shrines that Ortman considers community boundary makers are stone circles approximately 5 m in diameter, each is situated "in a significant location, one that relates Castle Rock to the cardinal directions, the surrounding landscape, and prominent topographic features on the horizon" (Ortman 2008:134). The topographic features mentioned by Ortman are, for example, mountains such as Sleeping Ute Mountain that is located south of Castle Rock Pueblo.

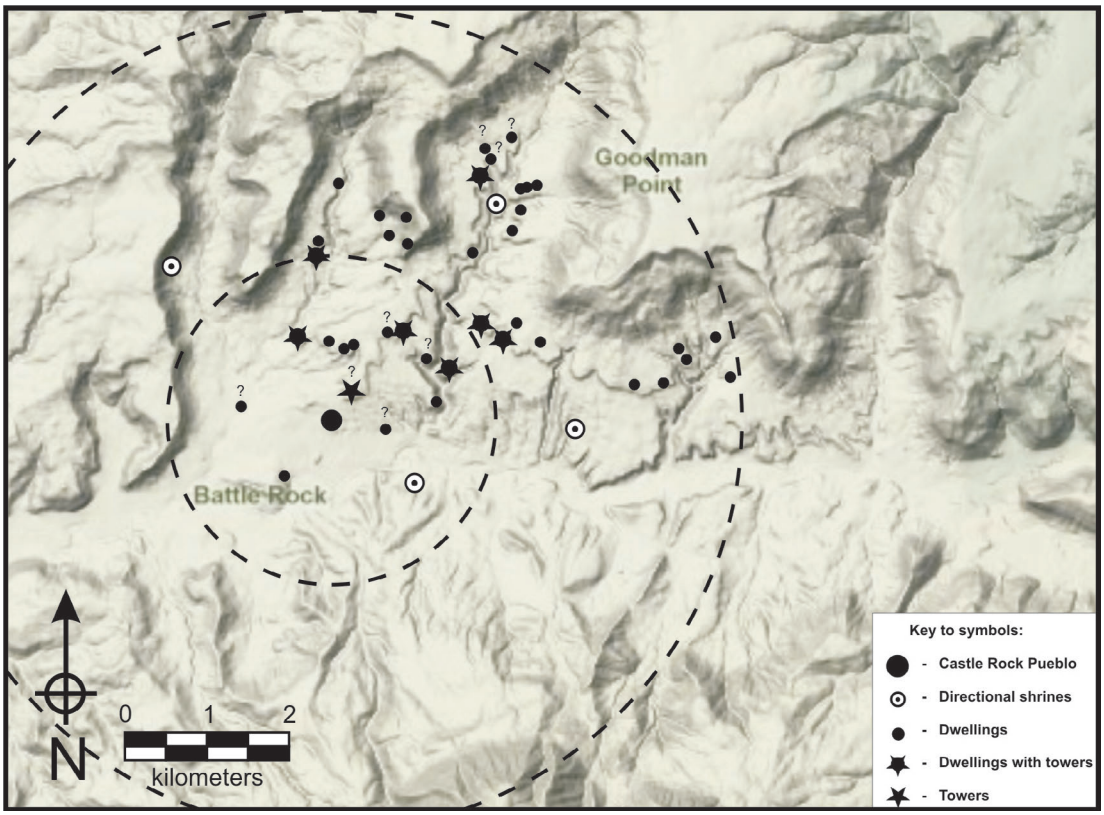

Fig. 4. Map showing 1-, 2-, and 4-kilometer radii centered on the community center Castle Rock Pueblo, showing the distances between the community center and the small sites in the community. Topographic map from the Google Maps with drawings by R. Palonka, M. and M. Przybyła.

Three of these shrines or stone circles open toward Castle Rock Pueblo and one opens toward Sleeping Ute Mountain. The western shrine (Site 5MT15184) is at the eastern edge of a mesa above Rock Canyon and Rock Creek approximately 3.5–4 km northwest of Castle Rock Pueblo. The eastern shrine is situated on top of a low hill above McElmo Creek about 4 km east of the pueblo. The northern shrine (Site 5MT2796) is about 4 km north of the pueblo "on a knoll above the inner gorge of Sand Canyon." The southern shrine is "on top of a ridge where the northern slopes of Ute Mountain meet McElmo Creek" about 2 km southeast of Castle Rock Pueblo (Ortman 2008:134–138).

METHODOLOGY AND HISTORY OF RESEARCH

The selection of sites was based on the location of sites within the area of the so-called Lower Sand Canyon locality and their chronology (the article refers to the sites dated only to the thirteenth century A.D. roughly Late Pueblo III period). The chronology has been established mainly on the basis of pottery types, architectural styles, and dendrochronology, although tree-ring dates are available for only a few sites from this area. The data presented in this paper is mostly from site files of unpublished surveys (e.g., Adler and Metcalf 1992; Gleichman and Gleichman 1989), reports from excavations

conducted by Crow Canyon Archaeological Center, Cortez, Colorado (Varien, ed. by 1999), the electronic database of sites prepared by Scott G. Ortman, Crow Canyon Archaeological Center, and the results of the independent survey of sites made by the author in April and May 2009. These data indicate that all 42 sites examined in Castle Rock Community were used in the thirteenth century A.D. (the late Pueblo III period), although it is difficult to determine whether all 42 sites were inhabited or used contemporaneously or if some were abandoned when others were established.

Each analyzed site was examined along several parameters: location; access; distance to and availability of domestic water; distance to nearby sites; line-of-sight contact; and presence of apparently defensive architectural features, e.g., village-enclosing/retaining walls, towers, loopholes, underground tunnels, structure access (ground level vs. upper story), and any other feature that could have been designed for the protection or defense of the inhabitants. On the basis of available data, a map of the location of all analyzed sites was prepared by the author (Figs. 3, 4). The map is based on different maps from previous surveys and includes the location of sites in terms of topographic features. The location of particular sites is important for several reasons, e.g. their situation in a place good for defense and for intervisibility between sites.

The first descriptions of some small cliff dwellings (at that time called "cave houses") came from a report on Castle Rock Pueblo prepared as part of the Hayden Survey conducted in 1874 and 1875 in the southwestern part of Colorado (Jackson 1876a; 1876b; two versions of the report were published). Also included are the first drawings, engravings, and photographs of some of these small sites. In the 1890s and at the turn of the twentieth century T. Mitchell Prudden conducted surveys and excavations of some sites in the area. He also prepared descriptions and took photographs of several sites within the Lower Sand Canyon locality, like Mad Dog Tower (Site 5MT181) (Prudden 1903). Jesse W. Fewkes (1919), under the auspices of the Bureau of American Ethnology, conducted a survey that included reconnaissance of the McElmo area and prepared descriptions of sites such as Site 5MT129 and Site 5MT181 (Mad Dog Tower). In the early 1940s the area was visited by people from Gila Pueblo, a private archaeological research institution (Gleichman and Gleichman 1989:10).

Most of the recent and more detailed investigations of the sites of the Lower Sand Canyon locality took place between the 1960s and the 1990s (Gleichman and Gleichman 1989:9–11; Lipe and Varien 2003:Section 7, page 6). These were mostly surveys, but some excavations were also conducted. Before that, in 1957, some sites were surveyed and located on a USGS topographic map. In 1965, the Lower Sand Canyon area was surveyed by archaeologists from the Mesa Verde Research Center (MVRC) of the University of Colorado, Boulder, and the Bureau of Land Management. In 1975 MVRC, under the supervision of Curtis W. Martin, conducted a ruins stabilization inventory of the Sand Canyon area. Also in the early 1970s George Kelly of McElmo Canyon conducted temporary stabilization at six sites in the Lower Sand Canyon area (Gleichman and Gleichman 1989:10–11).

