Excavations at the Green Lizard Site

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Introduction

The Green Lizard site (5MT3901) is a small, Pueblo III habitation site located in the middle reaches of Sand Canyon, approximately 1 km down canyon from Sand Canyon Pueblo (Figure 1.3). In the summers of 1987 and 1988, intensive excavation was carried out in the western half of the site. A kiva, an adjacent masonry roomblock, and the floors of several jacial structures were excavated; the midden lying to the south of these features was sampled with test pits (Figure 6.1).

The Green Lizard site was first recorded by Crow Canyon Center researchers in 1984 (Adams 1985a). The layout of the site is essentially two adjacent Prudden units (Prudden 1903, 1914, 1918). It consists of two kivas, approximately 20 more or less contiguous, masonry-walled surface rooms, and an extensive and relatively deep midden deposit located to the south of the structures (Figure 6.1). Portions of several retaining walls are located in the midden area, and several checkdams or similar erosion control features occur a few meters to the west, east, and possibly north of the architectural portion of the site.

Surface pottery and masonry styles at the Green Lizard site indicated to the survey crew that it was occupied during the Pueblo III period, probably in the A.D. 1200s. It was selected for excavation to obtain data on Pueblo III community organization in the Sand Canyon locality. Questions guiding the work included: (1) When and how long was the Green Lizard site occupied? Was it earlier than Sand Canyon Pueblo, or was it abandoned before the end of occupation at the larger site, does comparison of artifacts and ecofacts from the two sites provide evidence that may help us understand the shift from a dispersed to an aggregated settlement pattern and/or the eventual abandonmen of the Sand Canyon locality? In planning for the Green Lizard excavations, we decided to excavate a full kiva suite (kiva and associated surface rooms) to obtain a data set fully comparable to those being produced by the intensive excavations of kiva suites at Sand Canyon Pueblo (Bradley, this volume; see also Adams 1985a; Bradley 1986, 1987, 1988a, 1990; Kleidon and Bradley 1989).

Environmental Setting

The Green Lizard site is located within Sand Canyon on a small, south-facing erosional bench at an elevation of 2025 m (6645 ft). A large spring, which flowed throughout the relatively dry summer of 1987, is located on the floor of Sand Canyon approximately 30 m below the site. The site is in the mixed pinyon-juniper woodland that blankets the upper reaches of Sand Canyon. A small riparian vegetation community is present below the site but is restricted to the vicinity of the spring and the narrow main drainage channel of Sand Canyon.

The site commands an excellent view down the canyon to its confluence with McElmo Creek and of the northern flank of Sleeping Ute Mountain. Within the canyon, potentially arable soil can be found on broad colluvial terraces less than 1 km south of the site. Numerous small colluvial benches near the site may also contain sediments suitable for agriculture. The wind-deposited, arable silts on the mesa top are accessible within 1 km. The bench on which the site is located is formed of colluvium and talus resulting...
from the erosion of the Brushy Basin Shale Member of the Upper Jurassic Morrison Formation, which also underlies the bench. The Brushy Basin Member consists of banded and variegated gray, green, brown, and red shales accompanied by thin bands of limestone, sandstone, conglomerate, mudstone, claystone, and bentonite. It is conformably overlain by the Cretaceous Burro Canyon Formation, which consists of variegated conglomerates, sandstones, limestones, shales, and cherts. Lying unconformably on the Burro Canyon Formation is the Cretaceous Dakota Sandstone Formation, which consists of variegated sandstones interbedded with variegated clays, gray shale, and lignite, as well as massive silicified and cemented quartz sandstone (Northrop 1973). The Dakota Formation forms the canyon rim and upland surface and is the uppermost rock formation in the Sand Canyon drainage. In the uplands, unconsolidated eolian silts of varying thicknesses commonly lie on the Dakota Sandstone.

### Sampling Design

The site was sampled by a combination of intensive excavation and a stratified random sample employing 1-x-1-m test pits. Intensive excavations focused on the architectural features in the west half of the site; the entire midden area was sampled with randomly located test pits. In addition, randomly located test pits were excavated in peripheral areas of the site. No clear kiva depression was evident in the eastern half of the site, so a test trench was excavated to determine if a kiva was present; evidence of a kiva was encountered (Figure 6.1). The site sampling strategy employed six sampling strata.

