



RANGER CABIN



BOUNDARY FENCE

# **HISTORIC STRUCTURE REPORT**

## **RANGER CABIN & BOUNDARY FENCE**

### **WALNUT CANYON NATIONAL MONUMENT**

Preservation Studies Program  
College of Architecture & Landscape Architecture  
The University of Arizona

In conjunction with:  
Colorado Plateau/Cooperative Ecosystem Studies Unit (CP/CESU)

March 2007



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## PROJECT TEAM

This Historic Structure Report was carried out between the National Park Service (NPS) and the University of Arizona (UA) through the Colorado Plateau/Cooperative Ecosystem Study Unit (CP/CESU) and Joint Ventures Agreement.

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# **MANAGEMENT SUMMARY**

## EXECUTIVE SUMMARY

### Ranger Cabin

The Ranger Cabin was built in 1904 as a residence for a single United States Forest Service ranger assigned to protect the cliff dwellings of Walnut Canyon. At the time, which was before passage of the American Antiquities Act (1906), it was rare for cliff dwellings to be both open for public visitation and protected against looting. Although Walnut Canyon was designated a National Monument in 1915, and the National Park Service was created to administer national parks and monuments the following year, the Forest Service continued to manage Walnut Canyon until 1934. The Forest Service's occupation of the Ranger Cabin is significant in that it afforded Walnut Canyon physical protection in an era when archeological sites and national monuments otherwise received little funding and staffing.

The Ranger Cabin was occupied consistently throughout the Forest Service's tenure in Walnut Canyon National Monument. During that time, the Ranger Cabin was expanded to include a private kitchen and a public museum. Both additions respected the character-defining feature of horizontal log construction. When management of Walnut Canyon National Monument shifted to the National Park Service, the new ranger resided in the Ranger Cabin. By 1941, the Civilian Conservation Corps had improved the monument with a new visitor center and residences, and the Ranger Cabin was no longer needed for housing and visitor reception.

The Ranger Cabin was then used for seasonal housing and storage. It ceased being used as storage by 1969, and has been vacant since. Without regular maintenance, the Ranger Cabin fell into decay. Over the years, various administrators advocated for its demolition, while others rallied for its preservation. Finally, funding was obtained and work performed to stabilize the Ranger Cabin in 1991. But without cyclical maintenance funding, the Ranger Cabin has once again come to a critical stage of instability and decay.

This report recommends rehabilitation of the Ranger Cabin into an exhibit space. Rehabilitation will give the Ranger Cabin a new lease on life, allowing it to interpret history through informational displays, furniture and other objects. The ultimate treatment of rehabilitation has five main components. In order of priority, they are:

1. Return the Ranger Cabin to a safe and weather-tight condition by installing a proper foundation, repairing the main structural components, and replacing the sacrificial building components.
2. Repair or replace interior character-defining features and materials that have been destroyed or damaged due to deterioration or lack of maintenance.
3. Rehabilitate the Ranger Cabin's interior and exterior spaces to comply with current accessibility, life safety, and building codes.
4. Accommodate the programmatic needs of the proposed new use of exhibit space.
5. Repair specified character-defining features of the Ranger Cabin site and reconstruct specified non-extant character-defining features.

## **Boundary Fence**

Also addressed in this report is the Boundary Fence on Walnut Canyon National Monument's northern boundary. Constructed by the Civilian Conservation Corps from 1938-1942, this split-rail fence both created a perceptual boundary and prevented cattle trespass, an increasing problem at the time. It continues to serve both purposes but is currently in need of repair. Recommendations are given to preserve the existing form while replacing decayed or damaged logs.

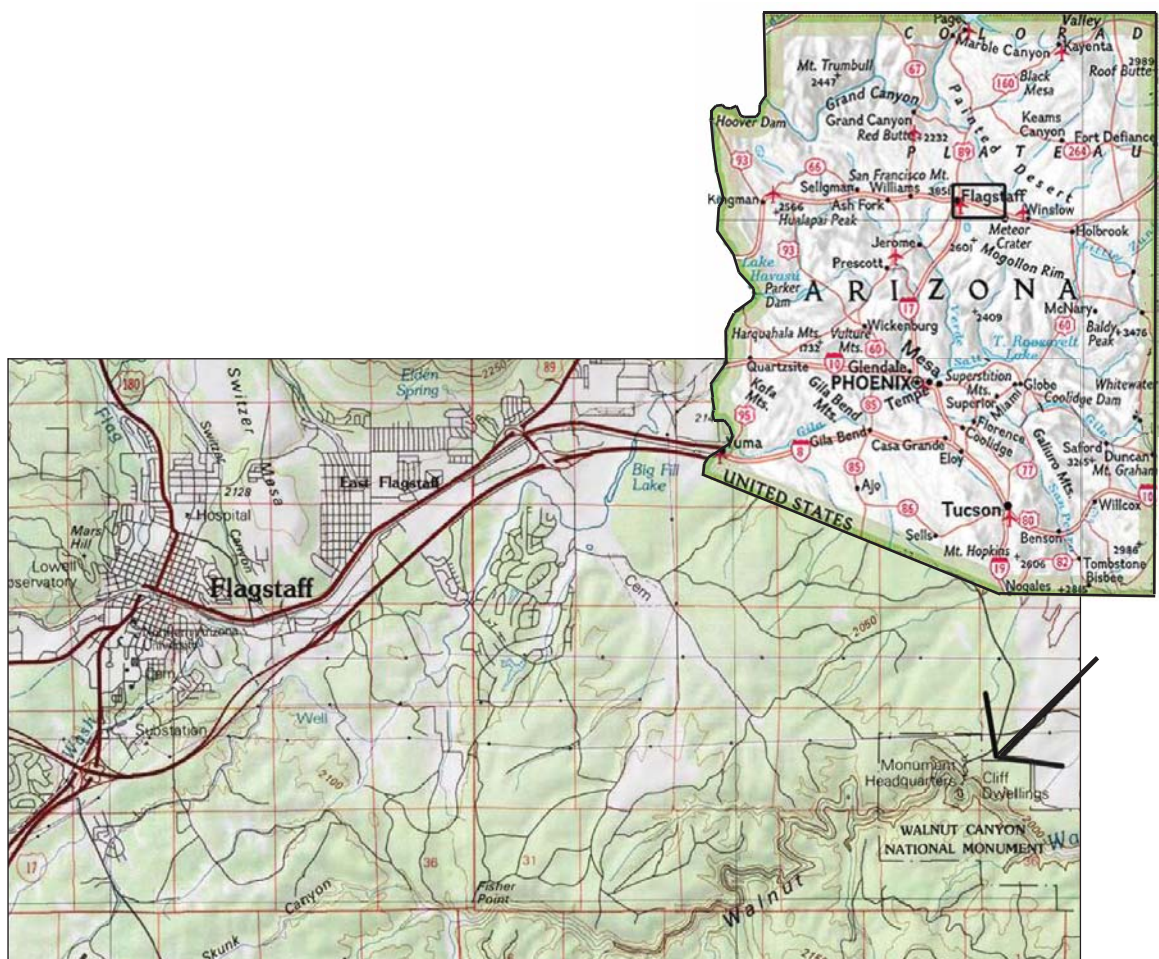


Fig. 1: Map showing location of Walnut Canyon National Monument and relationship to Flagstaff, Arizona. (Source: National Geographic, altered by author)

## ADMINISTRATIVE DATA

### RANGER CABIN

LCS#: 007235

UTM Location: 452825E, 3892385N, ZONE 12

#### Proposed Treatment

Rehabilitation - Retention of historic character-defining features and alteration into exhibition space for public use

#### Related Studies

*Ranger Cabin Report* by Melinda S. Short, n/d

*Evaluation of the Old Headquarters Cabin*, 1976

*A Structural Assessment of the Ranger's Cabin* by Joseph G. Gallagher, 1990

*Scope of Work for Stabilization of Log Ranger's Cabin* by Craig Kenkel, 1990

*An Archeological Clearance for Emergency Stabilization of Ranger Cabin* by Anne R. Baldwin, 1991

*An Interpreter's Guide to the Old Ranger Cabin*, 2003

#### Cultural Resource Data

National Register of Historic Places, 3/31/1975 (as "Old Headquarters"), NRIS #75000220

National Register of Historic Places, 10/15/1966

Period of Significance: 1904-1934

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### BOUNDARY FENCE

LCS#: 068203

#### UTM Location

West End: 453948E, 3892637N, ZONE 12

East End: 452306E, 3892594N, ZONE 12

#### Proposed Treatment

Preservation - Stabilization of historic character-defining features and replacement where necessary

#### Cultural Resource Data

National Register of Historic Places, Walnut Canyon National Monument Headquarters Area,  
(Determined eligible) 8/8/2006

Period of Significance: 1938-1942



**RANGER CABIN**  
**DEVELOPMENTAL HISTORY**

## HISTORICAL BACKGROUND AND CONTEXT

Human occupation of Walnut Canyon can be traced back to 8,500 B.C.E., but the area is most noted for development by the Sinagua culture from 1150-1225 AD. Named by archeologists for their residency in what the Spanish called “Sierra Sinagua” (Mountain Range without Water), the Sinagua people occupied the region around Flagstaff from 600-1400. When they left the area, their cliff dwellings and artifacts of everyday life sat dormant for centuries.

Increased population, accessibility, and publicity led visitors to Walnut Canyon in the 1880s. Many came by railroad, which had brought new industry, residents, and visitors to nearby Flagstaff upon its completion. At the same time, southwest expeditions, such as those led by John Wesley Powell for the Smithsonian Institution, helped disseminate information on ancestral puebloan cultures and cliff dwellings. Newspaper and magazine articles on Flagstaff and the cliff dwellings brought additional attention. Realizing that the cliff dwellings were a boon for the area, the Flagstaff Board of Trade began a promotional effort for Walnut Canyon in 1891. These efforts greatly increased the number of visitors to Walnut Canyon, many of whom looted the cliff dwellings and caused extensive structural damage in the process, necessitating federal protection.

Walnut Canyon was set aside as part of the San Francisco Mountains Forest Reserve on August 17, 1898. This designation placed Walnut Canyon under control of the Bureau of Forestry within the Department of the Interior until 1905, when management shifted to the Forest Service of the Department of Agriculture. In an attempt to protect the cliff dwellings and curtail looting, a one-room log cabin residence (“Ranger Cabin”) was constructed for a seasonal ranger in 1904. The Ranger Cabin was sited at the head of what is now referred to as the Ranger Ledge Trail. Developed by the Sinagua 750 years ago, it was the main visitor trail by 1890.<sup>1</sup>



Fig. 2: Early visitors on the Ranger Ledge Trail, n/d (WACA 4452)

In June of 1906, Congress passed the American Antiquities Act, which granted protection to prehistoric and historic ruins and gave the President authority to set aside areas with historic or scientific interest as national monuments. Aided by this Act and the steadfast support of the Daughters of the American Revolution, Dr. Harold S. Colton,

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<sup>1</sup> Ian Hough, 2002 *Ranger Ledge Trail: History of Visitor Use and Archeological Site Monitoring, Walnut Canyon National Monument, AZ* (Unpublished, May 2003), 5.

founder of the Museum of Northern Arizona, and Father Cyprian Vabre, a priest and supporter of western history and travel, Woodrow Wilson proclaimed Walnut Canyon a National Monument on November 30, 1915.<sup>2</sup>

Although passage of the Organic Act in 1916 created the National Park Service to oversee the management of national parks and monuments, Walnut Canyon National Monument remained under the management of the Forest Service for nearly twenty additional years.

The National Park Service began administration of Walnut Canyon National Monument in 1934. In 1938, the land on which the Ranger Cabin sits was added to the monument by presidential proclamation. Soon after, the Civilian Conservation Corps made improvements to the monument with additional visitor and residential facilities, rendering the Ranger Cabin functionless. Development occurred again in the Mission 66 era with a visitor center addition, new approach road, maintenance facility, and residential units. In 1990, Walnut Canyon National Monument administration was combined with Sunset Crater and Wupatki National Monuments.

The Ranger Cabin has an important role in the early Forest Service management of Walnut Canyon in a time when other national monuments received little administrative attention.

### **Forest Service Administration**

Forest Reserves, managed by the General Land Office of the U.S. Department of the Interior, were proclaimed with frequency after the passage of their enabling legislation, the General Revision Act of 1891. Between 1892 and 1907, twenty five reserves were set aside within the Southwest Territory alone. It was in this period that the San Francisco Mountain Reserves, which included Walnut Canyon, was created.

Large National Forests (changed in name from Forest Reserves in 1907) were organized into districts, and subdivided into north and south divisions; districts were defined by a headquarters, or ranger station, where the ranger generally lived. Ranger stations were “located so that the administrative unit can be handled with a minimum of effort and a maximum of efficiency.”<sup>3</sup> In 1904, The Ranger Cabin (originally known as Cliffs Ranger Station) was sited at the head of Ranger Ledge Trail to efficiently control and monitor access to the cliff dwellings.