In1983 and 1984 the Crow Canyon Archaeological Center began recording and surveying sites in the area. Limited excavations were also conducted at some sites as part of the Sand Canyon Archaeological Project Site Testing Program (Varien, ed. by 1999). Also, in 1986 and 1987 the Sand Canyon Survey Project was conducted; the Sand Canyon Archaeological Project fieldwork began in 1983 and continued through 1993. In October and November 1988 another survey of Lower Sand Canyon was conducted as part of a survey of the larger Sand Canyon area. This survey was conducted by Carol L. Gleichman and Peter J. Gleichman under the Native Cultural Services (NCS) for the Bureau of Land Management (BLM) (Gleichman and Gleichman 1989, 1992). In the 1980s, the Crow Canyon Archaeological Center began test excavations at a few sites within the Lower Sand Canyon area, including Mad Dog Tower (Site 5MT181) in 1988, Saddlehorn Hamlet (Site 5MT262) in 1990,

and Castle Rock Pueblo (Site 5MT1825) in 1990–1991 (test excavations) and 1992–1994 (intensive excavations).

One of the most recent surveys of the area, which also recorded some previously unknown sites, occurred in 1998 and 2002. Some of the sites in the area were also monitored by the Bureau of Land Management in 2007.

The last survey of Lower Sand Canyon was conducted by the author of the article in April and May 2009. Most of the small sites dated to Late Pueblo III period were surveyed by preparing descriptions of the architecture visible on the modern ground surface, partly drawing, and photographing them. One of the aims of the survey was also to prepare a more detailed map of the sites in the area.

INITIAL RESULTS OF THE RESEARCH ON SITES IN LOWER SAND CANYON LOCALITY

The characteristic settlement pattern of the central Mesa Verde region during the thirteenth century A.D. consisted of clusters of small sites around community centers (Varien 1999; Varien et al. 2000). The Castle Rock Community, in the lower portion of the Sand Canyon locality, probably consisted of 42 sites, including the community center Castle Rock Pueblo (Site 5MT1825). All analyzed sites from the area have been dated to the thirteenth century A.D., although it is difficult to determine if all were contemporaneous or if some sites were built before the founding of Castle Rock Pueblo in the A.D. 1250s (Kuckelman 2000, ed. by). Particular sites might have been inhabited during the late A.D. 1100s or in the early A.D. 1200s, and those sites are marked with question marks on the map.

Table 1. Location, site type, and possible function of the thirteenth century A.D. (Late Pueblo III) sites in Castle Rock Community. The sites with uncertain chronology (sites with question marks – Figs. 3 and 4), are not included in the table.

	Site name	**Site type**	**Possible function**
1	5MT125	Cliff dwelling with isolated tower	Habitation /lookout
2	5MT126	Cliff dwelling	Habitation/Single
3	5MT127 (Vision House)	Cliff dwelling	Habitation/Multiple
4	5MT129	Cliff dwelling	Habitation/Single
5	5MT135 (Sunny Alcove)	Cliff dwelling with isolated tower	Habitation/Single
6	5MT181 (Mad Dog Tower)	Tower with associated structures	Habitation /lookout
7	5MT182	Cliff dwelling	Habitation/Single
8	5MT186 (Corncob Pueblo)	Cliff dwelling	Habitation/Multiple
9	5MT257	Dwelling on a bench against the cliff	Habitation/Multiple
10	5MT261	Cliff dwelling with isolated tower	Habitation /Multiple/lookout
11	5MT262 (Saddlehorn Hamlet)	Cliff dwelling with isolated tower	Habitation /lookout

12	5MT264 (The Gallery, Serpent Quarters) (included Site 5MT1842 and 5MT1843)	Cliff dwelling with isolated tower (Site 5MT1842)	Habitation/Multiple /lookout
13	5MT265	Cliff dwelling	Habitation/Multiple
14	5MT1804	Cliff dwelling	Habitation/Single
15	5MT1805 (Two Story House/ Broken Beam Pueblo)	Cliff dwelling	Habitation/Multiple
16	5MT1806 (Kiva in the Sky)	Cliff dwelling	Habitation/Single
17	5MT1807 (Crescent House)	Cliff dwelling	Habitation/Single
18	5MT1808 (Two Room House)	Cliff dwelling	Habitation/Single
19	5MT1824	Cliff dwelling	Habitation/Indeterminate
20	5MT1825 (Castle Rock Pueblo)	Site on top and around a butte	Community center
21	5MT1826	Cliff dwelling	Habitation/Single
22	5MT1827	Cliff dwelling	Habitation/Single
23	5MT1828	Cliff dwelling	Habitation/Single
24	5MT1829	Cliff dwelling	Habitation/Multiple
25	5MT1831	Cliff dwelling	Habitation/Single
26	5MT1999	Cliff dwelling	Habitation/Indeterminate
27	5MT2000	Cliff dwelling	Habitation/Single
28	5MT2001	Cliff dwelling	Reservoir/Indeterminate
29	5MT2002	Cliff dwelling	Habitation/Multiple
30	5MT2636	Cliff dwelling	Habitation/Multiple
31	5MT2644	Site on talus slope	Habitation/Single
32	5MT 2796	Site on a knoll	Shrine
33	5MT2797	Tower with associated structures	Habitation/Multiple /lookout
34	5MT2799 i 5MT2800	Sites on a knoll	Lookout (Habitation?)
35	5MT2801	Cliff dwelling	Habitation/Single
36	5MT10992	Site on talus slope	Habitation/Single
37	5MT11023	Site on talus slope	Habitation/Single
38	5MT13251	Site on talus slope	Habitation/Single
39	5MT14659	Site on talus slope	Habitation/Single
40	5MT 15184	Edge of a mesa	Shrine
41	Not known 5MT number	Top of a low hill	Shrine
42	Not known 5MT number	Top of a ridge	Shrine

Table 2. Elevation, aspect of site, and distance to the nearest water source of Late Pueblo III sites (not including shrines) in Castle Rock Community. Distance to water sources is estimated on the basis of surveys data.