Sampling Stratum 1 consists of the peripheral zone north, east, and west of the architectural and midden features of the site. The external boundaries of this sampling stratum (and hence the site boundary) are defined by the falling off of artifact densities to near zero, except on the south, where the boundary coincides with an abrupt steepening of the slope below the site. Due to erosion of the midden, some surface artifacts do occur south of this boundary. To sample Stratum 1, four randomly selected 1-x-1-m sampling units were excavated to sterile deposits. This is the minimum number of sampling units from which quantitative data can be subjected to statistical manipulation with viable results (Blalock 1979).

Sampling Stratum 2 consists of the architectural component of the site, including all rooms, kivas, and associated courtyard areas. This sampling stratum was investigated by intensive excavation of the western kiva and associated western roomblock, or approximately 50 percent of the architectural features in Stratum 2. The only sections of the western kiva suite left unexcavated are the

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**Figure 6.1. Excavations and main cultural features at the Green Lizard site.**
two kiva tunnels and the ventilation system, which could not be completely excavated in the time available. The only excavation in the eastern half of Stratum 2 was a test trench through a portion of the eastern kiva to determine its placement and depth. Although the intensive excavation of only half of Stratum 2 produced a sample that is not strictly comparable to that yielded by the random test-pit design in the other strata, this approach did yield data comparable to similar intensive excavations of kiva suites at Sand Canyon Pueblo. It was thought that the Stratum 2 sample would be large enough to be reasonably representative of the stratum, and that it could be adjusted to permit comparison with data from the randomly sampled strata.

Sampling Strata 3 through 6 are located in the midden area of the site. To create these samples, the midden was initially divided into an upper, or “formal,” midden and a lower, or downslope, portion. Based on surface evidence, it was inferred that the upper portion represented relatively intact deposits, whereas the sediments in the lower portion were much more likely to have been redeposited or reworked by erosion and slopewash. This upper/lower dichotomy was then bisected by a division into eastern and western halves, so that samples of midden materials likely to have originated from the eastern and western Pruidden units could be compared. As a result of this scheme, the western upper portion of the midden was designated as Stratum 3, the eastern upper portion as Stratum 4, and the western and eastern lower portions as Strata 5 and 6, respectively.

Five 1-x-1-m grid units were randomly selected from each stratum (a total of 20 units). Alternative sampling units were drawn in case any of the units was subject to one or more of the following rejection criteria: (1) excavating the unit would require removing a tree; (2) the unit was in a looter’s pit; or (3) the unit coincided with the single test pit that had been excavated during the 1986 Sand Canyon Survey and Testing Program (Van West et al. 1987). Units were not rejected if they landed on a large boulder or similar “stable” natural feature that had been part of the midden area prehistorically.

The midden sampling was conducted in two stages. First, the 20 sampling units were surface-collected to obtain a representative surface sample from the midden. The second stage consisted of excavating five randomly selected 1-x-1-m test pits in both Strata 3 and 4—the upper portion of the midden. Strata 5 and 6, located in the “slopewashed,” or lower, portion of the midden, were not tested because of lack of time. The surface collections from the randomly selected squares in these strata do provide some assemblage data from this part of the site, however. Two units that were excavated close to the southern boundary of the formal midden had shallower deposits than those upslope, supporting the original inference that the lower slope deposits were more likely to be thin and eroded.

Excavations in Structure 1 (Kiva)

Excavations in the kiva were carried out in both the 1987 and 1988 field seasons. The most notable structural characteristic of this kiva is its almost complete lack of masonry in the lower and upper lining walls. Most of the lower lining wall consists simply of plastered sterile sediments rather than masonry. Masonry is largely confined to the pilasters and to the southern recess, where several large boulders intrude through the wall. It appears that the builders decided that a masonry wall around the boulders was necessary to stabilize the southern recess. East of the southern recess, a section of boulder intrudes onto the floor of the kiva below the pilaster; this boulder has been carefully pecked away to conform to the arc of the kiva floor. The edge of the bench surface above the southwestern tunnel was faced with a single row of stones. It is probable that this stone facing was added to reinforce the edge of the earthen bench surface that had been undercut by the tunnel opening.