Early rangers carried out every need of the National Forests, acting as visitor guides, law enforcement officers, firefighters, and writers. Theirs was a primitive lifestyle and they were hired for their familiarity with the land. Of these hardy rangers, Teddy Roosevelt said they were men “with bark on.”<sup>4</sup> Often a ranger’s wife had an important, though unpaid, role in assisting with management duties.

William Henry Pierce (1841-1928), the first ranger at Walnut Canyon, presumably moved into the Ranger Cabin soon after it was constructed; he may have lived in a tent on site during construction. Pierce was a Union veteran and his wife Mattie (1869-1952) the daughter of a Confederate soldier. Already well along in age by the time he began work, reports conflict over the level of supervision Pierce was able to provide to the cliff dwellings and archeological

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<sup>2</sup> On July 14, 1915, the Daughters of the American Revolution erected a monument to “The Pioneer Women of America” near Ranger Cabin. Years later, this monument was removed and disposed of in the canyon. More recently, it was recovered from the canyon and installed on the pathway leading from the parking lot to the visitor center.

<sup>3</sup> Francis E. Williamson Jr., *Landscape Engineering in the National Forests: Ranger Site Plans*. (Unpublished, November 1931), 1.

<sup>4</sup> Edwin A. Tucker and George Fitzpatrick, *Men Who Matched the Mountains: The Forest Service in the Southwest*. (United States Department of Agriculture, Forest Service, Southwestern Region, 1972), 5.

artifacts of Walnut Canyon. Most likely, Pierce escorted unfamiliar visitors down the Ranger Ledge Trail to the cliff dwellings and allowed others unsupervised access, permitting surface collecting of archeological artifacts.

In 1921, Neil (1859-1937) and Emma (1854-1950) Erickson were transferred from Chiricahua National Forest to replace the retired Pierces. Erickson was self-trained as a carpenter and “could always be found looking for ways of improving living conditions.”<sup>5</sup> He completed many maintenance activities on the Ranger Cabin, as noted in the *Chronology of Development* section of this report. Erickson retired from the Forest Service in 1927.

By the time Erickson’s replacement was sought, National Forests had been transferred to the Forest Service within the Department of Agriculture and management changes resulted. A ranger exam was instated to qualify for work, and prospective applicants had to be between 21 to 40 years of age. No longer could men like William Henry Pierce and Neil Erickson, well over the age limit, be hired as rangers.

As National Forests and the Forest Service matured, management became increasingly professional. The Civilian Conservation Corps (CCC) of the 1930s brought college-educated men into the Forest Service and National Park Service, many of whom became career employees. In the late 1950s and 1960s, Forest Service and National Park Service work became more specialized and clerical, involving less visitor contact.

### **The Early National Park Service**

Although the Antiquities Act of 1906 granted the designation of federal lands as national monuments, it offered little in the way of physical protection. Responsibility for national monuments was shared between three agencies: the Forest Service, War Department, and Government Land Office, none of which received funding for monument staffing. Without on-site staff, most national monuments were protected only by warning signs. Of this period, Hal Rothman said: “Proclamation of a monument meant recognition of the value of a place, but little more.”<sup>6</sup> Frank Bond, chief clerk of the Government Land Office and the person responsible for referring areas for designation as national monuments, was frustrated at the lack of funding and protection for national monuments and stopped referring monuments in July of 1911.

It was not until 1915, when Stephen T. Mather and Horace M. Albright began developing a special bureau to administer national parks and monuments, that Bond continued referring areas as national monuments. Walnut Canyon was the second area proclaimed a national monument after this hiatus.<sup>7</sup>

Established in 1916, the National Park Service was meant to administer to both national parks and monuments, but monuments got slighted as early as the first appropriation. Each monument received only \$120; staff funding and unit promotion were reserved for areas with park status only. National monuments, which do not require congressional approval, often went unnoticed as rail companies developed facilities in, and transportation to, national parks. As some monuments were ‘promoted’ to national parks, national monument status came to be thought of as a holding category.

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<sup>5</sup> Louis Torres and Mark Baumler, *A history of the buildings and structures of Faraway Ranch, Chiricahua National Monument, Arizona: Historic Structure Report, Historical and Archeological Data Sections*. ([Denver, Colo.] : Branch of Planning, Alaska/Pacific Northwest/Western Team, U.S. Dept. of the Interior, National Park Service, Denver Service Center, 1984), 26.

<sup>6</sup> Hal Rothman, *American’s National Monuments: The Politics of Preservation*. (Lawrence, Kansas: The University Press of Kansas, 1989), 83.

<sup>7</sup> Two national monuments were created during the hiatus prior to Walnut Canyon’s designation. They include: Cabrillo in 1913 and Papago Saguaro in 1914.

This reinforced the perception that parks were of a higher caliber in scenery and visitor experience. Compared with national parks, monuments generally consisted of more secluded areas and smaller land mass, and were not as well equipped for visitation; in essence, they were “a hodgepodge, the catchall category of federally held park areas.”<sup>8</sup> As a category, monuments remained without staff and administrative attention through the late teens and 1920s.

Although the National Park Service could have managed Walnut Canyon National Monument upon its creation in 1916, it remained under Forest Service care. Urging that the monument remain under its management, Forest Service Supervisor John Guthrie said:

Forest Officers are already on the ground and are administering surrounding land and could give a National Monument certainly more attention and protection and far less expense to the Government in connection with their regular forest duties than the Department of the Interior could through any National Park Service.<sup>9</sup>

This special arrangement for continued Forest Service management provided protection and development of Walnut Canyon National Monument, a feat that would have gone unaccomplished otherwise.<sup>10</sup> The presence of the Ranger Cabin and a Forest Service ranger at the head of the Ranger Ledge Trail afforded Walnut Canyon National Monument remarkable protection for a national monument in the 1910s and 20s, a period when most national monuments were underfunded and understaffed by the National Park Service. As a testament to Forest Service stewardship, Jim Brewer, the first National Park Service ranger, said: “On taking over the acting-custodianship, I found everything left in very good condition; the house and yard were a credit to any monument or park.”<sup>11</sup>

### **Period of Significance**

Although the National Register of Historic Places nomination lists only 1904 as a significant date, the actual period of significance is much longer. Because the Ranger Cabin is important as the site of early Forest Service administration, the period of significance spans the date of construction to the transfer to the National Park Service (1904-1934). The Forest Service’s occupation of the Ranger Cabin is significant in that it afforded Walnut Canyon physical protection in an era when archeological sites and national monuments otherwise received little funding and staffing. And it was in this period that Ranger Ledge Trail functioned as the main route for visitor access into the canyon while the Ranger Cabin served as ranger housing, visitor reception, and a museum. The National Register of Historic Places listing should be updated to reflect this broader understanding of the period of significance.

Soon after the transfer of Walnut Canyon National Monument to the National Park Service, a new trail to the cliff dwellings was formalized, and a visitor center and new housing built, which rendered the Ranger Cabin useful only seasonally. Abandonment of the Ranger Cabin and lack of cyclical maintenance has led to its deterioration after the period of significance.

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<sup>8</sup> Hal Rothman, *American’s National Monuments: The Politics of Preservation*. (Lawrence, Kansas: The University Press of Kansas, 1989), 93.

<sup>9</sup> John D. Guthrie to District Forester, 10 June 1916, Museum Collection, Walnut Canyon National Monument, National Park Service.

<sup>10</sup> The Forest Service managed three additional monuments set aside for archeological significance. They include: Tonto (AZ), Bandelier (NM), and Gila Cliff Dwellings (NM).

<sup>11</sup> Jimmie Brewer, Report for July 1934, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

## CHRONOLOGY OF DEVELOPMENT AND USE

Although no official record of the Ranger Cabin's construction exists and secondary sources reference conflicting dates, the generally accepted construction date is 1904.<sup>12</sup> Named for the nearby railroad town of Cliffs, this hog-trough cornered cabin<sup>13</sup> was sited at the head of the canyon where a trail ("Ranger Ledge Trail") giving access to the cliff dwellings was already in place. The second half of the original cabin is purported to have been built with logs salvaged from an abandoned logging camp nearby (see documentation drawings, Appendix A).<sup>14</sup> Throughout its history, this cabin has been referred to by many names; for the sake of consistency, here it is referred to only as the Ranger Cabin.

The Ranger Cabin was well landscaped during William and Mattie Pierce's tenure with stone flower beds and a gated post and wire fence. A plank walkway approached the one-room cabin and ran the length of the front façade. The dark logs were offset by white-painted door jambs and window sills, and pale chinking. A cistern was present as well as a barn and, presumably, an outhouse. The interior was comfortably decorated with high-quality furniture and Navajo rugs; a visitor register was maintained inside. Mattie Pierce was known as a warm host, sometimes allowing visitors into her home and giving home-grown vegetables to special guests; she operated a curio store of archeological artifacts inside the Ranger Cabin. A brick-topped stone fireplace was present on the rear elevation of this original cabin.



Fig. 3: Ranger Cabin, circa 1904 (WACA 5177)

During the Pierces' occupancy, both Walnut Canyon and the Ranger Cabin underwent major changes. Although exact recordation does not exist, a one-room kitchen was likely added onto the Ranger Cabin in 1906. This saddle-notched<sup>15</sup> addition had a pie cooling window extension and a built in cupboard on the interior. A second addition likely occurred by 1915 and contained (two) rooms for a museum display and visitor reception.

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<sup>12</sup> Conflicting dates of original construction include the 1890s (Walnut Canyon National Monument, National Park Service, *Statement for Management* (Unpublished, 1986), 3) and 1903 (Walnut Canyon National Monument, National Park Service, *Master Plan Development Outline* (Unpublished, 1948), 4).

<sup>13</sup> Hog-trough is a quick method of construction that does not necessitate notching of horizontal logs. Instead, horizontal logs of one wall are nailed to a single vertical member. Horizontal logs of the perpendicular wall are nailed to another vertical member, and these vertical members are nailed together.

<sup>14</sup> Paul Beaubien, Monthly Report for July 1935, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

<sup>15</sup> A saddle notch is a semi-circular cut on the bottom of a horizontal log so that it fits over the log of the perpendicular wall. The notch is made to fit the curvature of the log below.





Fig. 4: Ranger Cabin with kitchen addition, circa 1910 (NAU PH 2000 7)



Fig. 5: Final configuration of the Ranger Cabin with flagpole, circa 1926 (WACA 5553)

Upon passage of the Organic Act in 1916, Forest Service Supervisor John Guthrie completed a cost study on the Ranger Cabin and personnel; he found that \$918.41 had been spent on improvements such as the cabin, barn, pasture and cistern, and \$10 per year was spent on the maintenance efforts of the same. He recommended an additional \$100 be expended for work including a “porch or pergola or grape arbor in front, repainting house, fence and barn, and repairs to cistern (greatly needed now).”<sup>16</sup> Guthrie urged that the Forest Service continue management of Walnut Canyon National Monument, despite the creation of the National Park Service.

In 1921, Neil Erickson, a Swedish immigrant, and his wife Emma were transferred from Chiricahua National Monument to replace the retired Pierces.<sup>17</sup> In addition to his primary duty of protecting the cliff dwellings, Erickson performed maintenance activities on the Ranger Cabin and its site, as noted in his daily journal entries. In his first two years of service, he fixed the garden fence behind the Ranger Cabin; built a work bench in the barn; replaced the stove pipe; painted the kitchen ceiling and inside the kitchen windows and door; made screens for the bedroom and kitchen windows; painted the office ceiling and the inside of the window frame; painted the guest room ceiling; tightened wires and put in posts for a pasture fence west of the Ranger Cabin; and stained woodwork, including baseboards, window, and door casings. He planted onions, turnips, parsnips, spinach, radish, carrots and lettuce in the garden. Erickson reported the presence of both trespass sheep and cattle. A flagpole is visible in front of the Ranger Cabin in photographs of this period.

At some point during this period, the stone fireplace and chimney may have been removed, though an exact date is not known.<sup>18</sup> Additional alterations include a poured concrete replacement of the plank walkway approaching and running the length of the Ranger Cabin’s front façade, and the encouragement of vines up the building. A photograph

<sup>16</sup> John D. Guthrie to District Forester, 10 October 1916, Museum Collection, Walnut Canyon National Monument, National Park Service.

<sup>17</sup> Conflicting dates of Erickson’s start at Walnut Canyon National Monument range from 1917 (Louis Torres and Mark Baumler, *A history of the buildings and structures of Faraway Ranch, Chiricahua National Monument, Arizona: Historic Structure Report, Historical and Archeological Data Sections*. ([Denver, Colo.] : Branch of Planning, Alaska/Pacific Northwest/Western Team, U.S. Dept. of the Interior, National Park Service, Denver Service Center, 1984)) to 1921 (Melinda S. Short, “Neil Erickson: A Man for All Seasons” (Unpublished, n/d)). It was also during this time that Harry E. “Indian” Miller resided at Walnut Canyon National Monument. Dr. Harold S. Colton reported meeting Miller in 1920, when Miller occupied an Apache-style wickiup behind Ranger Cabin. It is unknown when this structure was constructed, what form it took, or what became of it. There Miller operated a small zoo and sold poems he had written. It is unknown when Miller arrived at Walnut Canyon National Monument; he departed for a trading post and zoo on Route 66 in 1925.