	Site name	Elevation (above sea level)	Aspect of the site	Distance to the nearest water source
1	5MT125	1792 m (5880 ft)	South and southeast	25 m (24 m below the site)
2	5MT126	1792 m (5880 ft)	South and southwest	25 m (18 m below the site)
3	5MT127 (Vision House)	1798 m (5900 ft)	South and southeast	In the site
4	5MT129	1795 m (5890 ft)	South	275 m (64 m below the site)
5	5MT135 (Sunny Alcove)	1792 m (5880 ft)	South and southwest	20–40 m
6	5MT181 (Mad Dog Tower)	1789 m (8870 ft)	Southeast	425 m (55 m below the site)
7	5MT182	1795 m (5890 ft)	South	In the site and 45 m from the site
8	5MT186 (Corncob Pueblo)	1762 m (5781 ft)	South	In the site and very close to it
9	5MT257	1713 m (5620 ft)	South	75 m (probable also closer)
10	5MT261	1707 m (5600 ft)	South	122 m (30 m below the site)
11	5MT262 (Saddlehorn Hamlet)	1769 m (5800 ft)	South and southwest	475 m (77 m below the site)
12	5MT264 (The Gallery, Serpent Quarters) (included Site 5MT1842 and 5MT1843)	1707 m (5600 ft)	South and southeast	3 m
13	5MT265	1768 m (5800 ft)	East	A few meters east of the site
14	5MT1804	1767 m (5797 ft)	West and south	?
15	5MT1805 (Two Story House)	1804 m (5915 ft)	South	?
16	5MT1806 (Kiva in the Sky)	1804 m (5915 ft)	South	?
17	5MT1807 (Crescent House)	1804 m (5915 ft)	South and west	In the site
18	5MT1808 (Two Room House)	1804 m (5915 ft)	South and southeast	In the site
19	5MT1824	1800 m (5900 ft)	Southwest	In the site
20	5MT1825 (Castle Rock Pueblo)	1682 m (5520 ft)	Different (mostly south)	600 m south of the site

21	5MT1826	1750–1770 m (ca. 5800 ft)	South and southeast	Probably a few meters of the site
22	5MT1827	1750–1770 m (ca. 5800 ft)	South and southwest	Several hundred meters west of the site
23	5MT1828	1750–1770 m (ca. 5800 ft)	Southwest	Probably a few meters of the site
24	5MT1829	1795 m (5892 ft)	West	Several hundred meters west of the site
25	5MT1831	1700 m (5600 ft)	South	In the site
26	5MT1999	1706 m (5600 ft)	East and northeast	Near the site
27	5MT2000	1706 m (5600 ft)	East and northeast	Near the site
28	5MT2001	1706 m (5600 ft)	East and northeast	Near the site
29	5MT2002	1706 m (5600 ft)	East and northeast	Near the site
30	5MT2636	1877 m (6160 ft)	South	Probably a few meters of the site
31	5MT2644	1774 m (5820 ft)	West	Probably a few meters of the site
32	5MT2797	1785 m (5855 ft)	Southeast	300 m north of the site
33	5MT2799 and 5MT2800	?	Mostly south	?
34	5MT2801	1798 m (5900 ft)	South and southeast	Below the site
35	5MT10992	1676 m (5500 ft)	South	350 m south of the site
36	5MT11023	1655 m (5430 ft)	West	260 m from the site
37	5MT13251	1780 m (5840 ft)	Southwest	457 m from the site
38	5MT14659	1843 m (6049 ft)	South and southeast	442 m from the site

Castle Rock Pueblo (community center)

Castle Rock Pueblo (Figs. 5–7) was probably founded in the A.D. 1250s, as indicated by tree-ring dates. The latest tree-ring date is A.D. 1274vv (Kuckelman et al. 2002:489; Kuckelman 2000, ed. by). The total number of residents has been estimated at about 75–150 (Kuckelman 2000, ed. by). This village was probably the center of a larger community of settlements in the Sand Canyon locality, which includes Sand Canyon itself, East Rock Canyon, other smaller canyons, and other areas. There were probably about 40 small habitations in the vicinity of Castle Rock Pueblo.

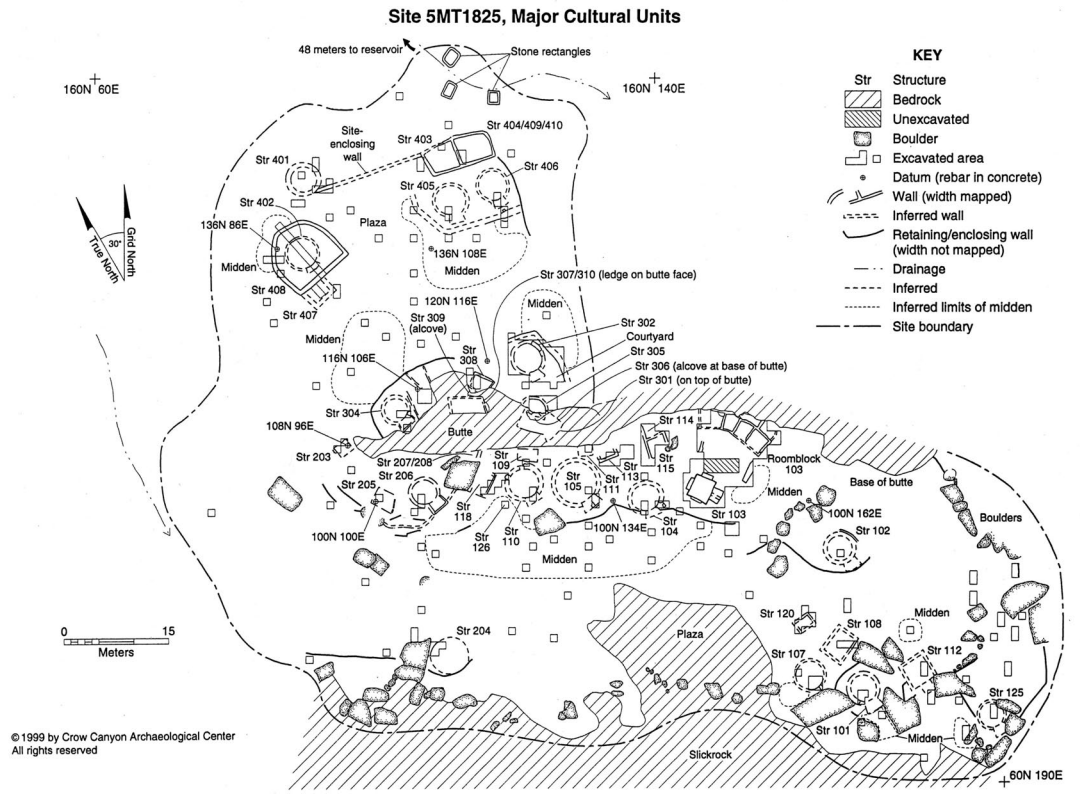

Fig. 5. Plan of Site 5MT1825, Castle Rock Pueblo. Courtesy of Crow Canyon Archaeological Center.

Location of site and its accessibility

Castle Rock Pueblo is situated on and around the base of a 20 m (65 ft) tall butte (Fig. 6), the lower section of which is Entrada Formation; the sandstone slickrock below the talus slope Navajo Formation (Varien 1999, ed. by). Most structures were built on the talus slope north and south of the butte and some are abutted to the butte face. Some buildings were also constructed on the butte itself and on a large boulder south of the butte. The sites face various directions; however, most of the structures within these sites probably faced south.

The access to particular parts of the village differed, because some structures were at the base of the butte and some were on top. The structures most difficult to access were atop the butte, on a ledge midway up the north face of the butte, and on a boulder south of the butte. Structures on top of the butte could have been accessed from the northern face via ladders on the roofs of two towers: Structure 305 and Structure 307/310 (Kuckelman 2000, ed. by). At the base of the north face of the butte, a cluster of structures had been built as additional protection along the access route to the top of the butte. These buildings were abutted to the north face of the butte and thus faced north, which was not typical of construction during the Pueblo III period. Access to the top of the butte was not possible from the south.

Fig. 6. Castle Rock Pueblo; looking northeast. Photo by R. Palonka.