Fill Stratigraphy

The postabandonment depositional record of the kiva-fill sediments is relatively straightforward. Although a number of individual strata were recorded, these can be grouped into three major depositional units, labeled 1 to 3 from top to bottom. Units 1 and 2 represent postabandonment/post-occupational filling, primarily by slopewash. Because the site is on a relatively pronounced slope, this postabandonment deposition was probably rapid. These units contain a considerable amount of masonry rubble that probably washed into the kiva depression as the roomblock walls deteriorated and fell. Unit 1 has darker sediments and less structural rubble and rocky colluvium than does Unit 2, which lies below it. These differences probably indicate that Unit 2 was deposited quite rapidly, relatively early in the site's postabandonment history. Unit 1 was deposited later, when the kiva depression was shallower. The darker sediments probably record more growth of plants in the depression during intervals between deposition episodes.

Unit 3, which overlies the benches and floors, consists of two discontinuous deposits. First to be deposited (Strata 7 and 9, considered together) was a thin layer, or mat, of decayed vegetal matter that lies directly on portions of the benches and around the periphery of the floor. Several thin lenses of ash are associated with this organic layer on the benches. On the floor, the organic mat ranges up to 10 cm thick in places near the kiva wall and is partially overlain by, or intermixed with, Stratum 8, a deposit that contains chunks of beam-impressed daub and that probably represents the remains of roofing material, without the beams. This stratum is absent over some portions of the floor but exists as thick lenses in the center and northeastern quadrant of the kiva.
Some questions remain regarding the interpretation of Unit 3. In the field, the organic deposit was initially interpreted as the remains of burned and decayed closing material from the roof. Closer examination of samples in the laboratory showed that it is composed primarily of decayed but unburned juniper needles and small twigs. It closely resembles woodland-floor duff that occurs under juniper trees in the vicinity today. It is possible that this layer of organic material washed into the kiva not long after abandonment, at a time when portions of the roof had been breached by decomposition or by partial dismantling. Alternatively, the mat of juniper needles and twigs may have been deposited as part of activities associated with abandonment of the structure or with its reuse not long after abandonment. The deposit does not have the characteristics of packrat middens.

Stratum 8, which contains chunks of beam-impressed daub, clearly appears to have been deposited on the floor and, in some places, over the organic layer as a result of salvaging the kiva roof beams. Conditions of preservation are good enough in the kiva that wood or wood fragments would have been preserved if the beams had been left in the fill.

Features

Thirty-nine features were recorded. Included in this total are six benches and pilasters, the ventilation system, two tunnels, 17 floor features, and seven features found in the lower lining wall.

The bench features were all constructed of unexcavated native sediments and plastered with a fine red-brown silt. Except for the edge of the southwestern bench, no masonry was used in bench construction. There are six masonry pilasters in the kiva; they are relatively uniform in height, ranging from 48 to 54 cm. All of these heights appear to be original; only the upper, inward-facing courses of Pilaster 6 had collapsed. Pilasters 1 and 6, which bound the southern recess, are tied into the masonry upper lining wall of the recess.

Wall Features

Six of the seven wall features that occur in the kiva's lower lining wall are small niches assumed to have had a ritual function (Rohn 1971; Cattanach 1980). The seventh wall feature is a large, rounded cist-like structure (Feature 29) located below the northwestern bench. A similar wall cist was found in the kiva at Sun Point Pueblo at Mesa Verde National Park (Lancaster and Van Cleave 1954).

Feature 29 opens partially onto the floor of the kiva. The primary function of this feature is interpreted to have been storage. Evidence of decayed organic material was abundant in the fill in this feature, and a single corn cob fragment was identified from a sample of the feature fill. Numerous squash seeds (Cucurbita sp.), as well as cactus seeds and needles (Opuntia sp.) and cheno-am seeds, were recovered from floor fill adjacent to this feature. Plant macrofossil and flotation samples collected from fill in the vicinity of this feature also yielded numerous squash seed fragments (Cucurbita moschata), as well as seeds and macrofossils of several other economically useful plants (K. Adams 1989b). Whether the seeds and other plant remains recovered from the contexts near the mouth of this cist feature had originally been stored in the cist or whether they were brought in by rodents is not clear, but the first interpretation is preferred.

The niches in the lower lining wall are all located in the northern and eastern quadrants of the kiva. All of these features are simple plaster-lined openings in the lower lining wall. They are of various sizes, have round or rounded openings, and all appear to have been available for use at abandonment.