<sup>18</sup> Exact recordation does not exist for the removal of the stone fireplace and one can not rely on the dating of photographs. For example, WACA 5553 is reported to have been taken on August 22, 1926 and shows the fireplace intact; WACA 5598 is reported to have been taken on August 22, 1922 and shows the fireplace already removed.

of Erickson in front of the south elevation reveals a single-width window on Room Three, which was doubled in size at a later point, although the year is unknown.

In 1927, Neil Erickson submitted a letter of resignation to the Supervisor of the Coconino National Forest citing advanced age (68 years) and hearing impairment as reasons he “can no longer cope with duties connected even with this very pleasant little station.”<sup>19</sup> Before retiring to his Faraway Ranch near Tucson, Erickson noted maintenance needs for the Ranger Cabin; he recommended a wall foundation, chinking, reroofing, ridge and rafter work, and metal flashing, as well as underpinning of the adjacent barn. It is unknown if this work was ever completed. Likewise, it is unknown if the barn was later demolished or allowed to collapse and the remnants cleared; nothing of it remains.

Little is known about Erickson’s successor, James Cox, who served as the last Forest Service ranger in Walnut Canyon National Monument, except that he and his wife arrived in 1929 and departed in July of 1934 when the monument was transferred from Forest Service to National Park Service administration.<sup>20</sup>



Fig. 6: Neil Erickson in front of the south elevation of the Ranger Cabin. Note chimney and single window, n/d (WACA 2373)



Fig. 7: Emma Erickson in front of the east elevation of the Ranger Cabin. Note cistern and pump, n/d (WACA 2373)

### Early National Park Service Occupation

The shift to National Park Service administration was concurrent with a shift in training and experience of employees throughout the Forest Service and National Park Service. In the mid-1930s, both the Forest Service and National Park Service began hiring college-educated professionals. The first National Park Service employees, Jim and Sallie Brewer, were both trained archeologists. Although they were transferred to Wupatki National Monument within their first month of service, they set a higher standard of professional expertise than the monument was previously afforded.

In their place, Paul Beaubien (1903-1962), a trained anthropologist, began supervision of Walnut Canyon National Monument in August of 1934. Beaubien attempted to stop the destruction of the cliff dwellings, including that caused by trespass livestock in addition to looting visitors. For the former, he prioritized the construction of a split-rail fence (“Boundary Fence”). Beaubien also promoted education and, together with Dr. Colton, established Ranger Ledge

<sup>19</sup> Neil Erickson to Forest Supervisor, 3 November 1927, Museum Collection, Walnut Canyon National Monument, National Park Service.

<sup>20</sup> Cox helped begin development of a trail that later became the Island Trail.



Trail as self-guiding with the addition of mounted labels interpreting the cliff dwellings and native plants. In 1937, Beaubien began service as Walnut Canyon National Monument's permanent Custodian, a function akin to today's superintendent and in that capacity, oversaw numerous changes to the monument.



Fig. 8: West wall of the Ranger Cabin museum (Room Three) photographed by Paul Beaubien, 1935 (WACA 5530)



Fig. 9: Northeast corner of the Ranger Cabin museum (Room Three) photographed by Paul Beaubien, 1935 (WACA 4330)

### Civilian Conservation Corps Era

Although President Franklin D. Roosevelt passed the Civilian Conservation Corps (CCC) Act in March of 1933, a local camp was not established until five years later. Once created, the Mount Elden CCC camp, NM-5-A (redesignated NP-12-A), completed extensive work on Walnut Canyon National Monument's infrastructure, altering the face and use of the monument. Supervised by Project Superintendent William Stevenson, the CCC completed a trail, two residences, a combined administrative building and museum, and restrooms within Walnut Canyon National Monument by 1941. They participated in other projects as well, including the split-rail boundary fence on the monument's northern border.

As previously noted, trespass cattle and sheep were a documented problem during Erickson's tenure and continued throughout Beaubien's until the Boundary Fence was built. In 1937, Beaubien reported that cows, horses, and other livestock "make their headquarters at the ranger station [Ranger Cabin]" at least three days a week.<sup>21</sup> Exhibiting good humor, Beaubien said: "Good throwin' rocks are becoming scarce about the yard."<sup>22</sup> In August 1938, a rail fence was applied for, and work continued until the CCC was disbanded in 1942. Further information on the Boundary Fence is contained in that section of this report.

CCC developments altered the point of entrance and rerouted circulation within the monument.<sup>23</sup> The new Island Trail, which gave visitors access to a greater number of cliff dwellings, was orientated away from the Ranger Cabin and left little reason for visitors to pass it; the Ranger Ledge Trail closed soon after. The relocation of the park's museum and visitor contact from the Ranger Cabin to the combined administration and museum building limited the use of the Ranger Cabin to employee lodging. And the addition of modern housing for permanent rangers a mile away from the Ranger Cabin rendered it useful for seasonal housing only.

<sup>21</sup> Paul Beaubien, Monthly Report for June 1937, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

<sup>22</sup> Paul Beaubien, Monthly Report for June 1937, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

<sup>23</sup> Realignment of the monument road was completed in 1941.

Upon moving office equipment to the new administration and museum building, Beaubien said: “It is a great improvement over the past when the office, in the old log cabin, was a mile from the custodian’s residence, three fourths of a mile from the point of meeting visitors, and a half a mile from the mail box.”<sup>24</sup> In July of 1941, Beaubien moved out of the Ranger Cabin and into the new residence; by December of 1942, he reported packrats in the Ranger Cabin. The Ranger Cabin began serving as seasonal ranger housing in 1943.

In July of 1946, Beaubien left Walnut Canyon National Monument with a legacy of CCC improvements, cliff dwelling stabilization, and an increased educational focus.



Fig. 10: Trespass cattle in front of the Ranger Cabin photographed by Paul Beaubien, 1938 (WACA 5555)



Fig. 11: Boundary Fence, 2006

### Vacancy and Private Efforts for Preservation

By 1949, the area around the Ranger Cabin was overgrown, and the fence and flagpole had been removed. The last reference found to the Ranger Cabin’s use as housing was in preparation for an incoming ranger in June of 1950. At that time, the Ranger Cabin was cleaned and the ceiling repainted.

With the creation of Mission 66 – a program to update parks with increased visitor facilities by the 50<sup>th</sup> anniversary of the National Park Service in 1966 – and the resulting construction of additional employee housing in Walnut Canyon National Monument, the Ranger Cabin was no longer needed for residential purposes and was relegated to a storage facility. It ceased being used as storage by 1969; it has been vacant since.

The Daughters of the American Revolution, who championed the creation of Walnut Canyon National Monument, began efforts to preserve the Ranger Cabin as a pioneer relic museum in the early 1950s. Discussions lasted years and gained the support of W.H. Switzer, Vice President of the Arizona Pioneers Historical Society, who said that “the restoration and preservation of this particular building will be of lasting interest to all Park visitors in that area.”<sup>25</sup> But with a lack of funding, the project failed.

In 1958, the Master Plan called for the Ranger Cabin to be “removed and the site landscaped, because its historic value is negligible.”<sup>26</sup> Neither removed nor maintained, the Ranger Cabin was listed in poor condition in the Historic Structure Inventory in March of 1964.

<sup>24</sup> Paul Beaubien to Charles A. Richey, 27 January 1942, Walnut Canyon National Monument, National Park Service.

<sup>25</sup> W.H. Switzer, Vice President of Arizona Pioneers Historical Society to M.R. Tillotson, 14 December 1954, Museum Collection, Walnut Canyon National Monument, National Park Service.

<sup>26</sup> Walnut Canyon National Monument, National Park Service, *Master Plan* (Unpublished, 1958), 20.

### Early National Park Service Efforts for Preservation

A new *Master Plan* (1965) called for the restoration of the Ranger Cabin, noting that it “could be restored to its original condition with little effort as photographs exist of it in its original condition.”<sup>27</sup> Stabilization efforts gained momentum soon after.

In August 1966, the Ranger Cabin received new cedar shingles over the old roofing and corrugated sheet metal at the outside corner of the kitchen addition on the north elevation. In late 1968, Superintendent Don S. Squire advocated for emergency stabilization of the Ranger Cabin in the form of bracing in order to prevent collapse. Squire outlined the need for a Historic Structure Report and determination of use before further restoration work was planned; he estimated the cost of interior bracing at \$130.00. Later that year, Superintendent Carroll A. Burroughs requested comment from the Director’s office regarding the Ranger Cabin, noting that the lower logs were rotted to the point of potential collapse. Burroughs stated that the Ranger Cabin was stabilized by “cribbing and bracing the structure inside with ties through the chinks to the outside as an emergency measure against collapse of the structure this winter.”<sup>28</sup> Although Burroughs claimed that the original fabric was not modified in the process of bracing the Ranger Cabin, Melinda Short later refuted that “in the process much of the original paneling and chinking was destroyed,” and that “boards were nailed to the outside to support the logs.”<sup>29</sup> Documentation of further stabilization and maintenance during this period does not exist.

The 1970s saw an effort to preserve the Ranger Cabin through documentation and restoration, and the eventual decision to let it collapse into the landscape. In February 1969, *The Arizona Republic* reported that Ranger McLemore was planning for the restoration of the Ranger Cabin and securing funding; a marked trail was proposed to the Ranger Cabin. In 1972, Historian Russ Holland nominated the Ranger Cabin to the National Register of Historic Places and in doing so, warned that failure to complete treatment would result in full deterioration of the Ranger Cabin and neglect of federal duties. Holland noted the need for concrete or a masonry foundation, chinking and grouting, and a chemical preservative for the logs.

In the same year, a Development/Study Package Proposal submitted for a Historic Structure Report on the Ranger Cabin called for restoration to its original condition. The proposal carried a sense of urgency, stating: “This project is planned for the future, but as the structure is weathering, basic preservation methods should be carried on to insure that it will not be destroyed before that time.”<sup>30</sup>

In March of 1973, the Director of the National Park Service called for each historic structure within individual park units to be listed in the List of Classified Structures and nominated to the National Register of Historic Places, as well as cost estimates for treatment required to “place the structure in a condition for routine maintenance.”<sup>31</sup> In his reply, Superintendent Squire requested a List of Classified Structures entry for the Ranger Cabin and estimated the cost of foundation, log replacement, flooring and windows at \$10,000. In 1974, the Ranger Cabin was included on Walnut Canyon National Monument’s preservation needs list.

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27 Walnut Canyon National Monument, National Park Service, *Master Plan* (Unpublished, 1965), 7.

28 Carroll A. Burroughs to Regional Director, 14 November 1968, Museum Collection, Walnut Canyon National Monument, National Park Service.

29 Melinda S. Short, “Neil Erickson: A Man for All Seasons” (Unpublished, n/d), p 13-14.

30 Walnut Canyon National Monument, National Park Service, *Development/Study Package Proposal*, 20 January 1972.

31 Ernest Allen Connolly to all field directors, 5 March 1973. Museum Collection, Walnut Canyon National Monument, National Park Service.

Later that year, Holland submitted a revised National Register of Historic Places nomination, which listed the general condition as deteriorated and specifically noted that the west side of the building was sinking into the ground. In August of 1974, the Historic Sites Review Committee of Arizona State Parks recommended nomination of the Ranger Cabin to the National Register of Historic Places. The Ranger Cabin was listed (as “Old Headquarters”) in the National Register of Historic Places on March 31, 1975 at the local level of significance.

In 1975, Superintendent Squire began recommending against expenditure on the stabilization and restoration of the Ranger Cabin. In a letter to the General Superintendent of the Southern Arizona Group, Squire said: “I am not so sure we want to spend the money needed for stabilization or reconstruction to keep this building upright. Maybe it isn’t that significant.”<sup>32</sup> Despite Squire’s concerns over the Ranger Cabin’s restoration, preservation planning efforts continued with the assistance of expertise at the regional level.



Fig. 12: Ranger Cabin with corrugated sheet metal at kitchen porch corner and exterior bracing, April 1988 (WACA 2373)



Fig. 13: Interior bracing of the Ranger Cabin, May 1990 (WACA 2373)

### Regional Assistance

In July of 1975, Regional Historical Architect Robert M. Cox wrote an architectural description and condition assessment of the Ranger Cabin. In it, he noted the undulating roof ridge, displaced mud chinking, and presence of dry rot. He claimed that the bracing system installed in the first three rooms created unusable space. In January of 1976, the Division of Historic Preservation evaluated the Ranger Cabin’s history and condition, and recommended restoration estimated at nearly \$46,000. Although the report recommended restoration, it offered treatment alternatives, including a no-action approach.