Defensive architecture and site layout

The site consists of more than 60 structures, including a minimum of 40 rooms, 16 kivas, nine towers, a D-shaped building, several sections of enclosing or retaining walls, at least two plazas, and several midden areas (Crow Canyon Archaeological Center 2000; Kuckelman 2000, ed. by). However, because a great deal of the rubble was removed from the site in historic times, it is difficult to estimate the exact number of structures that might have been present during the occupation of the village. One possible plaza is near the north edge of the site; the other possible plaza is south of the butte, and the southern edge of this plaza is defined partly by "an intentionally placed row of boulders" (Kuckelman 2000, ed. by).

Some areas of the settlement were enclosed or bound by stone walls. The wall was probably not tall, although it is difficult to estimate the original height. Segments of this wall were documented along the north and south edges of the site (Crow Canyon Archaeological Center 2000; Kuckelman 2000, ed. by).

An estimated nine towers were constructed at Castle Rock Pueblo; this estimate resulted from excavations conducted at the site from 1990 to 1994 by the Crow Canyon Archaeological Center (Kuckelman 2000, ed. by; Kuckelman et al. 2002:488). Six of these (structures 207/208, 301, 305, 307/310, 401, and 404/409/410 – Fig. 7) were tested during excavations, and three additional structures

Fig. 7. Castle Rock Pueblo: Structure 404/409 (tower) with loophole in east wall. In the foreground the north face of the butte. Photo by R. Palonka.

are known only from nineteenth-century photographs taken by W. H. Jackson (Kuckelman 2000, ed. by). Structure 207/208 is between the southwestern face of the butte and a boulder, and it is protected by these natural barriers. Structure 307/310 was situated on a ledge midway up the north face of the butte. Structure 305 abuts the north face of the butte. Structure 401 is positioned at the northwest edge of the site, whereas Structure 404/409/410 is in the northern part of the site and is attached to a section of village-enclosing wall. All of these structures might have been two stories tall; however, this is difficult to prove given the current state of preservation. An exception is Structure 305, for which there is evidence of a second story, and the 3.5-m-tall Structure 404/409/410 which shows evidence of a second or even third story in historic photographs (Crow Canyon Archaeological Center 2000; Kuckelman 2000, ed. by).

Towers were constructed in different areas of the settlement. At least three were built on the top of the butte—Structure 301 plus two structures known only from historic photographs. The others were built on the northern and western sides of the village. Structure 301 might have protected the northern approach to the butte (Kuckelman 2000, ed. by). Structures 305 and 307/310, along with Structure 301, might have also protected access to the butte from the north. Kuckelman (2000, ed. by) concluded that the structures considered to be towers at Castle Rock Pueblo were built to increase the defensibility of the village; at least three were situated on the butte top in difficult-to-access locations. Structure 408

might have been a tower, but even though it was circular, it was not very tall (Kuckelman 2000, ed. by). Its location is indicative of defense.

The number and locations of loopholes originally present in the village is difficult to estimate because of the poor preservation of much of the architecture and of the limited exposure of walls during testing by Crow Canyon. Two loopholes were documented in Structure 404, a tower, and they were angled north and east or southeast across the drainage that delineates the northern boundary of the settlement (Crow Canyon Archaeological Center 2000).

Access to water

The primary water source was McElmo Creek, approximately 600 m (about 2,000 ft) south of the site. This creek might have served as a permanent or at least a seasonal water source during the occupation of the village in the thirteenth century A.D. (Kuckelman 2000, ed. by; Varien 1999, ed. by). The floodplain of McElmo Creek could have served as a good farming area during the Puebloan occupation of the area.

The remains of two stone-and-earth dams are approximately 40 m (130 ft) north of the site in an unnamed intermittent drainage. They were probably built by the inhabitants of Castle Rock Pueblo to impound runoff relatively near the village (Kuckelman 2000, ed. by; Kuckelman et al. 2002). The

Fig. 8. Rock art in Castle Rock Pueblo showing the fighting peoples. Photo by R. Palonka.

Fig. 9. Drawing of rock art in Castle Rock Pueblo (after Lightfoot and Kuckelman 2001:57).

dams were constructed in the natural bedrock drainage from which runoff drained southward, along the north edge of Castle Rock Pueblo.

Other evidences of conflicts in Castle Rock Pueblo

Excavations conducted in the 1990s revealed that the settlement was attacked as indicated by human remains representing at least 41 unburied individuals, some showing signs of violent death, as well as dismantled and burned structures. These data correspond with the oral tradition of Hopi people that was recorded in the 1870s about an ancient battle that could have taken place at Castle Rock (see below) (Kuckelman 2000, ed. by; Kuckelman et al. 2002; Lightfoot and Kuckelman 2001).

A rock art panel on the north face of the butte depicts three people fighting (Figs. 8-9). "The three figures have rectangular or globular bodies that may represent warriors' shields. The figure in the center and the figure on the right hold bows and arrows, stand back-to-back, and appear to be defending each other. The figure in the center seems to be shooting an arrow toward the figure on the left The figure on the left, with his legs in front of him, appears to be falling away from the central figure and holding up a shield in defense against the arrow" (Kuckelman 2000, ed. by). Kuckelman infers that this panel was created during the occupation of the settlement, or it was made by the survivors or attackers after the battle at Castle Rock Pueblo that forced the surviving residents to migrate.

There is the example of Native American oral tradition referring to Castle Rock Pueblo that was told by John Moss to members of the Hayden Expedition in 1874. Moss, who had been, from 1864 to 1868, the first Indian agent for the Hopi and who spoke the Hopi language, stated that he heard this story from a Hopi man. Ernest Ingersoll, a member of that expedition, published the story in the *New York Tribune* on November 3, 1874. It tells about the last battle that occurred between Pueblo people who lived there and (as told by Moss) the ancestors of the Ute Indians, which led to the evacuation of the pueblo by the survivors, who went south:

> "Formerly, the aborigines inhabited all this country we had been over as far west as the headwaters of the San Juan, as far north as the Rio Dolores, west some distance into Utah, and south and southwest throughout Arizona and on down into Mexico. They had lived there from time immemorial—since the earth was a small island, which augmented as its inhabitants multiplied. They cultivated the valley, fashioned whatever utensils and tools they needed very neatly and handsomely out of clay and wood and stone, not knowing any of the useful metals; built their homes and kept their flocks and herds

> in the fertile river-bottoms, and worshiped the sun. They were an eminently peaceful and prosperous people, living by agriculture rather than by the chase. About a thousand years ago, however, they were visited by savage strangers from the North, whom they treated hospitably. Soon these visits became more frequent and annoying. Then their troublesome neighbors—ancestors of the present Utes—began to forage upon them, and, at last, to massacre them and devastate their farms; so, to save their lives at least, they built houses high upon the cliffs, where they could store food and hide away till the raiders left. But one summer the invaders did not go back to their mountains as the people expected, but brought their families with them and settled down. So, driven from their homes and lands, starving in their little niches on the high cliffs, they could only steal away during the night, and wander across the cheerless uplands. To one who has traveled these steppes, such a flight seems terrible, and the mind hesitates to picture the suffering of the sad fugitives.
>
> At the *cristone* [a volcanic dike, according to Ingersoll] they halted, and probably found friends, for the rocks and caves are full of the nests of these human wrens and swallows. Here they collected, erected stone fortifications and watch-towers, dug reservoirs in the rocks to hold a supply of water, which in all cases is precarious in this latitude, and once more stood at bay. Their foes came, and for one long month fought and were beaten back, and returned day after day to the attack as merciless and inevitable as the tide. Meanwhile, the families of the defenders were evacuating and moving south, and bravely did their protectors shield them till they were all safely a hundred miles away. The besiegers were beaten back and went away. But the narrative tells us that the hollows of the rocks were filled to the brim with the mingled blood of conquerors and conquered, and red veins of it ran down into the cañon. It was such a victory as they could not afford to gain again, and they were glad, when the long fight was over, to follow their wives and little ones to the south. There, in the deserts of Arizona, on well-nigh unapproachable isolated bluffs, they built new towns, and their few descendants, the Moquis [Hopi], live in them to this day, preserving more carefully and purely the history and veneration of their forefathers than their skill or wisdom. It was from one of their old men that this traditional sketch was obtained." (Kuckelman, ed. by 2000; Lightfoot and Kuckelman 2001: 55–56 after Jackson 1981: 380).