Floor Features

Two plastered floors were present. The upper, Floor 1, had a hearth, an ash pit, a bell-shaped storage pit, and two small cylindrical pits that evidently had been open and available for use when the structure was abandoned. Another small cylindrical pit was visible in Floor 1 but had been sealed over. No sipapu was visible in Floor 1. Any or all of these features might also have been used with Floor 2; certainly the hearth, and probably the ash pit, would have been associated with Floor 2. Set in the base of the ash pit was a small segment of a sandstone slab that was interpreted as the base of a deflector. The Floor 2 features that had been covered when Floor 1 was constructed included a number of cylindrical pits, several possible storage pits, and two small overlapping pits interpreted as sipapus. The rim of a white ware jar had been set into the floor to form the opening of the latter of these two sipapus.

Only a portion of the ventilator tunnel was excavated. The tunnel opening is in the masonry lower lining wall below the southern recess but is itself not masonry lined. The ventilator shaft was not investigated. The deflector was not encountered in place, but a large, thin sandstone slab was found leaning against the lower lining wall near the ventilator tunnel opening. It appears likely that this was the deflector. The presence of a probable deflector base set into the floor of the ash pit, covered by apparently undisturbed ash, indicates that the deflector slab may have been removed before the last use of the hearth and ash pit.

Two tunnels leading from the kiva were found. Because of time constraints and safety considerations, neither was fully excavated. Tunnel 1 was entered through an opening in the southwestern part of the kiva floor and extended west to a small, irregular, subterranean chamber. From there the tunnel exited to the south. It may have extended to the area of Structures 8 and 13, but its southern end was not found.
Two types of construction, masonry and jacal, are present in the surface structures excavated at the Green Lizard site. The masonry structures are located to the north and west of the kiva (Structure 1). Of these, only the northern structures (Structures 2-7, 9) have been excavated. The remains of earlier masonry-walled rooms (Structure 12) were found below the floors of Structures 3 and 4. It is not known whether the unexcavated surface rooms located directly northeast of Structure 1 (the western kiva) were related to it or to Structure 11 (the eastern kiva). The former interpretation is supported by the probable link between Tunnel 2 in Structure 1 and one of these surface rooms. The jacal structures (Structures 8, 10, and 13) found to the west of Structure 1 were encountered in the course of excavating what was originally thought to have been a small masonry structure (Structure 8) in a courtyard area.

Masonry Roomblock

Excavation in the northern roomblock revealed the remains of Structure 12 beneath the floor of Structure 4. Structure 12 was a surface room with walls of unshaped stone masonry a single stone wide. The presence of small quantities of Mancos Black-on-white in association with Structure 12 and in the midden indicates that this structure may have been constructed during the late Pueblo II period. The floor of Structure 12 was the use-compacted surface of the underlying sterile sediments. A shallow, basin-shaped fire-pit was associated with the Structure 12 floor.

The Pueblo III period rooms (Structures 2-7, 9) north of Structure 1 have masonry walls that are generally two stones wide; many of the stones were shaped by flaking, but not by pecking. On the basis of evidence of wall bonding, Structures 4 and 5 were built first; then Structures 3 and 6 were added to the west. Finally, Structure 2 was added to the west wall of Structure 3, and Structures 7 and 9 were added to the south of Structures 3 and 4, respectively.

The floors in all of these Pueblo III structures are unprepared and unplastered use surfaces, generally on top of use-compacted constructional fill, but in some cases overlying sterile sediments. No features clearly associated with these floors were defined.

The fill sequences of the Pueblo III structures were not complex. Wall rubble lay on the floors, and was overlain by compacted colluvial sediments. Little evidence for a definable roof fall zone was noted in any of the structures; if roof fall material was present, it was mixed with the wall fall stratum. There was no indication that any of these rooms had been used as trash dumps. There were few artifacts in their fills or on their floors, although the remains of two partial gray ware vessels were found. It is probable that most usable artifacts were removed from the rooms before abandonment.

The occurrence of a masonry-plugged doorway in the south wall of Structure 3 indicates a possible change in the function of this structure, perhaps related to the construction of Structure 7 to the south. No other door features were found in the roomblock.

Jacal Rooms

Patterns of postholes in the area immediately to the west of the kiva indicate that at least three jacal structures
(Structures 8, 10, and 13) were present. The floor of Structure 13 appears to have been excavated through the floor of Structure 8, indicating that remodeling or additions occurred during the use lives of these structures.