Squire’s early endorsement of a no-action approach was reiterated by General Superintendent of the Southern Arizona Group John H. Clay, who recommended recordation of the Ranger Cabin through the Historic American Building Survey (HABS) and no stabilization or restoration treatment. In requesting the support, Clay wrote:

When considered in light of the vast amount of work needed yet on the park’s primary resource, the cliff dwellings in Walnut Canyon, we seriously doubt the wisdom of totally or partially restoring the

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<sup>32</sup> Don S. Squire, Superintendent to General Superintendent, Southern Arizona Group, 5 February 1975, Museum Collection, Walnut Canyon National Monument, National Park Service.



Old Headquarters Cabin [Ranger Cabin]. Partial restoration would appear to be only a temporary holding action. Complete restoration would approach a major restoration, since replacement of probably more than 50% of original fabric of the building would be necessary. We therefore, recommend that we mitigate this structure by HABS documentation and then exercise a “no action” option.<sup>33</sup>

In February of 1976, Walnut Canyon National Monument’s *Natural and Cultural Resources Management Plan* addressed the Ranger Cabin’s deteriorated condition and recommended exterior restoration after completion of a Historic Structure Report. It offered two alternatives: no action and “holding action” preservation. An approach decision was not yet made by June of 1977 when Squire wrote to the Regional Director regarding the potential non-treatment of the Ranger Cabin, and resolution of this debate appears to be lost.

In the summer of 1983, Richard A. Borjes, Historical Architect for the Western Region visited the Ranger Cabin to conduct a condition assessment and specify treatment recommendations. Borjes stated that if restoration was undertaken, upwards of 50% of all logs would have to be replaced, the roof and floor replaced, and the foundation extended below the frost line. Borjes concluded that the Ranger Cabin was “past restoring,” stating that:

Restoration of this structure would require so much replacement of historic fabric that the end product would be called reconstruction. I do not believe that this structure merits this level of treatment.<sup>34</sup>

This sentiment was substantiated by the *Statement for Management* (1986) which notes that the Ranger Cabin is “managed as a ‘leave alone situation’, and is being allowed to slowly and naturally deteriorate.”<sup>35</sup>

### **Renewed Preservation Efforts**

The monument’s *Resource Management Plan* (1987) again offered three solutions for the Ranger Cabin: emergency stabilization, historic structure preservation guide, or comprehensive stabilization. In the same year, the Ranger Cabin Emergency Stabilization Development/Study Package Proposal was determined the monument’s first priority. Still neither funded nor accomplished, the proposal priority level was dropped to eighth in 1989.

Joint efforts between the Forest Service and National Park Service to stabilize the Ranger Cabin began in 1989. At that time, Superintendent Sam Henderson asked Forest Service Archeologist Anne Baldwin to begin planning for the stabilization of the Ranger Cabin. Their goal was to “return the cabin to a structurally sound and weathertight state while preserving historic fabric, character and scene.”<sup>36</sup> A challenge-cost share proposal was submitted to the Forest Service Southwest Regional Office for funding stabilization of the Ranger Cabin. That summer, Baldwin filmed the Ranger Cabin and submitted the video tape to the National Park Service’s Western Regional Office for review of its condition and recommendation of treatments.

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<sup>33</sup> John H. Clay to Regional Director, Western Region, 18 February 1976, Museum Collection, Walnut Canyon National Monument, National Park Service.

<sup>34</sup> Richard A. Borjes to Chief of Park Historic Preservation, Western Region, 6 September 1983, Museum Collection, Walnut Canyon National Monument, National Park Service.

<sup>35</sup> Walnut Canyon National Monument, National Park Service, *Statement for Management* (Unpublished, 1986), 7.

<sup>36</sup> Regional Director, Southwestern Region to Regional Director, Western Region, 23 January 1991, Museum Collection, Walnut Canyon National Monument, National Park Service.

Based on his review of the video tape, Tom Mulhern, Chief of Park Historic Preservation for the Western Region, outlined treatment recommendations, including regrading the site to prevent water drainage toward the Ranger Cabin, replacing bottom logs with above-ground concrete foundation, rehabilitation or replacement of gutters, and the retention of interior siding. He expressed need for a structural engineer to correct the roof problems and archeological clearance for any ground disturbance. Mulhern called for a Historic Structure Report and re-evaluation of the significance level of the National Register of Historic Places listing to the regional or state level.

In August of 1989 and the following March, Craig Kenkel, Historical Architect for the Western Region, visited the Ranger Cabin and gathered information on its structural integrity to develop an emergency stabilization plan. Kenkel reported meeting with Sam Henderson and Anne Baldwin about the monument's desire to restore the Ranger Cabin's interior and furnishings, and use the building for (some) visitor contact.

Kenkel expressed concern over the Ranger Cabin's snow load capacity and made extensive recommendations for the restoration of its roof, walls, foundation and floors. Major recommendations included: bracing at the rafters, structural reinforcement at the corners, complete rebuilding of the west wall and kitchen addition, replacement of sill logs and floor rim joists, and the addition of a concrete pier foundation. He further advocated for the replacement of shingles above the original cabin and second addition, repair or replacement of the roof gutter system, and the addition of downspouts. Kenkel suggested examination of the significance of the surrounding landscape before any regrading work was completed. He recommended pest-proofing the Ranger Cabin and rehabilitating all doors and windows. Lastly, Kenkel urged that interior finishes be removed, cleaned and stored elsewhere during stabilization work. Kenkel noted the presence of the original pinkish chinking and a later grayish cementitious chinking. Kenkel referenced the goal of HABS completion by May of 1990, with assistance from Pam Meck, a park maintenance worker trained in historic preservation methods; Dewey Livingston, Point Reyes National Seashore historian; and Anne Baldwin.

In the spring of 1990, Dewey Livingston took HABS standard photographs of the Ranger Cabin and estimated a preliminary document would be completed by the end of August. Realizing its tie in the history and context of the Ranger Cabin, Livingston urged that the Ranger Ledge Trail be included in any protection of the Ranger Cabin.

At the same time, the monument submitted a proposal for the Ranger Cabin to be used as a satellite visitor center after stabilization. The Ranger Cabin was to be "furnished with period pieces from both Park Service and Forest Service collections," and the grounds planted with flower and vegetable gardens with help from the Flagstaff Arboretum.<sup>37</sup>

Joseph G. Gallagher, Idaho Zone Archeologist of the Boise National Forest with experience in log cabin restoration for both the Forest Service and National Park Service, joined the Ranger Cabin planning efforts in the summer of 1990. After an on-site evaluation, Gallagher wrote *A Structural Assessment of the Ranger's Cabin*. In it, Gallagher called for replacing the roof; reflash the juniper tree hole; attaching rafters to the roof; replacing several logs, especially lower logs; removing and replacing chinking; rebuilding the entire south wall of the first addition; removing the concrete slab around the kitchen addition; restoring the drystack stone foundation; leveling the floor and replacing deteriorated joists; grading site to better control runoff and removing the concrete walkway; repairing the doors and rebuilding the windows. Gallagher prioritized the original cabin first, the last edition second, and the kitchen addition

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<sup>37</sup> Walnut Canyon National Monument, National Park Service, *Ranger Cabin Stabilization Project* (Unpublished, 17 May 1990).

last. He thought the wall system ought to be stabilized first, followed by roof repairs and foundation stabilization. These recommendations guided a course Gallagher eventually led to stabilize the Ranger Cabin.

Soon after Gallagher's *Assessment*, planning began for stabilization of the Ranger Cabin. Walnut Canyon National Monument staff members Pam Meck and Jon Zimmerman, and Allen Farnsworth of Peaks District Small Sales, cut trees to replace deteriorated logs; Arizona Conservation Corp (ACC) members peeled the logs in the fall.

In October of 1990, Craig Kenkel updated his earlier assessment and wrote a *Scope of Work: Stabilization of Log Ranger's Cabin*; his new recommendations were simplified treatments that allowed greater retention of original materials. Recommendations were included for the roof, walls, foundation, floor system, doors and windows, interior finishes and features, and the site.

Just as restoration efforts were gaining momentum, oversight of Walnut Canyon National Monument shifted from the Western to Southwestern Region. At this time, all ongoing regional assistance ceased and documents were transferred to the Southwestern Regional Office. Neither the Historic Structure Report, National Register of Historic Places nomination revision, nor Historic American Building Survey (HABS) documentation was completed before the transfer or since. The Western Region urged the preparation of construction documents and Section 106 compliance for the hands-on training workshop led by Joseph Gallagher, which continued as planned.

In preparation for the emergency stabilization workshop and to, in part, comply with Section 106, Anne Baldwin wrote *Archeological Clearance for Emergency Stabilization of Ranger Cabin*, which consisted of cabin and management history, and details on the proposed stabilization. Stabilization was aimed at improving structural stability and water tightness, and recommendations followed those already discussed. Baldwin assured that only hand tools would be used during exterior excavation around the building perimeter, and an archeologist would be present. She noted that HABS documentation, the National Register of Historic Places nomination update, and the Historic Structure Report would be completed after the stabilization was finished. Baldwin mentioned future plans for an heirloom garden in place of Mattie Pierce's original garden. The *Archeological Clearance* was signed by the Forest Service Archeologist, Forest Service Supervisor, and Arizona State Parks.

In May 1991, planning efforts came to fruition when Joseph Gallagher led a 10-day camping course in log cabin stabilization using the Ranger Cabin as its instructional model. Jointly hosted by the Forest Service and National Park Service, participants included carpenters, archeologists, and those from various maintenance professions. Instruction and work included rotten log replacement; installation of a new shingle roof, underground drain, exterior boardwalk, and chinking and mortaring. The corrugated sheet metal at the kitchen porch was removed at this time. A revived Ranger Cabin played host to a joint National Park Service 75<sup>th</sup> anniversary and Forest Service 100<sup>th</sup> anniversary celebration later that summer.



Fig. 14: Ranger Cabin during stabilization, May 1991 (WACA 4224)

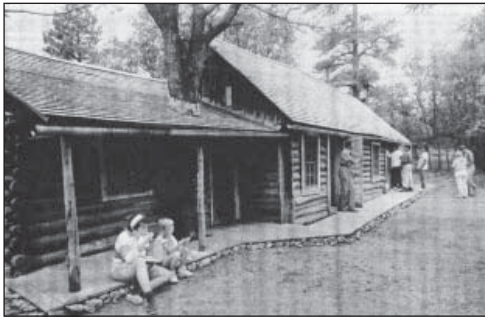


Fig. 15: Ranger Cabin after stabilization, August 1991  
(Source: Brian Winter/Arizona Daily Sun)



Fig. 16: VIP Judi Irons giving a Ranger-led tour near the Ranger Cabin, 2006

### Contemporary Vacancy and Denied Funding

Despite this stabilization work, the Ranger Cabin sat vacant and a lack of regular maintenance caused it to deteriorate once again. In the years after stabilization, new logs began to shrink, causing the mortar and chinking between to fail on 50% of the building overall, and 75% of the south wall. In 1995, Anne Baldwin and the Areas Resource Management Division proposed a workshop to rethink the Ranger Cabin; the proposal was denied. Comprehensive stabilization of the Ranger Cabin was called for in the Flagstaff Area National Monuments *Resources Management Plan* (1996).

In 1999, the monument sought funding from the Restoration of America's Log Cabins program, a joint effort between Aurora Foods, Inc. (makers of Log Cabin syrup) and The National Park Foundation; funding was denied. Project needs were estimated at nearly \$121,000; restoration work was to be conducted May-September 2000 with labor from the National Park Service, Forest Service, and volunteers. The application acknowledged the need for a Historic Structure Report before restoration work commenced. The grant proposal outlined plans to interpret the site with wayside exhibits; implement additional guided hikes; produce bulletins, restoration booklets, and pamphlets; expand the Science in Our Parks curriculum; and develop an annual living history interpretation of the Ranger Cabin, complete with pancakes and maple syrup. If funded, the proposal would have allowed the monument to conduct the restoration work required to receive cyclical maintenance funds. No maintenance activity has been conducted since.

### Interpretation

Although the Ranger Cabin sat vacant, it began to be interpreted on ranger-led hikes and other events.<sup>38</sup> Initiated in 1998, the Science in Our Parks: Cultural and Natural History on the Colorado Plateau program, which involves students in scientific field collections, utilized the Ranger Cabin as one of the focal points of the field lessons. Although the program is ongoing, it no longer uses the Ranger Cabin as a field lesson.

Beginning in the mid-1990s, rangers have led hikes past the Ranger Cabin that interpret it from the exterior. In 1999, these two mile hikes were reduced from a capacity of 10 to 6 people (including the ranger); this hike was generally offered Saturday mornings from Memorial Day to Labor Day. The *Guided Walk Individual Service Plan* (2003) provided for two weekly (as staffing permitted, Memorial Day through Labor Day) ranger-led hikes past the Ranger

<sup>38</sup> This was not the first time the interpretation was suggested; in 1978, Don Squire recommended bus tours to the Ranger Cabin with interpretive guides. (Don Squire to Regional Director, Western Regional Office, 17 October 1978, Museum Collection, Walnut Canyon National Monument, National Park Service.)