Archaeological excavations conducted by archaeologists from the Crow Canyon Archeological Center from 1990 through 1994 revealed that the village had been attacked during its final stage of occupation, and the bodies of many people had been left there (Kuckelman et al. 2000; Lightfoot and Kuckelman 2001). Archaeological evidence from excavations conducted at the site in 1990s suggests that the Castle Rock Pueblo legend had been passed down from generation to generation (Kuckelman, ed. by 2000).

Small sites in the Castle Rock Community

The small sites in Lower Sand Canyon locality are divided geographically on several groups that include sites located in three canyons (Sand Canyon, East Fork Canyon, an unnamed canyon between Sand Canyon and Goodman Canyon) and sites located south of Castle Rock Pueblo on Battle Rock.

Location of sites and their accessibility

Of the 42 sites examined (including shrines), 28 are located in difficult-to-access cliff alcoves and associated talus slopes, one (Castle Rock Pueblo) is situated on and around a butte 20 m tall, five lie on talus slopes, three sit atop a knoll, hill, or ridge, three that consist of towers and associated structures rest on relatively flat areas and gentle talus slopes, one site on the edge of the mesa, and one (Site 5MT257) is perched on a difficult-to-access bench against a cliff face.

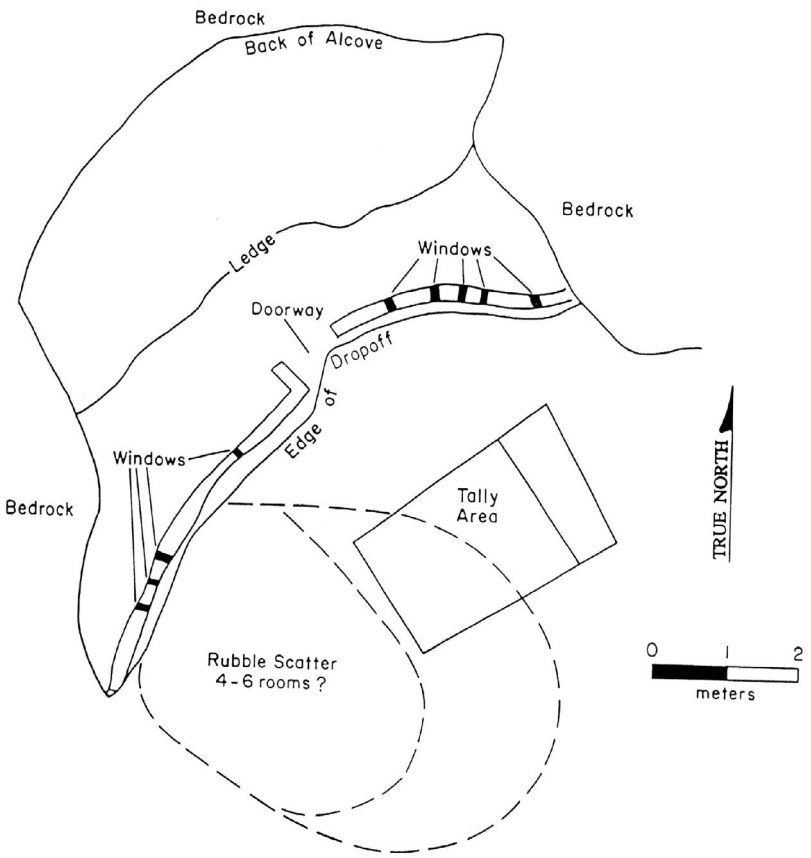

Fig. 10. Plan of the Site 5MT1826 (after Adler and Metcalf 1992:41, Figure 12).

Most of these sites are difficult to access, although the sites with the most restricted access, and that require the use of a ladder several meters long to reach, are located in cliff alcoves. Site 5MT257, on a bench at the top of a steep talus slope, is also difficult to access. The elevations of the sites that formed the Castle Rock Community range from 1655 m (5430 ft) to 1877 m (6160 ft). Most face south, southeast, and southwest directions.

Most of the small sites examined in the lower portion of the Sand Canyon locality were accessible by one or two routes. Hand-and-toe holds are associated with a few sites in the lower portion of the Sand Canyon locality and were found south of Site 5MT2799 (a tower), on the route to a tower at Site 5MT261, and at Site 5MT2801. Walls extend the entire length of the alcove and create only one entryway into sites 5MT265, 5MT1826, 5MT1831, and 5MT2801.

Defensive architecture and site layout

At small sites in the lower portion of the Sand Canyon locality, in the proposed Castle Rock Community, evidence of retaining walls can be observed below some alcoves. Walls that were built along the entire length of the alcove are visible at sites such as 5MT265, 5MT1826 (Figs. 10–12),

Fig. 11. Photo of Site 5MT1826; general view from the south. Photo by R. Palonka.

5MT1831, and 5MT2801; the only entry into these alcoves is through these walls, and some of the walls reach nearly to the roof of the alcove. At two small cliff dwellings, sites 5MT1826 and 5MT1831, there is not much evidence of permanent habitation within the alcove, although there is evidence of structures below the shelters. These alcoves might have functioned as refuges for inhabitants living below the alcoves and also for people at other nearby small habitations. At other small sites in the area, such as Site 5MT135 (Figs. 13–16), room walls that were constructed parallel with the cliff face near the edge of the alcove might have protected the entrance.

In the Mesa Verde region, theories of the possible functions of towers include their usage as communication features, especially for towers located in the line-of-sight between sites, which

Fig. 12. Photo of Site 5MT1826 with visible loopholes or windows and the doorway. Photo by R. Palonka.