It is possible (but not likely, in our opinion) that some or all of these jacial-walled structures were constructed during the proposed late Pueblo II occupation of the site noted above. The pottery types from this complex of excavated strata contained Pueblo III artifacts. This stratum lay on the floor all appear to have been introduced as secondary refuse after abandonment of all or most of the jacial structures. Assemblages that represent de facto refuse associated with use and abandonment of the structures' initial functions could not be distinguished.

A concentrated deposit of Pueblo III refuse rested on the floor of Structure 10 and was also present in Structures 8 and 13. In Structure 8, however, this trash deposit overlay a stratum composed in part of melted daub that also contained Pueblo III artifacts. This stratum lay on the floor of Structure 8 but extended into Structure 13, where it was separated from the floor by a trash deposit containing Pueblo III artifacts. Sherd refitting data indicate that despite their differing sedimentological characteristics, the strata that filled Structures 8, 10, and 13 may represent a single depositional event or a series of closely related ones.

A pit feature interpreted as a hearth was associated with the floor of Structure 13. Functions of other pit features associated with the floors of Structures 13 and 8 are unclear. An adult burial was found in a prepared pit just south of Structure 10. The stratigraphic relationship of the burial to the jacial rooms is unclear. Several Mesa Verde Black-on-white vessels were found in association with the burial, however, indicating that it dates to the Pueblo III occupation of the site.

Midden Excavations

All 10 randomly selected midden excavation units were excavated in arbitrary 20-cm levels; these levels paralleled the natural contours of the modern ground surface. All units were excavated until culturally sterile sediments were encountered, and all sediments removed from the pits were screened through 1/4-in mesh.

Midden stratigraphy in the six deepest midden units, located in the formal midden area near the kiva retaining walls, shows that depositional processes across the main midden area were similar. Within each of these units, three strata can be distinguished on the basis of color. The lowest stratum overlies sterile, noncultural deposits and is grayish brown. The middle, and by far the thickest, stratum is reddish brown, similar to the sterile sediments underlyng the midden. This middle stratigraphic unit also contains the largest number of artifacts. The uppermost stratum is a dark gray-brown in color, but unlike the lowest stratum, it is not compacted.

Granulometric analysis of sediments from the upper two depositional units of test pit 124S 117E indicates that all of the strata are sandy loam despite differences in sediment color. However, sediments from the middle depositional unit tend to contain slightly more sand and less silt and clay than those from the upper depositional unit. These changes are probably related to decreasing velocity of water runoff onto and over the midden and hence to decreasing capability of water to transport sediment as the midden built up (Bloomer 1988).

Retaining walls constructed of large, unshaped pieces of sandstone rock were encountered in several excavation units in the formal midden. All these wall sections are "floating," in that they are built on, and covered by, midden deposit. It appears that these walls were built either to prevent erosion of the midden, to create more level surfaces in the southern part of the occupation area, or both.

The midden assemblage contains a great diversity of artifact and ecofacts types, ranging from sherds and flaked and ground stone to bone and charred plant remains. The midden is relatively thick—over 1 m of deposits in Sampling Strata 3 and 4—and has a high content of ash. There is also a high density of artifacts. For example, over 40 percent of the approximately 12,500 sherds from the excavations came from the 10 test units excavated in the midden. All these characteristics combine to indicate that the midden represents secondary refuse deposited primarily, and probably entirely, during use of the site as a habitation. The midden appears to have accumulated largely, if not entirely, during the Pueblo III period. The presence of small numbers of Mancos Black-on-white and of unidentified mineral-painted white ware sherds, however, suggests that there may have been a light occupation of the site and some deposition of artifacts in the midden area in the late Pueblo II period. The Mancos Black-on-white sherds from the midden tend to occur in the lower levels, but Mesa Verde Black-on-white—the dominant decorated type at the site—occurs in these levels as well.

Excavations in Sampling Stratum 1

Sampling Stratum 1 includes the areas west, east, and north of the portion of the site containing the midden and architectural features. Four 1-x-1-m randomly selected sampling units were excavated in this stratum. No features were encountered in any of the units. Two units were located to the west of, and downslope from, the jacial structures (Structures 8, 10, and 13). Artifacts were encountered in the upper 15 cm of each unit; they appear to derive from slopewash from the trash deposits in the area of the jacial structures. The other two units were located to the east of the eastern, unexcavated kiva suite. Very few
artifacts were encountered in the sediments, which appeared to be colluvial in origin. Sterile sediments were encountered within 30 cm of the surface. One judgmentally located test unit was placed just north of Structure 6 to check for features or midden deposits north of the western masonry roomblock. Available time permitted the excavation of only one 20-cm level in this unit; culturally sterile sediments had not yet been encountered by the close of excavation. The deposits could not be characterized as a midden, however.