Cabin; human occupation and cultural resource protection were to function as the primary interpretive themes. These hikes are now offered to a maximum group of ten people once weekly from Memorial to Labor Days. Additionally, rangers lead walks past the Ranger Cabin to the Ranger Ledge Trail with a maximum of five people once weekly from Memorial Day to Labor Day. Both hikes historically followed the CCC-era entrance road, but were recently re-routed because of revegetation efforts; they now pass through the monument's residential area and along Old 303 Road.

The *Interpretive Concept Plan* (2003) called for wayside exhibits near the Ranger Cabin using the interpretive theme of cultural resource preservation; a trailhead wayside; and personal services for orientation, safety, and resource protection. Rangers were to lead guided hikes on the Ranger Ledge Trail once weekly during the summer season, as staffing permitted, and guided hikes to the Ranger Cabin twice weekly during the same season.

The *General Management Plan* (2006) discusses the possibilities of expanding interpretation of the Ranger Cabin with self-guided access along primitive roads.

## PHYSICAL DESCRIPTION

The following contains a systematic inventory of all building systems, features, materials, and spaces according to significance, condition, and impact. These terms are defined below.

Significance is defined as the quality of being important, or the feature's association with the historical themes expressed in the *Historical Background and Context* section of this report. Significance is exemplified in the building's character defining features. It is evaluated as High, Medium, or Low based on the feature's relationship to the period of significance.

Condition is the feature's state at the time of assessment with respect to performance, stability, and integrity. It is evaluated as Good, Fair, or Poor, as specified by the List of Classified Structures.

Good	The structure and significant features are intact, structurally sound, and performing their intended purpose. The structure and significant features need no repair or rehabilitation, but only routine or preventative maintenance.
Fair	a.) There are early signs of wear, failure, or deterioration though the structure and its features are generally structurally sound and performing their intended purpose, OR b.) There is a failure of a significant feature of the structure.
Poor	a.) The significant features are no longer performing their intended purpose, OR b.) Significant features are missing, OR c.) Deterioration or damage affects more than 25% of the structure, OR d.) The structure or significant features show signs of imminent failure or breakdown.

An impact is a detectable result of an agent or series of agents having a negative effect on the significant characteristics or integrity of a structure, and for which some form of mitigation or preventative action is necessary. It is evaluated as Severe, Critical, or Low, as defined by the List of Classified Structures. At least one of the criteria must be met at the declared impact level.

Severe	a.) The structure will be significantly damaged or irretrievably lost if action is not taken within two (2) years. b.) There is an immediate severe threat to visitor or staff safety.
Moderate	a.) The structure will be significantly damaged or irretrievably lost if action is not taken within five (5) years. b.) The situation caused by the impact is potentially threatening to visitor or staff safety.
Low	a.) The continuing effect of the impact is known, and will not result in significant damage to the structure. b.) The impact and its effects are not a direct threat to visitor or staff safety.

Condition assessment is divided into three sections: building exterior, building systems, and building interior. Within each section, both character defining features and building deficiencies are outlined. Treatment recommendations, rated according to priority, are outlined for each deficiency; a summary of recommended treatments is presented in the *Ultimate Treatment* section of this report.

## **Summary**

The Ranger Cabin is approximately .6 miles northwest of the developed area of the park and approached by a spur (dirt) road off Old 303 Road, which begins in the residential area. A dirt pathway connects to the spur road approximately 125 feet northeast of the Ranger Cabin. The site is dominated by native trees and grasses. The Ranger Ledge Trailhead is located just east of the Ranger Cabin and leads to cliff dwellings within the canyon.

The Ranger Cabin is a rectangular, one-story horizontal log building constructed in three stages. The original cabin has hog-trough joinery; the additions are saddle-notched. A combination of poor construction, lack of maintenance, and differential settlement has caused severe deficiencies that necessitate extensive treatment.

Many logs are seriously weathered, and sill logs rest upon the ground. Daubing is absent in many locations, and combined with the lack of interior walls in many locations, prevents the Ranger Cabin from being sealed from weather and varmints. Most interior walls and ceilings are extensively damaged or removed.

The sixty-year vacancy of the Ranger Cabin and lack of cyclical maintenance is a blessing only in the fact that much of its original materials and character-defining features remain. The Ranger Cabin exists in the same configuration as it did upon completion, albeit now in a critical state of decay.

## **Building Exterior**

Significance: High

Condition: Poor

Impact: Severe

Character Defining Features: Horizontal logs; hog-trough and saddle-notched corners; stepped roof; kitchen porch; juniper tree through kitchen roof; mortise-and-tenon wood doors and wood windows (as specified below)

The roof rests on a conventional wooden frame system, and is covered in cedar shingles. The shingles were last replaced during the 1991 stabilization and are in fair condition. No evidence exists that the shingles were originally stained or painted. The roof is bowing and sloping in areas.

The hog-trough corner joinery of the original cabin is present at the connection of both additions. This original one-room cabin has a centered door flanked by a six-over-six double-hung window. A fireplace and stone chimney were once present at the rear of this original cabin; they have since been replaced by a fixed six-lite window.

A small saddle-notched kitchen addition was added to the east; this addition is flush with the rear elevation but recessed from the front to spare the destruction of a juniper tree that penetrates the roof. A wide eave creates an intimate porch at the façade of this kitchen addition. It has a window on every elevation, including a four-lite casement window on the north and east elevations, and a fixed six-lite window on the south elevation. The north elevation window has a pie-cooling shelf. There is a door to the west of this window on the north elevation. The roof line of the kitchen addition is lower than the rest of the building.

A second saddle-notched addition was added to the west of the original cabin, flush with the original cabin at both the front and rear elevations. This two-room addition has a central door, flanked by six-over-six double hung windows on the front elevation. Its rear elevation has a door to the east and two four-lite casement windows to its west. There is a centered four-lite casement window on the west elevation. Its roof is continuous with the original cabin, but the ridge is raised at the junction of the two.

The walls consist of horizontal logs stacked 11 courses high, with each log varying in diameter between 3 ½" and 7". The log crowns are cut even, although some variation exists. Some decay is seen at the crowns from weathering. There is evidence of insect damage along the length of the bark.

The gaps between logs are chinked with small wood pieces and chicken wire, and covered with daubing. The daubing width is between 1½" and 6" and its condition varies across the building. On approximately 50% of the building, the daubing is intact over the wire and wood chinking, completely sealing the interior from the elements. On the other half, the daubing is displaced, leaving gaping holes to the interior.

Above the top log course, the gables are treated with vertical board and battens. These boards are roughly cut and darkly colored. They vary in length and some extend over the top log course. Many boards are bowed or cupped.

The mortis-and-tenon wood paneled doors of the Ranger Cabin swing inwards. The companion screen doors swing outwards. The doors retain their structural integrity. However, some door frames are askew, or out of plumb.

As discussed above, there are several configurations of window openings. The windows on the north elevation are six-over-six double-hung with the exception of the kitchen window, which is a four-lite casement window and unique by virtue of having a pie cooling shelf built into the exterior frame. Both windows on the east and west elevations are four-lite casement windows. In addition to two similar windows, the south elevation has two fixed six-lite windows.

All sill logs are in contact with the ground; most suffer serious cracking and decay. Installation of a stone foundation was planned during the 1991 stabilization, however, it is unknown if this foundation was installed. If installed, its depth could not be determined.

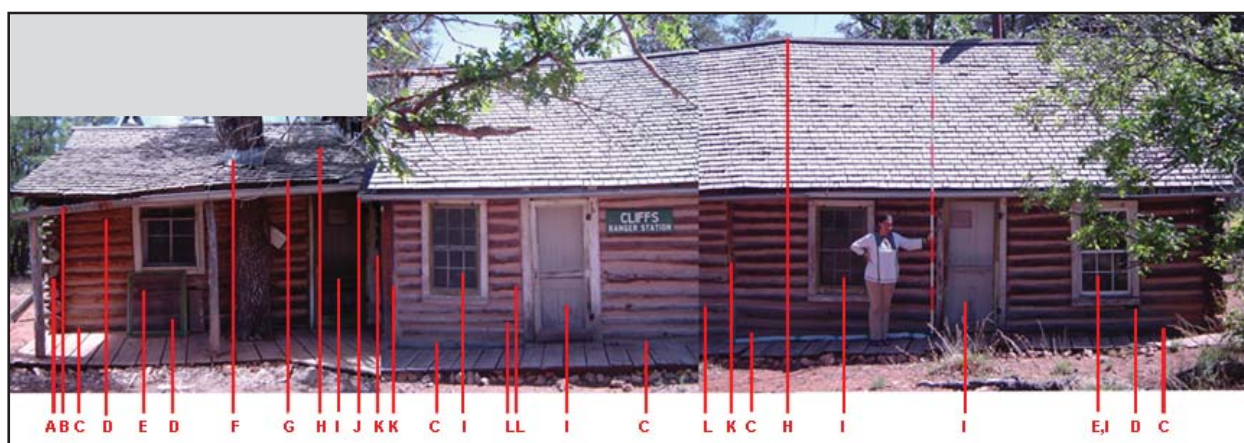


Fig. 17: Composite photograph of north elevation showing condition deficiencies, 2006 (letters refer to notes in the Condition Assessment Table below; see Appendix A for larger image)

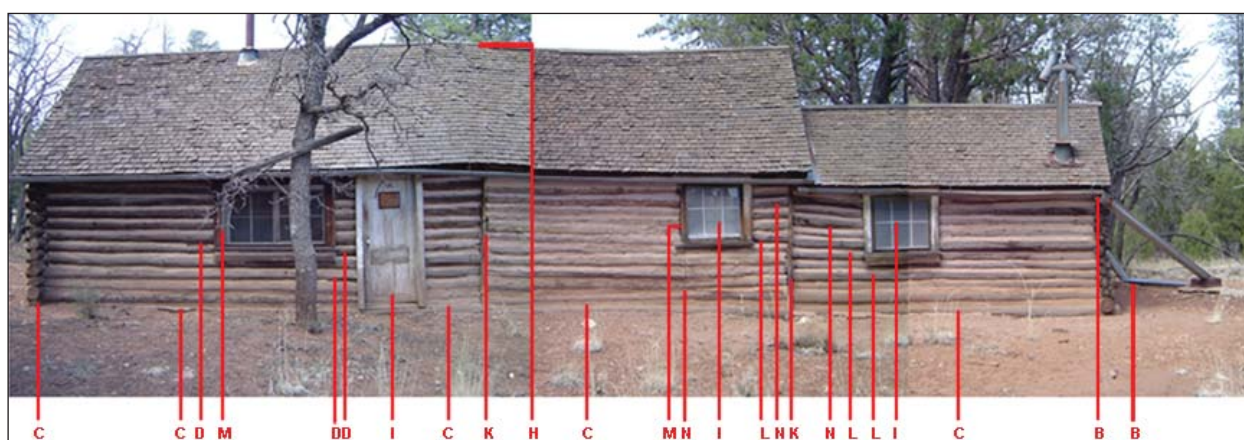


Fig. 18: Composite photograph of south elevation showing condition deficiencies, 2006 (letters refer to notes in the Condition Assessment Table below; see Appendix A for larger image)





Fig. 19: East elevation showing condition deficiencies, 2006 (letters refer to notes in the Condition Assessment Table below; see Appendix A for larger image)

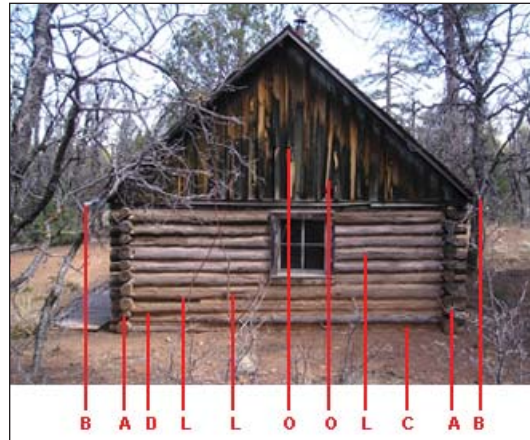


Fig. 20: West elevation showing condition deficiencies, 2006 (letters refer to notes in the Condition Assessment Table below; see Appendix A for larger image)

Exterior Deficiency	Recommended Treatment*	Impact
A. Decayed log crown. (Fig. 38)	Remove decayed wood. Patch with wood splice.	Moderate
B. Damage to gutter, including blockage and improper placement. (Figs. 31, 39, 41)	Remove debris and clean gutter system. Repair gutters where possible. Replace gutters where damaged beyond repair. Attach and raise gutters to proper height. Install additional downspout on each elevation.	Moderate
C. Sill log in contact with the ground. (Fig. 38)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay.	Severe
D. Absence of daubing creating gap to interior.	Remove existing daubing. Chink and daub exterior.	Severe
E. Window screen removed or missing.	Reattach window screen or reconstruct according to photographic documentation, as appropriate.	Low
F. Flashing pulled upwards from roof by growing tree. (Fig. 42)	Remove flashing and install new flashing at junction of tree and roof.	Moderate
G. Gap between roof and wall members.	Remove shingles, sheathing. Adjust roofing members to appropriately meet wall using preformed metal tie down straps. Resheath and shingle roof.	Severe
H. Inappropriate roof slope, including sagging and uneven ridges. (Figs. 30, 31)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Remove shingles, sheathing. Adjust ridge board and rafters to remove sag, replacing specific members as required. Resheath and shingle roof.	Severe