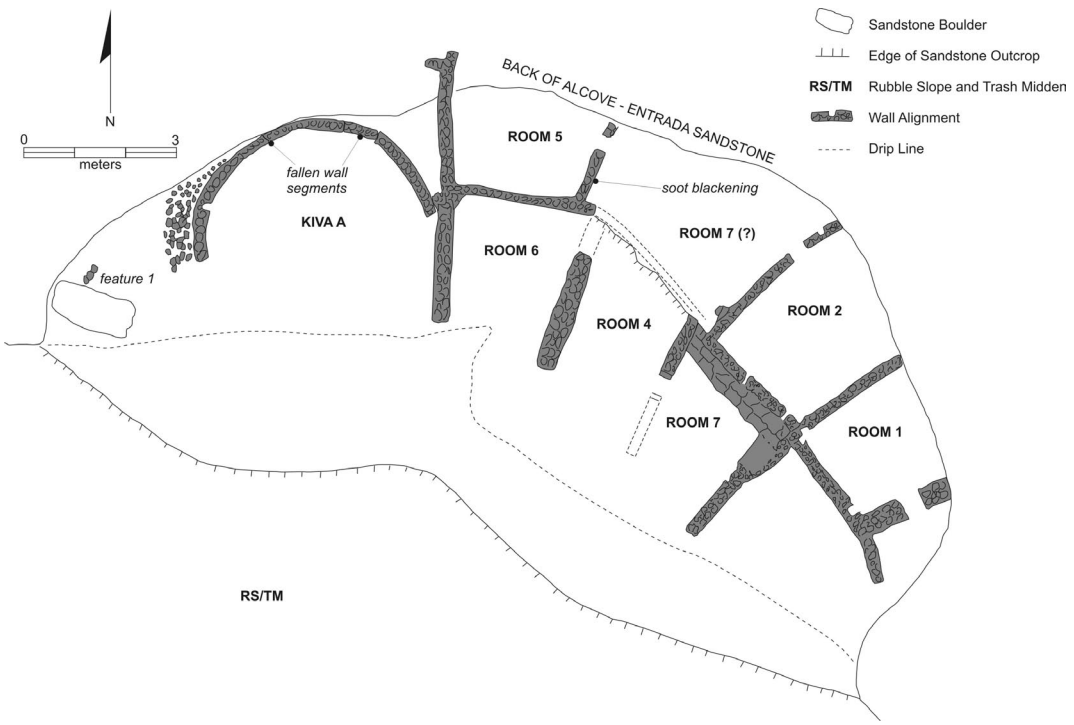

Fig. 13. Plan of the Site 5MT135, Sunny Alcove (after Prehistoric Archaeological Component Form, 1998).

Figs. 14 a, b. Photo of Site 5MT135. View from the tower considered as a part of the site. Photo by R. Palonka.

Fig. 15. Photo of tower included in Site 5MT135. Photo by R. Palonka.

Fig. 16. A loophole in the tower in Site 5MT135 (the example of typical loopholes that may be seen in towers and walls of sites in Lower Sand Canyon). Photo by R. Palonka.

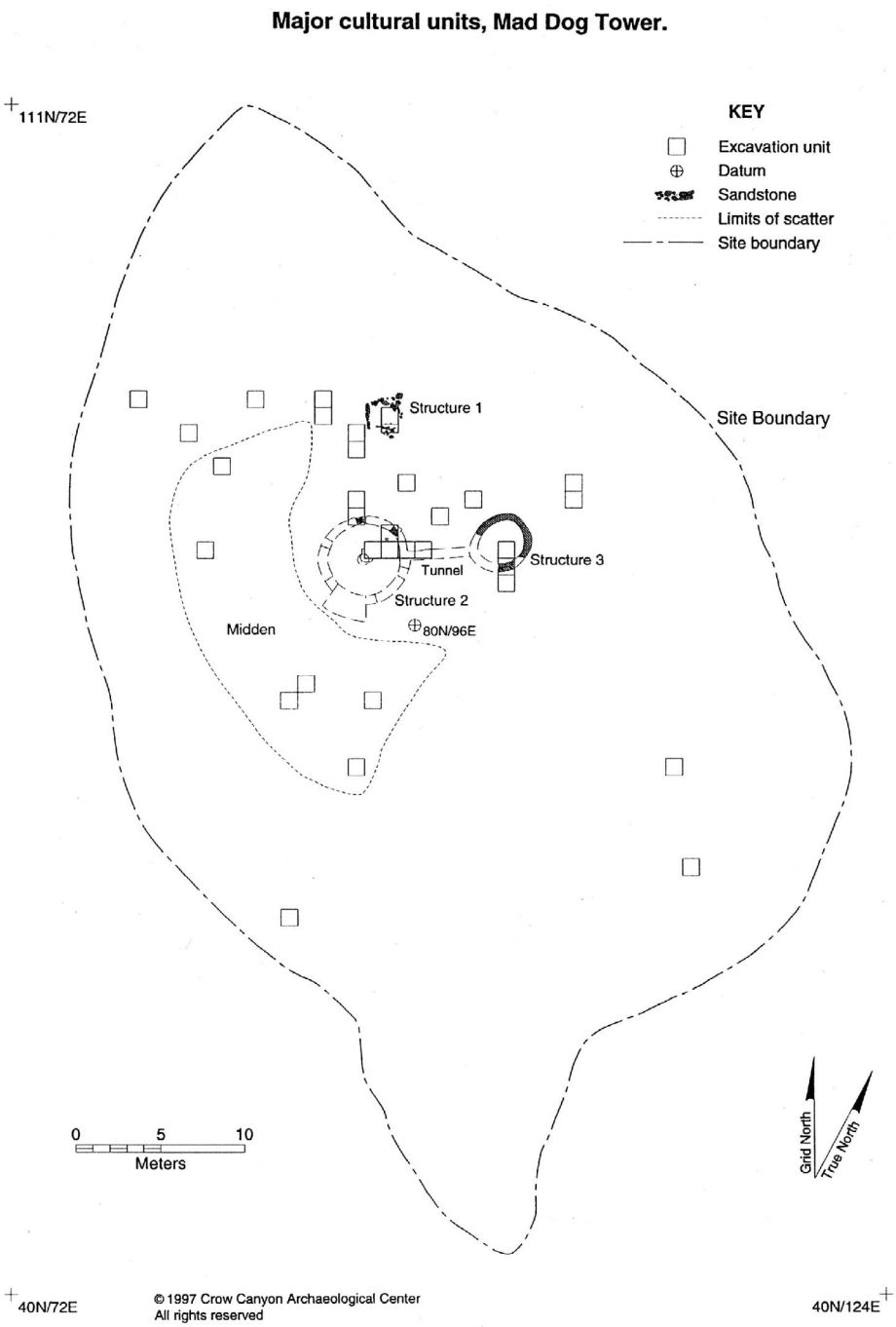

Fig. 17. Plan of the site 5MT181, Mad Dog Tower, including several structures in the site, e.g. tower, kiva and the underground tunnel connecting these structures (after Lipe and Varien 2003:Figure 17).

Fig. 18. Photo of Mad Dog Tower. Photo by R. Palonka.

included towers at Hovenweep National Monument, Mesa Verde National Park, and a tower in Navajo Canyon (e.g., LeBlanc 1999:59–61; Schulman 1950; Thompson 2004:29). The use of towers for communication is proposed for some of the small sites in the Castle Rock Community, because nearly all of these recorded towers were located either within or near sites that were intervisible with sites nearby. At least eight sites in the proposed Castle Rock Community—5MT125, 5MT181 (Mad Dog Tower) (Figs. 17–18), 5MT261, 5MT262 (Saddlehorn Hamlet) (Fig. 19), 5MT2797, 5MT2799, Castle Rock Pueblo itself (5MT1825), and 5MT264 (The Gallery or Serpent Quarters) with Site 5MT1842