Feature 1 in Sampling Stratum 1 is located immediately south of the jaccal structures and west of the midden area. Surface indications of this feature were three upright slabs forming a right angle. Upon excavation, this feature was found to be a completely slab-lined, rectangular box measuring 190 cm long, 95 cm wide, and 45 cm deep. The feature had been partially excavated into sterile sediments. The sandstone slabs exhibited a variable degree of fire-reddening. The lowest stratum of fill consisted of a 4-cm-thick layer of charcoal with very little ash, indicating that the last fire in the feature was extinguished—either by the people who were using the feature or by natural phenomena such as rain—before much of the wood had burned to ash.

The function of this feature is unclear. Its size and the charcoal layer at the base of the fill are characteristic of Pueblo III features from southwestern Colorado that have been interpreted as kilns (Fuller 1984; Larry Hammack, personal communication). Remains of common fuel woods were identified from the hearth. This would be consistent with use of the feature as a kiln. However, the definitive evidence—sherd clinkers or wasters (Fuller 1984)—is absent. An alternative possibility is that the feature is a large roasting pit. However, no potential food remains were identified in the analysis of charred plant materials from the feature (K. Adams 1989b).

Site Chronology and Function

The presence of Mancos Black-on-white sherds in midden contexts and below the floors of the Pueblo III roomblock indicates there was a Pueblo II occupation of the site. The absence of earlier types indicates that this occupation was probably in the late A.D. 1000s or early 1100s. Structure 12 and the ill-defined architectural remains below the floor of Structure 3 may relate to this occupation, but the evidence for this is not conclusive. If these structures were part of the surface roomblock of a late Pueblo II Prudden unit, the associated kiva would have been approximately where Structure 1 is now located. It seems unlikely that Structure 1 was built as early as 1150; the bulk of evidence (see below) would place the site's Pueblo III structures in the A.D. 1200s. It is possible, however, that an earlier structure in this location was dismantled and Structure 1 built in its place.

Another possibility is that the late Pueblo II occupation at the Green Lizard site was seasonal and did not result in construction of a full complement of habitation structures. A number of the small Pueblo III sites in canyon and cliff-talus settings in Sand Canyon appear to have had light use in the late Pueblo II period (see Varien et al., this volume), at a time when Prudden-unit-type habitations appear to have been located predominantly on the mesa.

In the succeeding Pueblo III occupation, the Green Lizard site appears unquestionably to have been used as a year-round habitation for a number of years. Several lines of evidence support the inference that this occupation was primarily in the A.D. 1200s and that abandonment did not occur until after A.D. 1250.

First, the ratio of Mesa Verde Black-on-white to McElmo Black-on-white is high, as is the ratio of Mesa Verde Black-on-white to all decorated white ware. Of the Pueblo III sites tested and excavated by the Crow Canyon Center in the Sand Canyon locality, the Green Lizard site most closely resembles Sand Canyon Pueblo in these ratios. The occupation at Sand Canyon Pueblo appears well dated by tree-ring evidence to between about A.D. 1250 and 1280 (Bradley, this volume). The preliminary results of attribute-level analysis of design styles (Hegmon 1991) also appear to place the Green Lizard site closest to Sand Canyon Pueblo and to Lester's site, which has kiva construction dates in the A.D. 1270s. The set of site assemblages being compared includes several with fairly good evidence for occupation in the middle 1200s (see Varien et al., this volume), so Hegmon's analysis indicates that Green Lizard was as late or later than these sites.

Twenty-five tree-ring dates were obtained from the excavations, most of them from small pieces of wood collected from kiva fill or secondary refuse contexts. None are clearly from construction elements, although some may be. A number of the dated specimens probably represent fuel wood. Unfortunately, none of the specimens produced cutting dates. The latest dates were A.D. 1230vv and 1233vv, from small pieces of wood in a large, basin-shaped floor feature in Structure 8, one of the probable jaccal structures. These samples were collected from what is probably a trash or rubble fill that was deposited at, or soon after, the abandonment of Structure 8. Consequently, they may relate to the use of this area for the disposal of refuse during the main occupation of the site. A tree-ring sample from just above the floor of Structure 13, another of the jaccal units, dated to A.D. 1204vv. The majority of the remaining dated tree-ring samples yielded vv or +vv dates in the A.D. 1100s.