Exterior Deficiency	Recommended Treatment*	Impact
I. Warped fenestration opening. (Fig. 36)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Stabilize building and remove exterior walls where problematic. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices. Repair windows and door frames to make square.	Severe
J. Absence of proper gutter, or gutter runoff. (Fig. 31, 32)	Install gutter where missing. Repair gutters where possible. Replace gutters where damaged beyond repair. Attach and raise gutters to proper height. Install additional downspout on each elevation. Grade sight to direct water run-off away from building.	Moderate
K. Gap between adjoining walls.	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices.	Severe
L. Serious cracking of horizontal log.	Replace with log of similar size and character.	Severe
M. Absence of window trim, creating gap to interior.	Install missing window trim, matching to extant trim on window.	Severe
N. Wall movement, including bowing and diagonal placement of logs. (Figs. 32, 34, 37)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Stabilize building and remove exterior walls where problematic. Replace Room One logs below window height with logs that span the full length of Room One. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices.	Severe
O. Damage to boards at gable ends, including absence and peeling.	Replace warped and missing boards.	Severe
P. Absence of chicken wire between lower logs, allowing varmint access.	Install rodent-proof wire at perimeter of building; cover with daubing.	Moderate
Q. Falling porch trim piece.	Attach porch trim piece.	Moderate
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		

## Building Systems

Building systems refer to the integrated utility systems that are generally present throughout multiple spaces in and around a building. These include drainage, structural, plumbing, electrical, heating ventilation and air conditioning (HVAC), and others. Because the Ranger Cabin has never had most of these systems, site, structural systems, and drainage will be addressed exclusively. The scope of this report does not include professional evaluation of these systems.

## Site

Character Defining Features: Outhouse, cistern; stonework; fire lookout

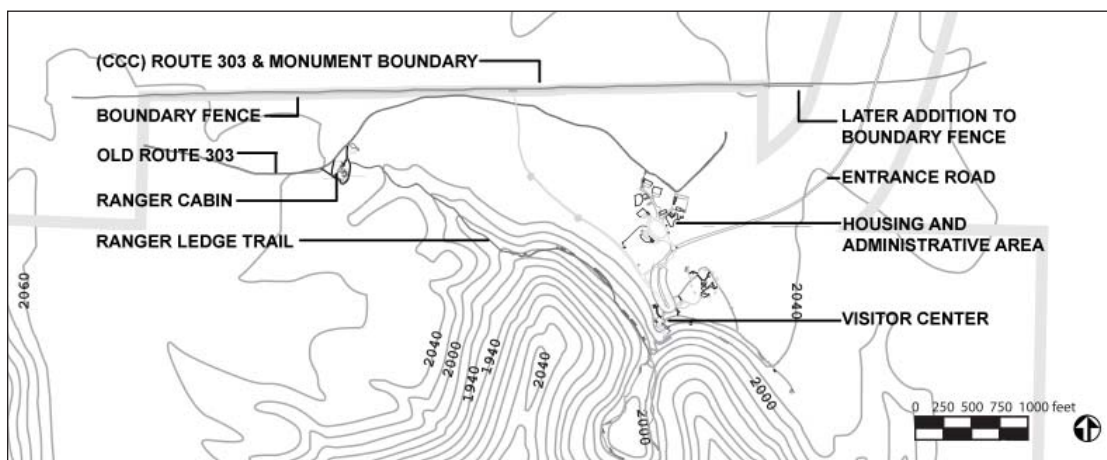


Fig. 21: Plan of developed area of Walnut Canyon National Monument (Source: Walnut Canyon National Monument map by Chris Donnermeyer, altered by author)

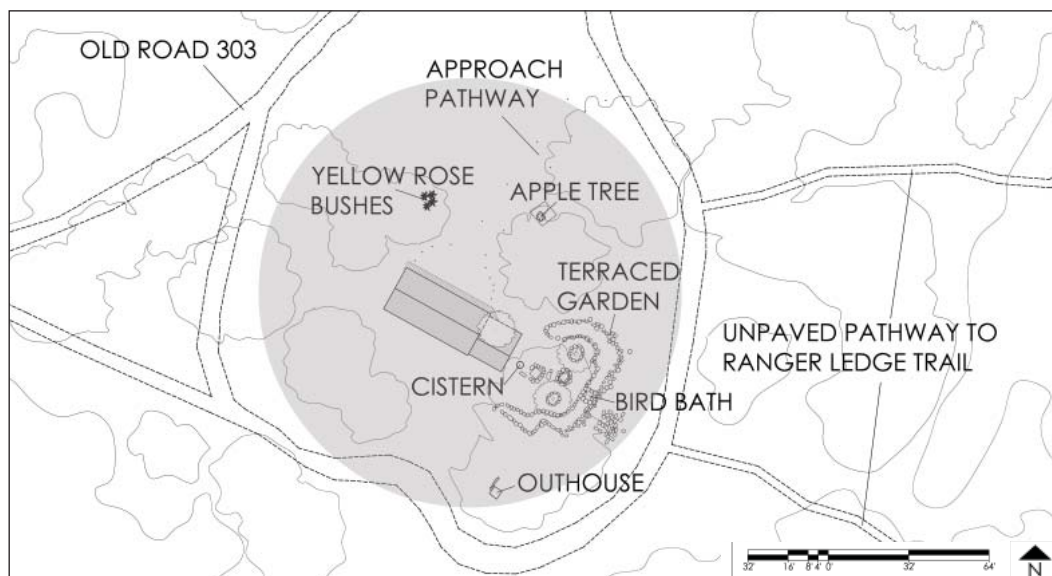


Fig. 22: Site plan showing approach to the Ranger Cabin and site features; shaded area discussed in detail



Remnants of the historic period of occupancy remain on the site, including an outhouse, cistern, terraced garden bed, stone birdbath, and plants. An apple tree just northeast of the Ranger Cabin is protected from wildlife by a chicken wire fence.<sup>39</sup> To the west are rose bushes that bear bright yellow flowers in season. The Ranger Cabin is surrounded by tall ponderosa pines and juniper trees, a few of which are close enough to be a fire hazard.<sup>40</sup>

For the purposes of this report, the site is limited to features that historically contributed to the Ranger Cabin's functionality as a residence and workplace.

### **Outhouse**

Significance: High

Condition: Poor

Impact: Severe

An outhouse is located southeast of the cabin, and is disguised by tree cover. It is configured like a typical 'one-holer' with an elevated wood plank floor, a raised bench seat, and the requisite opening. It is approximately four feet square and eight feet in height. The shed roof is covered with wood boards, some of which are missing. The walls are composed of vertical wood boards, the lower portion of which are decayed. The door is completely off its hinges and lies on the ground nearby. The outhouse has three fenestration openings: a square-shaped opening on the south wall, and trimmed diamond-shaped openings on the north and south walls.

### **Cistern**

Significance: High

Condition: Poor

Impact: Low

The cistern, east of the Ranger Cabin, is among the most notable features on site. It consists of a circular metal grill placed on a concrete pad and is perforated at the top to receive water. Another concrete chamber, slightly further east, consists of a hinged metal door atop a concrete platform which may have been means to access the collected water. The hinged door is locked. The cistern capacity is unknown.

### **Stonework**

Significance: High

Condition: Poor

Impact: Severe

Further eastward, there is a ring of large stones, and a birdbath made of stone and concrete mortar.<sup>41</sup>

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<sup>39</sup> The apple tree and rose bushes are purported to have been planted by Mattie Pierce by numerous secondary sources, but no actual documentation to this effect exists. The apple tree and rose bush may have been planted by later residents, or the Ericksons, who kept a diary that included the planting of vegetables.

<sup>40</sup> Ranger Cabin is located within Fire Management Unit Two, as defined by the *Fire Management Plan* (2006) as "areas of vegetation that are adapted and dependent upon a frequent fire regime (page 59)." The *Plan* calls for the protection of cultural resources by manual thinning of vegetation.

<sup>41</sup> Paul Beaubien reported that Russell Grater constructed a trap over the birdbath to catch, band and track birds. Paul Beaubien, Monthly Report for October 1935, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

The birdbath is approximately four feet square and three feet tall. A shallow concrete basin holds water on the top surface. The basin is cracked and many stones are displaced.

Trees flanking the birdbath are bordered by stone.

A coarse stone retaining wall creates a level difference, resulting in a terraced garden bed. Some retaining wall stones are now out of position.

### Plank Walkway

Significance: Low

Condition: Poor

Impact: Moderate

A wooden plank walkway, installed during the 1991 stabilization, spans the north elevation. This walkway replicates a section of the original wood plank walkway. The original plank walkway was replaced with poured concrete in the 1920s.

The modern plank walkway is 4' wide with a 12" gap between the walkway and the building. Stone has been laid under the planks for support. The walkway has circular cutouts for the juniper tree and the two tree trunk support columns on the kitchen addition. Many of the planks are seriously warped.

### Fire Lookout

There is a fire lookout built into a tall pine tree on the southwest side of the cabin at a distance of approximately 500 feet from the Ranger Cabin. The fire lookout was not assessed by the project team.

Site Deficiency	Recommended Treatment*	Impact
Chicken wire fence around apple tree. (Fig. 23)	Remove chicken wire fence and replace with fence appropriate to character of site.	Low
Trees in contact with building.	Cut branches in contact with building and thin trees in close proximity to building.	Severe
Outhouse structurally unsound and door removed. (Fig. 25)	Stabilize outhouse and install door.	Severe
Concrete basin of birdbath cracked.	Remove concrete basin and repour concrete in place, matching historic condition.	Moderate
Birdbath stones displaced. (Fig. 26)	Install stones.	Moderate
Retaining wall stones displaced.	Install stones.	Moderate
Walkway planks warped. (Fig. 28)	Remove plank walkway. Replace with concrete, matching historic condition to alleviate future maintenance concerns.	Moderate
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		



Fig. 23: Apple tree in front of the Ranger Cabin, 2006.



Fig. 24: Rose bush in front of the Ranger Cabin, 2006.



Fig. 25: Outhouse southeast of the Ranger Cabin, 2006.

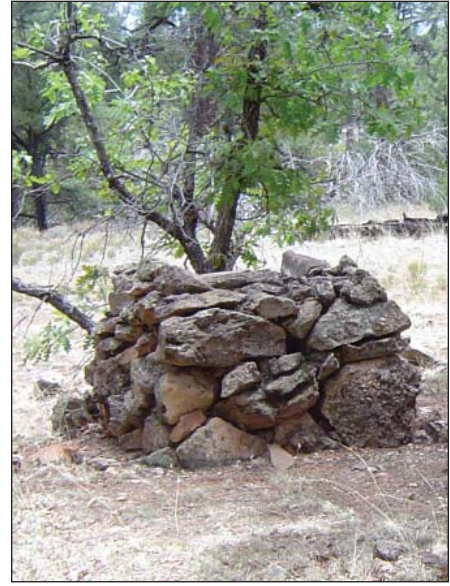


Fig. 26: Birdbath east of the Ranger Cabin, 2006.



Fig. 27: Stone border around tree east of the Ranger Cabin, 2006.



Fig. 28: Plank walkway in front of the Ranger Cabin, 2006.

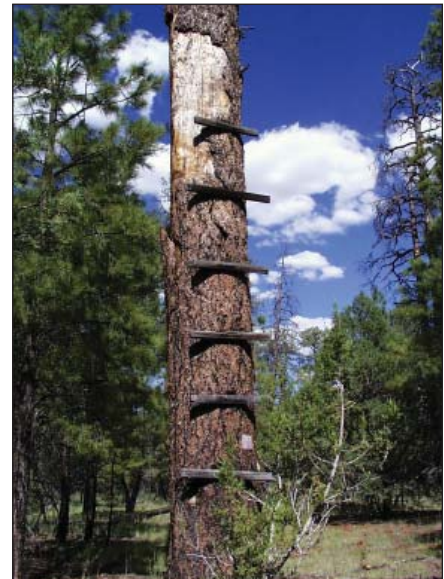


Fig. 29: Fire lookout tree south of the Ranger Cabin, n/d (Source: WACA)

## Structural

Significance: High

Condition: Poor

Impact: Severe

Character Defining Features: Horizontal log construction; hog-trough joinery; saddle-notched joinery

The structural system includes the roof, exterior and interior load bearing walls, floor, and foundation.

Although continuous, the roof above the original cabin and second addition is raised at their junction. This uneven character does not carry the roof load as designed and puts added stress on related structural members. This condition existed in historic photographs and was not altered during the 1991 stabilization. Stabilization photographs show the removal and replacement of shingles, but the roof framing appears to have been unaltered at that time; shingles have suffered only minor weathering since. Additionally, the original cabin roof sags slightly.