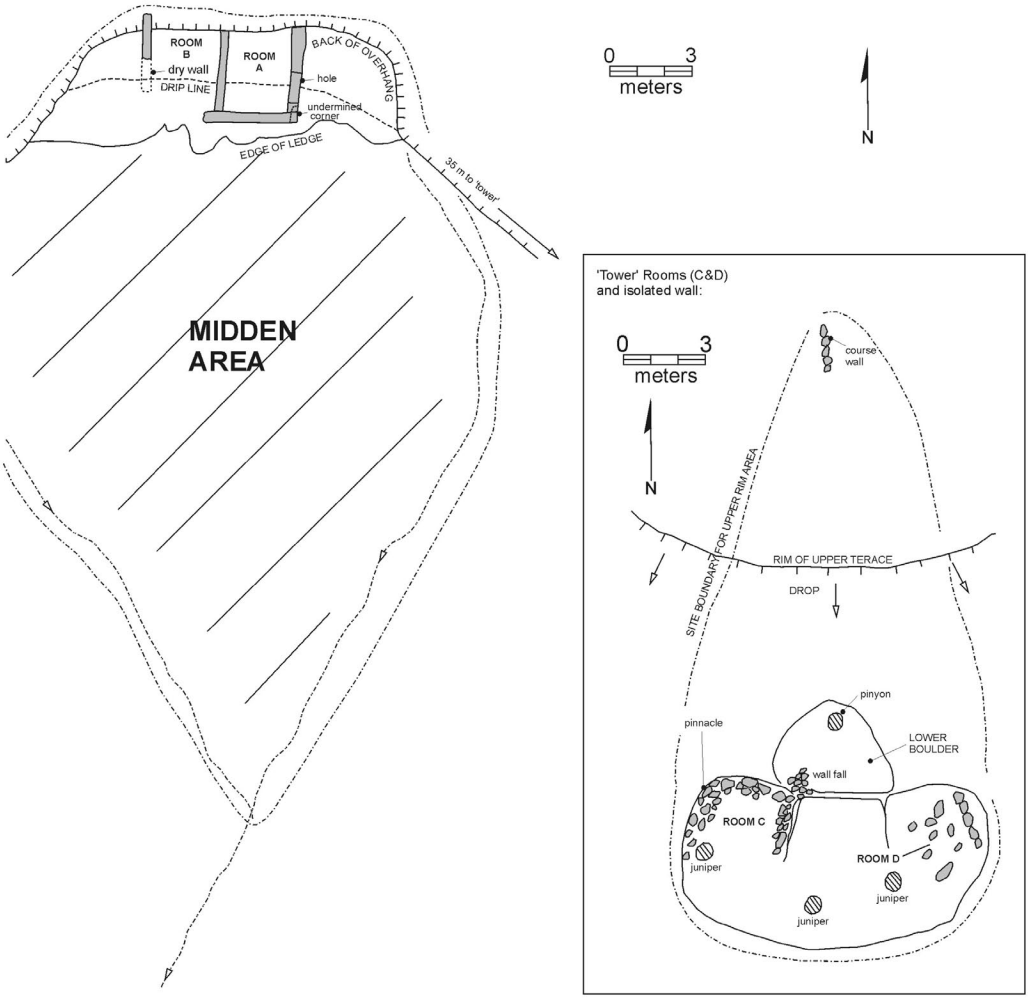

Fig. 19. Plan of the Site 5MT262, Saddlehorn Hamlet, with plan of the tower (after Lipe and Varien 2003: Figure 16 and Archaeological Component Form 1988).

(tower)—contained towers, or towers were located in proximity to the sites[3]. I propose that the primary function of these towers was communication, because most are intervisible with nearby sites, and that the secondary function was defense.

Also the loopholes are present at small sites in the proposed Castle Rock Community. This includes small rectangular loopholes in the tower associated with Site 5MT135; at least one of these loopholes provides a view of the only route to the tower and to Site 5MT135 in a cliff alcove. Loopholes were

[3] Some free-standing towers in the lower portion of the Sand Canyon locality are very near habitation sites; the distances range from several to 30 or 40 meters to as much as 100–350 meters. I consider all of these towers to have been associated with the nearest habitation, and in most cases they were treated as such in reports from surveys conducted in the area (Adler and Metcalf 1992; Gleichman and Gleichman 1989, 1992).

Fig. 20. Part of the Site 5MT261. Photo by R. Palonka.

constructed in the southern or outer walls of rooms at Site 5MT186 and in the outer walls of at least one room at Site 5MT261 (Fig. 20). One possible loophole in a tower at Site 5MT261 affords a view northeast to the main part of the site. A loophole in the tower that is Site 5MT1842, associated with Site 5MT264, provides a view of the main part of the site in a cliff alcove 100 m from the tower. Some loopholes were constructed in walls built along the edges of alcoves. These features vary in height above the floor of the cave but none are higher than 1 m above the floor. Site 5MT1826 contains several such loopholes; at least four are located west of the entryway, and at least six are east of the entryway. The outer wall of Site 5MT1831 (Fig. 21) contains at least 12 loopholes, and although most are angled downward, one is level, and one opening is located in the southern wall of the passageway. A possible loophole was noted in a room at Site 5MT1807. Loopholes might also have existed at other sites, especially in walls near the edges of alcoves; however, most of these walls are too poorly preserved to make an accurate assessment. Other and larger openings such as windows might have also have been used as lookouts.

Other type of possible defensive structure might be underground tunnels. Underground tunnels were present at few small sites in the Castle Rock Community, including one that connected a tower and a kiva at Site 5MT181 (Mad Dog Tower) (Kleidon 1999), and a tunnel that probably connects the kivas at Site 5MT127 (Vision House).

Fig. 21. Photo of Site 5MT1831. Photo by R. Palonka.

Access to water

The most plentiful water source in the Castle Rock Community was probably McElmo Creek, although this was not a permanent water source (also it would have been too alkaline to provide good drinking water-personal communication with Mark D. Varien, 2009), and it flowed primarily during the spring runoff and summer flashflood (and probably it was filled with water or snow during the fall or winter). Most of the habitation sites dating from the late Pueblo III period were located near seeps or springs rather than near McElmo Creek (Gleichman and Gleichman 1989:65). The distance to the water sources varied in those sites: the water is available within the boundary of most sites or very close to them, and in several cases it is in a distance of several hundred meters of the sites.

There is evidence of several dams in the Castle Rock Community. Dams are present at sites 5MT125, 5MT182, and 5MT1807. Site 5MT2001 is a small site within the Castle Rock Community where a reservoir is also present. Although other sites in the area might also contain such features, the available data are insufficient to confirm this.

Settlement pattern in the Castle Rock Community

Among the sites in the Castle Rock Community I examined, six groups or clusters of sites within the community consist of four or more sites that were near each other or within visual contact. The first

possible group consists of five sites: 5MT1826, 5MT1827, 5MT1828, 5MT2799, and 5MT2800 (Fig. 22). The second group consists of eight sites: 5MT264 and 5MT1842, often considered one site; 5MT265; 5MT1831; 5MT2636; 5MT1829; 5MT13251; and 5MT14659. A third group might have been formed by sites 5MT135, 5MT133, 5MT134, 5MT132, 5MT125, 5MT126, 5MT127, 5MT129, 5MT182, and possibly 5MT186. The fourth group consists of sites 5MT181, 5MT257, 5MT261, 5MT262, 5MT263, 5MT1804, 5MT2797, 5MT2801, and 5MT10366. The fifth group is made up of five sites: 5MT1805, 5MT1806,

Fig. 22. Photo of Site 5MT2800. Photo by R. Palonka.