An archaeomagnetic dating sample from the rim of the hearth in Structure 1 yielded two possible dating ranges: A.D. 1015 to 1125, and A.D. 1125 to 1300. The latter range clearly seems the more probable for the latest intensive heating of the hearth. The archaeomagnetic dating is not precise enough to help refine the chronology of the Pueblo
III occupation, but it is not inconsistent with the other lines of evidence.

Two "high precision" ¹⁴C determinations (Stuiver and Pearson 1986; Jope 1986) were made on samples from the Green Lizard site. This method requires use of large samples of plant materials thought to reflect a brief period of time (e.g., annuals or twigs instead of heartwood samples with many annual rings). The two samples submitted to the University of Washington Quaternary Isotope Laboratory were from the stratum of matted organic material (predominantly juniper twigs and needles) found on the floor and benches of Structure 1 and from a mass of charred plant remains located in the midden. Although the samples from these contexts were not as large as desirable, the results were fairly good: the kiva sample (QL 4391) yielded a radiocarbon age of 780 ± 40 (calibrated to a calendrical date of A.D. 1259 ± 40) and the midden sample (QL 4395) yielded a radiocarbon age of 785 ± 40 (calibrated to a calendrical date of A.D. 1258 ± 40). The calibration of radiocarbon years to the Christian calendar follows Stuiver and Reimer (1986). Both dates were also corrected for ¹³C fractionation. Although not as precise as might be wished, they clearly appear to place the occupation and abandonment of the site in the A.D. 1200s—between approximately A.D. 1220 and 1300.

Overall, the various lines of chronological evidence are consistent in placing the main occupation of the Green Lizard site in the A.D. 1200s. A reasonably strong case can be made that this occupation was in the middle or late 1200s and that it overlapped, at least to some extent, with the occupation of Sand Canyon Pueblo.

Evidence for an increasing intensity of site use in the Pueblo III period is present in the growth of the masonry roomblock from two to seven rooms. The remodeling in Structure 3 (a blocked doorway) is consistent with accretional growth of the roomblock. There may actually have been as many as 12 rooms associated with Structure 1, if the jacal structures and the small roomblock located just east of the kiva are included. The exact chronological placement of these last two sets of rooms is not clear, however. They may or may not have been used contemporaneously with the masonry roomblock north of Structure 1. The chronological relationships of the eastern and western parts of the site also are unknown, but their layout indicates that their occupations probably were at least partially overlapping. Full contemporaneity is not ruled out.

Although we lack precise dating of the duration of the Pueblo III occupation of the Green Lizard site, subjective interpretation of the evidence indicates that it probably extended for at least a generation and perhaps more. In addition to evidence of accretional growth and remodeling in the surface roomblock, there is evidence that the kiva was fairly extensively remodeled. The thickness and high artifact density of the midden deposits also support this estimate.

It is clear that the jacal structures were abandoned before occupation ceased in other parts of the site. The refuse placed in these structures most likely came from occupation in the nearby kiva and masonry roomblock. The lack of trash fills in these latter structures suggests that they were used until the end of occupation at the site. The roof of the kiva evidently was dismantled at, or shortly after, abandonment, with the roof beams presumably recycled for use elsewhere. Also, the artifact assemblages in both the kiva and the surface masonry rooms appear to have been depleted prior to abandonment, with most of the usable artifacts being removed. From this evidence, it is inferred that the former occupants of the Green Lizard site moved to a relatively nearby location. Their most likely destination would have been Sand Canyon Pueblo, which apparently was still growing as late as the mid-A.D. 1270s. There are tree-ring-dated construction episodes at this time both inside the wall at Sand Canyon Pueblo (Bradley, this volume) and at Lester's site, located just outside the wall (Varien et al., this volume). Construction at the latter site has been interpreted as possible evidence that in the 1270s the population of Sand Canyon Pueblo was beginning to "overflow" the confines of the walled space that had been established earlier—probably in the 1250s (Bradley, this volume; Varien et al., this volume). The similarities between the Green Lizard and Sand Canyon Pueblo pottery assemblages indicate a substantial temporal overlap between the occupations of the two sites. Consequently, the inhabitants of the Green Lizard site may have moved to Sand Canyon Pueblo (or elsewhere) not very many years before the abandonment of the Sand Canyon locality, estimated at approximately A.D. 1280.