The roof at the kitchen addition sags dramatically and detrimentally, likely caused by the growing juniper tree. This sag allows moisture to collect on the roof around the tree, and because the flashing is failed, enter the building through the hole cut for the tree. It also pushes moisture toward the east end of the Ranger Cabin, where the rain gutter is pulling away from the building and fails to properly move water away. A gap between the roof and top wall log exists around nearly all of the Ranger Cabin, but is most dramatic on the north side of the kitchen addition.

Because the original cabin is joined in the hog-trough method, it lacks structural stability. Additions, saddle-notched for better structural integrity, are attached to the original cabin's faulty hog-trough corners. At some locations, logs of the additions do not adequately meet the original cabin's hog-trough, and are instead connected to a third member spanning this distance.

Inadequate framing around doors and windows, and the junction of horizontal logs at their locations, has led to structural problems. In some places, logs are no longer horizontal as intended, but rest at an angle. Logs cut where the chimney once existed do not offer the structural integrity of a log running the length of the wall and, combined with the roof load above, have caused the wall to bow outwards. Additionally, a cracked hog-trough corner member offers little structural support to the horizontal logs that tie into it. These problems are caused by both inadequate framing and differential settlement. Other wall problems include decayed horizontal logs and their corresponding crowns.

Differential settlement – the uneven settlement of a building over time – is caused by an inadequate foundation. The Ranger Cabin's sill logs rest directly upon the ground. There is an increased chance of moisture penetration, decay, and insect infestation when sill logs are in contact with the ground.

No foundation was visible to the project team, although it is possible that a small stone foundation exists. Photographs of the 1991 stabilization show excavation of the site around the Ranger Cabin, but no documentation exists as to the extent of this work; it is unknown whether they improved an existing foundation, built a new foundation, or neither. Differential settlement is exaggerated by the two additions being inadequately joined to the original cabin.



Structural Deficiency	Recommended Treatment*	Impact
Inappropriate roof slope, including sagging and uneven ridges. (Figs. 30, 31)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Remove shingles, sheathing. Adjust ridge board and rafters to remove sag, replacing specific members as required. Resheath and shingle roof.	Severe
Gap between roof and wall members.	Remove shingles, sheathing. Adjust roofing members to appropriately meet wall using preformed metal tie down straps. Resheath and shingle roof.	Severe
Structural instability in hog-trough joinery, including improper connection to addition walls. (Figs. 32, 33, 35)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices.	Severe
Inadequate framing around doors and windows. (Fig. 37)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Stabilize building and remove exterior walls where problematic. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices. Repair windows and door frames to make square.	Severe
Differential settlement of building because of improper foundation. (Figs. 30, 36)	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay.	Severe
Decayed horizontal logs. (Fig. 38)	Remove decayed wood. Patch with wood splice. Replace in kind only if beyond repair.	Severe
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		



Fig. 30: South elevation showing ridge in roof between original cabin and second addition, 2006.



Fig. 31: Kitchen addition on north elevation showing improper roof slope, 2006.



Fig. 32: Connection between original cabin and second addition does not provide adequate structural support, 2006.



Fig. 33: Detail of connection between original cabin and second addition showing logs attached to a vertical wood post, 2006.



Fig. 34: Bowed wall under window on original cabin where historic chimney once existed, 2006.



Fig. 35: Cracked member at hog-trough corner between original cabin and kitchen addition provides inadequate structural stability, 2006.



Fig. 36: Door askew on the south elevation of the second addition, 2006.



Fig. 37: South elevation of kitchen addition showing improperly tied logs angled toward window, 2006.



Fig. 38: Decayed crowns at northeast corner, 2006.

## Drainage

Significance: High

Condition: Fair

Impact: Moderate

Character Defining Features: (Non-original) Gutters and diversion to cistern

The Ranger Cabin drainage system includes all systems employed to carry water away from the building, and either off of the site or captured in a cistern. The roof appears to direct water off the building, as designed, and water damage was not found in the building interior.<sup>42</sup>

Exposed rain gutters currently run the length of the north and south elevations, leading to the cistern on the east end of the building. The metal gutters are semi-circular and tied to the roof with wire. These gutters fail in some locations and do not adequately move water to the cistern; they are blocked in some places. The north elevation gutter fails to reach the cistern and rests on the ground.

Water was historically directed toward the cistern and captured for future use. It is likely that this water was used for drinking, and any and all other purposes.<sup>43</sup> In June of 1937, a cement top was built on the cistern to prevent rodents and dirt from entering the water supply. Water was last harvested out of the cistern for fire use in the mid-1990s.<sup>44</sup>

Flashing around the tree at the kitchen addition has been pulled upwards; it no longer prevents moisture and varmints from entering through the tree hole. The lack of metal flashing at the eaves has caused water damage to the roof structure and sheathing.

The ground slopes toward the Ranger Cabin on both the west and east elevations, and the west end of the south elevation, directing water towards the building and damaging the sill and lower logs.

Drainage Deficiency	Recommended Treatment*	Impact
Gutters fail to move water away from the building. (Figs. 39, 40, 41)	Repair gutters where possible. Replace gutters where damaged beyond repair. Raise gutters to proper height. Install additional downspout on each elevation. Install perimeter drain system.	Severe
Tree flashing is pulled upwards and allows moisture penetration to roof. (Fig. 42)	Remove flashing. Install new flashing of proper size.	Severe
No flashing present at eaves.	Install flashing at eaves.	Severe
Ground slopes toward building.	Regrade site to slope away from building.	Severe
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		

<sup>42</sup> An unidentified sticky brown substance was found on the interior, and is discussed further in the building interior section.

<sup>43</sup> In his report of December 1935, Paul Beaubien writes of cleaning the cistern, and upon finding a rodent, he decides to haul drinking water from Flagstaff. Paul Beaubien, Report for December 1935, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

<sup>44</sup> Prior to harvesting water, the cistern was filled from a pumper truck.





Fig. 39: East elevation showing drainage toward building and displaced gutter, 2006.



Fig. 40: Cement-capped cistern with locked hatch at left and water catchment at right, 2006.



Fig. 41: Blocked gutter at southeast corner, 2006.



Fig. 42: Flashing around tree at kitchen roof does not provide water-proof seal, 2006.

### Building Interior

The Ranger Cabin interior is divided into four rooms, which are separated by three different floor levels. The kitchen (Room Two) is slightly lower than the original cabin (Room One); the western addition (Rooms Three and Four) is slightly raised from the original cabin. Rooms are organized in 'railroad' fashion, with each room leading into another and no hallway present. Doorways between Rooms One and Two, and Rooms One and Three are nearly aligned; the doorway between Rooms Three and Four is askew.

Although the second addition on the Ranger Cabin accommodated visitors to Walnut Canyon National Monument through a reception area and museum display, the Ranger Cabin has the character of a humble residential structure. But this feeling is likely due to the typology, age, and lack of maintenance. Visitors in the Pierce's era reported a finely appointed structure, not a rustic one.

The physical description of the interior is divided by room, although some deficiencies are pervasive throughout the Ranger Cabin. As discussed above, the Ranger Cabin suffers from differential settlement. On the interior, this is manifested in sloping floors and scraping doors. Additionally, the Ranger Cabin is heavily infested with rodents, who readily gain access through gaping holes to the interior.

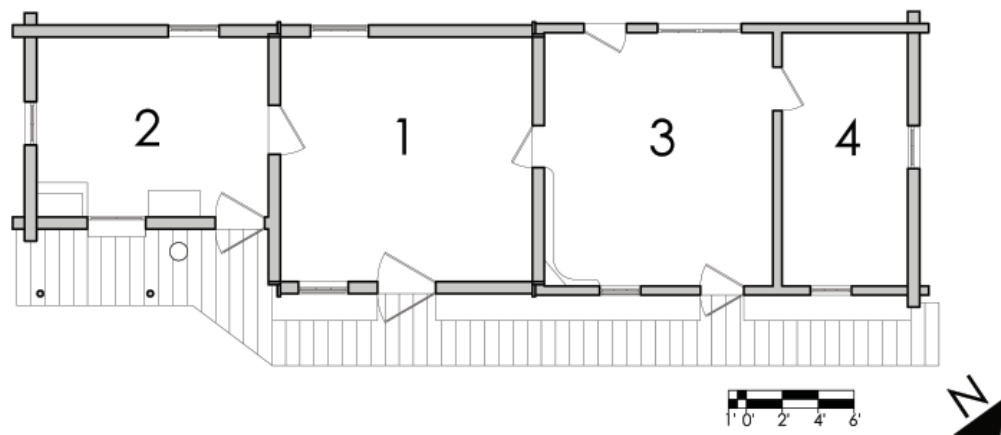


Fig. 43: Floor plan of the Ranger Cabin showing room numbering.

### Room One (Original Cabin)

Significance: Medium

Condition: Poor

Impact: Moderate

Character Defining Features: Truncated beadboard ceiling; wallboard; enclosed once-exterior walls; wood floor; wood trim, including battens, baseboard, door, window, and wall trim

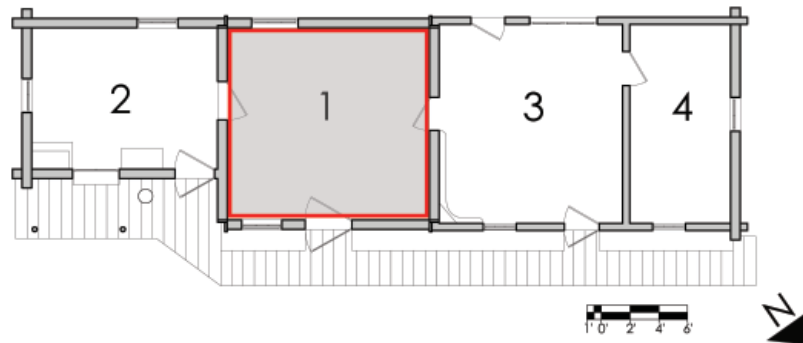


Fig. 44: Reference floor plan showing location of Room One.

The ceiling throughout the Ranger Cabin is consistently faced with white-painted beadboard. Within each room, the ceiling runs the length of the room on the east/west axis, but instead of running to the parallel walls, it is truncated, meeting the connecting walls just above door height. This ceiling configuration reflects the roof slope and made a higher ceiling possible. Beadboard is missing at both the north and south walls of the original cabin.

Much of the fiber wallboard has been removed in the original cabin, exposing the horizontal log construction and vertical bracing. The absence of chinking and daubing has left gaping holes between horizontal logs to the exterior in some locations. Wallboard is entirely missing on the north and south elevations; sections of the white-painted wallboard are missing or damaged on the east and west elevations.<sup>45</sup> The east and west walls, once exterior walls, are dramatically thicker and enclosed within wallboard from the floor to the meeting of the truncated ceiling at the north and south walls, creating a recess behind the wall enclosure, and a shelf above. The wall area above this enclosure is covered in beadboard.

There is an exterior door centered on the north wall, with a six-over-six double-hung window to its right. A fixed six-lite window at the east end of the south wall has taken the place of the original fireplace and chimney. Both windows are recessed into the wall. There are metal ties between framing members at the windows. A small white-painted beadboard door on the east wall leads to Room Two; a white-painted wood door on the west wall leads to Room Three.

The flooring is finished tongue and groove wood, and although in generally good shape, slopes south to north. Doors are in contact with the flooring.

<sup>45</sup> The wallboard was reported to be "beavertone" by Craig Kenkel. Craig Kenkel, Fieldwork notes June 1990, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

Baseboard, approximately eight inches high, is painted white. Baseboard is present on the west, south, and east walls. Wall trim is present on the east and west walls just below the projected shelf. It is approximately three inches wide and painted white. White-painted vertical battens span the distance between this trim and the baseboard, and are approximately three inches wide. Door and window trim is slightly wider and painted white.

Room One Deficiency	Recommended Treatment*	Impact
Ceiling beadboard missing at north and south walls. (Fig. 45)	Install matching beadboard where missing. Paint to match.	Severe
Wallboard damaged or missing, creating exposure to exterior. (Fig. 45)	Remove damaged wallboard. Insulate. Install similarly-textured and painted drywall where missing. Paint to match. Install battens to match existing battens. Paint battens to match.	Severe
Presence of non-historic vertical bracing. (Fig. 45)	Remove bracing. Insulate walls and install similarly-textured and painted drywall where wallboard is missing. Install battens to match existing battens. Paint battens to match.	Moderate
Doors and windows askew.	Stabilize building and remove exterior walls where problematic. Insulate. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices. Square doors and windows.	Severe
Floor slopes south to north.	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Level building.	Severe
Evidence of rodent infestation.	Seal building at perimeter with rodent-proof mesh. Daub and chink between logs. Seal gap between wall and roof members with preformed metal tie down straps.	Severe
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		



Fig. 45: South wall of Room One showing ceiling damage, missing wallboard, and exposure to exterior, 2006.