5MT1807, 5MT1808, 5MT1824, 5MT2644. And the sixth group consists of four sites located on Battle Rock: sites 5MT1999, 5MT2000, 5MT2001, 5MT2002; however, these might be considered one site.

Intervisibility has been confirmed in the fourth proposed group: Mad Dog Tower (Site 5MT181) and the tower located above Saddlehorn Hamlet (Site 5MT262) 1 km west across Sand Canyon. This intervisibility indicates that inhabitants of the two habitations could have communicated via the towers if the two habitations were contemporaneous. Other sites with towers that might have been contemporaneous with 5MT181 are Site 5MT2797, which lies 300 m to the southeast, and Site 5MT261, located 720 m to the southwest. All of these sites include a structure that may be called a tower or a "lookout" structure. From these structures, at least two, and possibly all, of the other sites were visible (Kleidon 1999; observation made by the author). Sites 5MT261 and 5MT257 might have been intervisible; the latter is located in relatively strategic high point of a talus slope on a bench overlooking McElmo Canyon.

Two intervisible sites in the first possible group listed above, Site 5MT2799, a possible tower, and Site 5MT2800, a dry-laid masonry structure, are located near each other and might have been one site. These two sites were probably not habitations, and it is possible that they were used as defensive structures or as communication features that provided intervisibility with other sites in the vicinity (Adler and Metcalf 1992:43). They also might have functioned as communication features between the first and second groups proposed above, and perhaps with Castle Rock Pueblo as well. Site 5MT2800 (Fig. 22) was constructed on a high point overlooking the southern and northern parts of East Fork Canyon, and it is reasonable to infer that it served as an important communication feature between sites located to the south and north. The site is situated on a high, difficult-to-access point of the canyon that divides the line of possible intervisibilty between sites located to the north and south on the east side of East Fork Canyon.

Site 5MT135, in the proposed third group of sites, is visible through an existing loophole in a wall of the tower associated with that site; the site would have also been visible from the roof of that tower. Sites 5MT125, 5MT126, and 5MT127, on the eastern side of Sand Canyon, would probably have been visible from that tower as well. Castle Rock Pueblo is visible from an unnamed structure (probably tower) to the northeast perhaps indicating the importance of communication between Castle Rock Pueblo and other sites in the community.

CONCLUSIONS

The location and layout of the sites in the Castle Rock Community, as well as the presence of different types of defensive architecture (e.g. towers, loopholes, walls, underground tunnels connecting two or more structures) follow the pattern that characterizes other large and small sites across the central Mesa Verde region in the Late Pueblo III period (Kenzle 1993; Kuckelman 2002, 2006; Lipe and Varien 1999; Varien et al. 1996). Many pueblos in this period were located near water sources such as springs (Lipe and Ortman 2000).

Defensive architecture, defensible site locations, and sites with intervisibility within a community—to warn of approaching enemies—are characteristics of the sites examined in this paper and have been noted in other parts of the North American Southwest and beyond. These characteristics may indicate a response to increasing conflict and violence in the Mesa Verde region. Although it is difficult to determine if the threat was from nomadic people from outside the region or was inter-Pueblo, the thirteenth-century A.D. architecture of the region clearly shows that the threat must have been very serious if it forced people to leave favorable living conditions on the mesa tops and relocate to cliff alcoves and steep talus slopes below canyon rims. Sites in these new locations probably also involved more effort to build and maintain, especially in terms of sites built on canyon-rims.

Although the location of Castle Rock Pueblo, the largest site in Lower Sand Canyon locality, varies in some respects from other large sites in the region, the site shares some traits such as the presence of public architecture (for example, a D-shaped structure and plazas) and evidence of a concern for the protection of the inhabitants of the pueblo. A concern for defense can be seen in the location of the settlement on and around a 20-m-tall butte as well as in the presence of loopholes, several sections of village-enclosing walls, and nine towers, at least three of which are located on the butte top. Access to the village was protected from the south and north by particular structures, and access to the top of the butte was restricted by the presence of structures at the base of the butte, and the necessity of using ladders on rooftops.

It is worth noting that most structures in the site and other sites were much taller originally and were taller even as late as the turn of the twentieth century than they are today (e.g., Cattanach 1980:17, 40–41; Fewkes 1919; Morley 1908:599). This might have also been seen in nineteenth century photographs of the ruins of Castle Rock Pueblo taken by W. H. Jackson, a member of the Hayden Expedition (Kuckelman 2000, ed. by). It is difficult to accurately infer the height and appearance of these buildings at the time the villages were inhabited and thus to evaluate their potential for defense; however it is probable that entry, in the absence of a doorway in the first story, was rather difficult.

The location of sites in places difficult to access and the presence of different examples of defensive architecture including towers, walls protecting the sites, loopholes, and in some cases underground tunnels are also clearly visible in small sites in the Castle Rock Community. The data suggest that the small sites in cliff alcoves in Lower Sand Canyon locality were situated more defensively than the large cliff dwellings (so-called community centers) in Mesa Verde region, in that the use of ladders was required to enter many of them. Also, the settlement organization of sites in the Castle Rock Community that includes sites in locations difficult to access as well as intervisible may suggest a cluster of allied sites that was integrated in one closely cooperating community. This community might have been created, and might have functioned, as a response to a threat from neighboring communities or from non-Pueblo invaders in an attempt to better defend the inhabitants of particular settlements and the entire community.

At least eight sites in the proposed Castle Rock community—5MT125, 5MT181 (Mad Dog Tower), 5MT261, 5MT262 (Saddlehorn Hamlet), 5MT2797, 5MT2799, Castle Rock Pueblo, and 5MT264 (The Gallery or Serpent Quarters) with Site 5MT1842 (tower)—contained towers, or towers were located in proximity to the sites. I propose that the primary function of these towers was communication, because most are intervisible with nearby sites, and that the secondary function was defense. Many towers contained in the sites analyzed in the article were more carefully constructed and incorporated stones that were more carefully pecked than did other buildings at these same sites. Among the analyzed sites in the Castle Rock Community, six groups or clusters of sites within the community consist of four or more sites that were near each other or within visual contact.

It is difficult to determine if Castle Rock Pueblo was a place of refuge for the entire community in times of attack, or if particular settlements were defending themselves. Specific sites in the community, such as sites 5MT1826 and 5MT1835, which contain a wall that extends the length of the alcove and that exhibit little evidence of habitation, might have been refuges. At least 15 large sites or community centers in the rest part of the central Mesa Verde region might have been such refuges in times of danger (Palonka 2009).

Castle Rock Pueblo was attacked and destroyed in mid-1270s A.D. (Kuckelman 2000, ed. by; Kuckelman et al. 2002) as indicated by human remains representing at least 41 unburied individuals, some showing signs of violent death, as well as burned structures. Probably around the same time or a little earlier, the other sites in the community were also depopulated. It corresponds with the final migration of Pueblo societies from the central Mesa Verde region to the south and southeast into

present-day Arizona and New Mexico that occurred in the late A.D. 1270s or early 1280s (e.g., Dean 2001; Lipe 1995; Varien 1999; Varien et al. 1996).

Conflicts and violence (as factors) were clearly related to other factors including environmental and climatic deterioration and the effects this had on food production. It seems that these two factors (conflicts and environmental disturbances) combined together were the main stimulators that led to the decision to leave the central Mesa Verde region at the end of the thirteenth century A.D.

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