Throughout its Pueblo III occupation, the Green Lizard site appears to have been a year-round habitation. The archaeological evidence demonstrates that all the activities associated with daily living in one place occurred regularly at the site. Environmentally, the site's location is a favorable one—especially because of its proximity to the largest spring in Sand Canyon. Arable land occurs on colluvial benches near the site, as well as on the mesa above the site. From this location, the inhabitants could exploit various wild resources in the relatively diverse canyon environment and employ a risk-reducing farming strategy by farming both the mesa top and the canyon benches.

Evidence has been presented that the occupation of Green Lizard overlapped in time with that of Sand Canyon Pueblo. Certainly during this period, the smaller site would have been a part of the primary, or face-to-face, community centered at Sand Canyon Pueblo. Understanding the social and economic roles of both the small sites and the large one in this community is a principal theme of the Sand Canyon Research Project (Lipe, this volume: Introduction). A number of comparative studies of architecture, artifacts, and ecofacts are underway to pursue this topic. These include comparisons between the kiva suite excava-
vated at the Green Lizard site and the several suites that have been investigated at Sand Canyon Pueblo (Huber 1991).

Preliminary architectural comparisons show that construction of kiva suites at Sand Canyon Pueblo required a somewhat higher investment of time than did those at Green Lizard. In general, the Sand Canyon structures have a more formal appearance, with greater use of pecked surfaces on masonry blocks, etc. Of course, Sand Canyon Pueblo also has elements of "public architecture," including a great kiva and a D-shaped building, that are not present at Green Lizard or other small sites. These results suggest at least a modest level of social differentiation between the two sites.

Initial comparisons of midden-context assemblages show that lithic materials and pottery originating outside the local area are quite rare at both sites, though Green Lizard had slightly higher frequencies of nonlocal lithic materials (Huber 1991). These results do not indicate significant differences between the two sites in their occupants' ability to obtain exotic materials.

It has been argued (e.g., Lightfoot 1984) that larger household sizes and use of feasting to validate leadership are associated with the formation of social hierarchies. If the sizes of pottery cooking and serving vessels are related to the size of commensal groups, the residences of "big persons" should have somewhat larger vessel sizes. Comparisons of jar and bowl sizes from refuse at both Sand Canyon Pueblo and the Green Lizard site indicate that under these assumptions, commensal group sizes may have been slightly larger at the Green Lizard Site (Huber 1991). Assemblage-formation variables, such as differences in vessel-breakage rate by size and in length of occupation at the two sites, may be affecting these results, however. If the Sand Canyon occupation was shorter than the occupation at Green Lizard (a distinct possibility), and if large vessels break at a lower rate than smaller ones, the larger vessels might be underrepresented in the Sand Canyon assemblages (Huber 1991).

Comparison of functional categories of artifacts between midden assemblages from the two sites showed some differences. For example, the "general utility" tool group at Green Lizard is dominated by a large number of abraders, whereas fewer of these occurred at Sand Canyon. In the "grinding tools" category, Green Lizard had a higher percentage of discarded manos and metates than did Sand Canyon Pueblo. At Sand Canyon, modified and shaped sherds had a much higher frequency in the "pottery tools" category than they did at Green Lizard. Sand Canyon Pueblo also possesses substantially higher frequencies of modified flake and other chipped-stone artifacts within the "processing tools" category (Huber 1991). These results suggest some possible functional differences between activities at Sand Canyon Pueblo and at the Green Lizard site, although much more work needs to be done to understand the assemblage-formation processes operating in the contexts sampled at the two sites (Huber 1991).

Overall, initial comparisons are suggestive of some subtle social and functional differences between the two sites. Intrisite comparisons among kiva suites at Sand Canyon Pueblo will be needed to determine if the differences between Sand Canyon and Green Lizard are within or outside of the range of variability observed within Sand Canyon Pueblo itself. Some of the preliminary results may be a function of differences in assemblage-formation processes operating at the two sites, or at least among the contexts sampled. Much better understanding of these processes needs to be achieved. In general, the differences and similarities observed do not at this time appear to support the presence of a strongly hierarchical model of community organization, or a strong differentiation between the economic roles of the sites in the community settlement system.