Fig. 46: East wall of Room One showing recess and shelf above original exterior wall, and irregular height beadboard door, 2006.

### Room Two (Kitchen)

Significance: Medium

Condition: Poor

Impact: Moderate

Character Defining Features: Truncated beadboard ceiling; wallboard; built-in cabinetry; wood floor; wood trim, including battens, baseboard, door, window, and wall trim

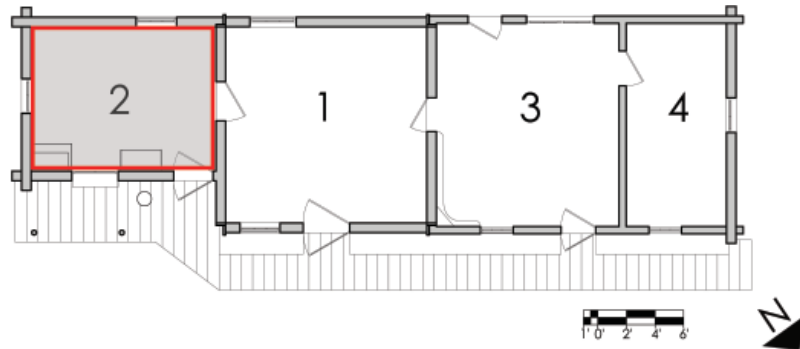


Fig. 47: Reference floor plan showing location of Room Two.

Beadboard runs the length of the ceiling on the east/west axis, but instead of running to the parallel walls, it is truncated, meeting the connecting walls just above door height. This ceiling configuration reflects the roof slope and made a higher ceiling possible. The beadboard is painted white. A stove pipe protrudes into the kitchen from the ceiling at the southeast corner, where the beadboard has been cut. The beadboard is missing at the north and south walls, and is damaged along the center of the ceiling. An unidentified sticky brown substance is visible on the ceiling at the west wall.<sup>46</sup>

The north, south, and east walls are exposed logs, with evidence that they were once covered by fiber wallboard; white wallboard is damaged on the west wall. Room Two is totally open to the exterior in sections where chinking and daubing are missing. Vertical bracing is attached to the horizontal logs in some locations. The condition of the west wall matches that of the other side (in Room One), with the original exterior wall enclosed. Beadboard covers the recessed area above the enclosure. An unidentified sticky brown substance runs down this wall.<sup>47</sup>

A white-painted wood door leads to the exterior at the west end of the north wall. A four-lite casement window is centered on the north wall between the door and east wall. It is flush with the wall. This window has a pie-cooling extension. A four-lite casement window is centered on the east wall. It is flush with the wall. A third four-lite casement window, to the west end of the south wall is recessed into the wall. The small door leading to Room One is white-painted beadboard.

Baseboard, approximately eight inches high, is painted white. Baseboard is present on the west, south, and east walls. Wall trim is present on the east wall just below the projected shelf. It is approximately three inches wide and painted

<sup>46</sup> Monument staff speculates that this substance is bat guano.

<sup>47</sup> Monument staff speculates that this substance is bat guano.

white. White-painted vertical battens span the distance between this trim and the baseboard, and are approximately three inches wide. Door and window trim is slightly wider and painted white.

The kitchen has built in cabinetry against the north wall, flanking the window. To the left of the window, a storage cabinet of counter height is divided by two doors; the right door is hinged at the right, the left door is hinged at the bottom. A cabinet to the right of the window is the same height and flush with the east wall. It has three drawers of the same size on the left side, and a door with a small drawer above it to the right. This top drawer is missing and the left side of the cabinet is completely removed. A cupboard, slightly narrower than the cabinet below, extends to the height of the chamfered ceiling. It has a simple cornice and shelving inside. The kitchen stove has been removed and no trace of it remains, except for the pipe protruding through the roof.

The tongue and groove wood floor slopes from south to north, and is partially discolored by paint. The wood floor was painted a slate blue/gray color; it is unknown when the floor was painted. Most of the paint has since worn away. The floor is damaged at the corners of the room and along the south wall. The wood floor was once covered with linoleum flooring; pieces of linoleum flooring remain on the step between Rooms One and Two, and near the east wall.<sup>48</sup>

Room Two Deficiency	Recommended Treatment*	Impact
Ceiling damaged around stove pipe. (Fig. 50)	Seal opening. Replace with matching beadboard around stove pipe. Paint to match.	Severe
Ceiling beadboard missing at north and south walls, and damaged in ceiling center. (Fig. 48)	Install matching beadboard where missing. Paint to match.	Severe
Sticky substance on ceiling and west wall. (Fig. 48)	Remove substance and replace ceiling and wall members if necessary. If replacement is required, install similarly textured materials painted to match.	Moderate
Wallboard damaged or missing, creating exposure to exterior. (Fig. 50)	Remove damaged wallboard. Insulate. Install similarly-textured and painted drywall where missing. Paint to match. Install battens to match existing battens. Paint battens to match.	Severe
Presence of non-historic vertical bracing. (Fig. 50)	Remove bracing. Insulate walls and install similarly-textured and painted drywall where wallboard is missing. Install battens to match existing battens. Paint battens to match.	Moderate
Damage to built-in cabinetry, including missing drawer and left side. (Fig. 51)	Attach damaged cabinet side. Reconstruct missing drawer to match profile and character of extant drawers. Paint to match.	Low
Doors and windows askew.	Stabilize building and remove exterior walls where problematic. Insulate. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices. Square doors and windows.	Severe
Stove missing. (Fig. 50)	Obtain stove appropriate to time period and character of Ranger Cabin. Connect to stove pipe.	Low
Floor slopes north to south.	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Level building.	Severe

<sup>48</sup> This flooring is assumed to be linoleum, and not vinyl tile, based on the likely time of installation.



Room Two Deficiency	Recommended Treatment*	Impact
Presence of linoleum flooring over wood floor and discoloration of wood floor. (Fig. 49)	Remove traces of linoleum flooring and accession into museum collection.	Low
Evidence of rodent infestation.	Seal building at perimeter with rodent-proof mesh. Daub and chink between logs. Seal gap between wall and roof members with preformed metal tie down straps.	Severe
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		



Fig. 48: West wall and ceiling of Room Two showing ceiling and wall damage, including presence of unidentified sticky substance, 2006.



Fig. 49: Northeast corner of Room Two showing linoleum flooring over wood, 2006.



Fig. 50: Ceiling and south wall condition of Room Two, 2006.



Fig. 51: Built-in storage showing missing drawer and damage to west side, 2006.

### Room Three

Significance: High

Condition: Fair

Impact: Moderate

Character Defining Features: Truncated beadboard ceiling; yellow-green colored wallboard; display shelves; stove; wood floor; darkly stained wood trim, including battens, baseboard, and door and window trim

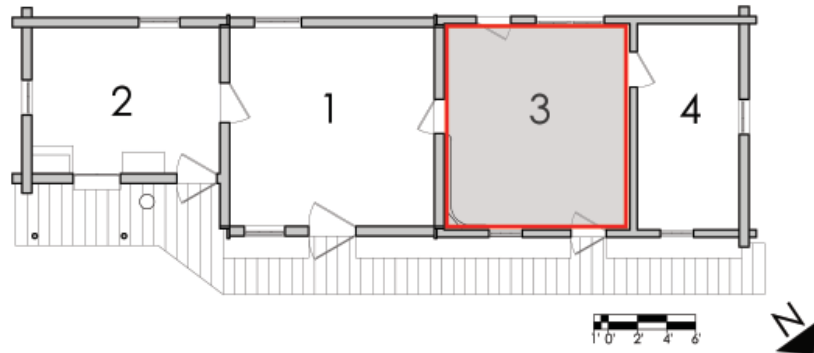


Fig. 52: Reference floor plan showing location of Room Three.

Room Three, the first room of the last addition, is in better condition than any other room of the Ranger Cabin.

The white-painted ceiling beadboard mimics the ceiling condition of both the original cabin and kitchen, but beadboard is peeling off in places and totally removed at the junction of both the north and south elevations. A stove pipe partially protrudes from the ceiling, where a hole was cut.

Fiber wallboard is extant, except in sections between the window and door on the south elevation, and above the door on the north elevation, where vertical framing members are exposed. The wallboards are a yellow-green, and trimmed with dark-stained wood. There is a hole in the wallboard on the west wall above the stove. A discoloration on the west wall remains in the area where a telephone was once mounted.<sup>49</sup>

There is a six-over-six double-hung window on the north wall which is recessed into the wall. There are two four-lite casement windows on the south wall, both of which are flush with the wall. The continuous sill of the southern windows protrudes into the room. There are exterior doors to the left of the windows on both the north and south elevations. The west door, leading to Room Four, is missing its knob; the door leading to Room One is in good condition.

Two darkly stained wood display shelves remain in the eastern corner of this room, which once functioned as the monument's museum. The original stove remains in this room; a stove component is cataloged in the museum collection and stored in that facility.

<sup>49</sup> The telephone was stolen in May 2000 and documented as such on May 26, 2000.

The tongue and groove wood floor retains a dark stain that matches the doors, trim, and shelving. The floor is damaged around the stove.

Baseboard, approximately eight inches high, is darkly stained. Baseboard is present on all walls. Ceiling trim is present on the west, east, and north walls. It is approximately three inches wide and darkly stained. Darkly stained vertical battens span the distance between the ceiling and baseboard, and are approximately three inches wide. Door and window trim is slightly wider and darkly stained.

Room Three Deficiency	Recommended Treatment*	Impact
Ceiling damaged around stove pipe. (Fig. 54)	Seal opening. Replace with matching beadboard around stove pipe. Paint to match.	Severe
Ceiling beadboard missing at north and south walls, and damaged in ceiling center. (Fig. 53, 55)	Install matching beadboard where missing. Paint to match.	Severe
Wallboard damaged or missing near windows on north and south walls. (Fig. 53)	Remove damaged wallboard. Insulate. Install similarly-textured and painted drywall where missing. Paint to match. Install battens to match existing battens. Paint battens to match.	Moderate
Hole in wall above stove.	Remove damaged wallboard. Insulate. Install similarly-textured and painted drywall.	Moderate
Wallboard stained around telephone mount. (Fig. 55)	Maintain discoloration for interpretive purposes.	Low
Doors and windows askew.	Stabilize building and remove exterior walls where problematic. Insulate. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices. Square doors and windows.	Severe
West door missing knob.	Replace knob, matching to extant knob.	Low
Floor damaged around stove. (Fig. 57)	Maintain discoloration for interpretive purposes.	Low
Evidence of rodent infestation.	Seal building at perimeter with rodent-proof mesh. Daub and chink between logs. Seal gap between wall and roof members with preformed metal tie down straps.	Severe
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		



Fig. 53: North wall of Room Three showing ceiling damage, missing wallboard, and dark stained trim, 2006.



Fig. 54: West wall of Room Three showing stove pipe, wallboard, and stove, 2006.



Fig. 55: West wall of Room Three (to the right of Fig. 54) showing stain where telephone was once mounted, 2006.



Fig. 56: East wall of Room Three showing wall trim and corner display shelves, 2006.



Fig. 57: Stove in Room Three showing floor damage, 2006.

#### Room Four

Significance: Low

Condition: Poor

Impact: Moderate

Character Defining Features: Truncated beadboard ceiling; wood floor; wood trim, including battens, baseboard, and door and window trim

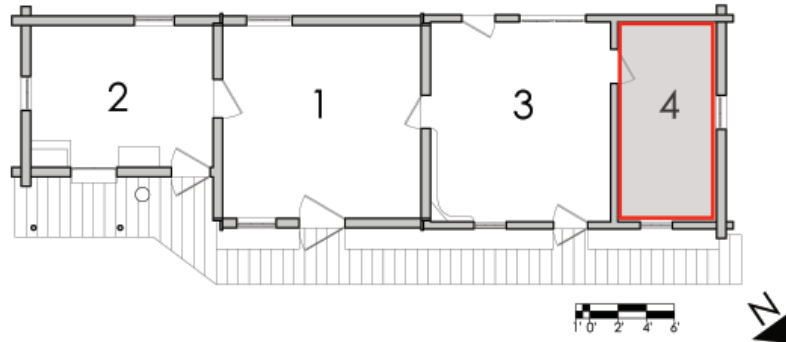


Fig. 58: Reference floor plan showing location of Room Four.

The truncated ceiling of Room Four mimics the other rooms, with white-painted beadboard. Some ceiling beadboard is missing. Square and round holes at the east end were likely cut for exhaust of the stove in Room Three.

The room has exposed vertical wall members, with evidence that they were once covered with wallpaper over burlap. Burlap and wallpaper remain in small quantities directly over the vertical wall members. The east wall is damaged below the ceiling exhaust hole.

There is a four-lite casement window on the west wall which is flush with the wall. A six-over-six double-hung window on the north elevation is recessed into the wall. A white-painted wood door leads to Room Three. An unidentified sticky brown substance runs down the west wall, to the right of the window.<sup>50</sup>

The tongue and groove wood floor slopes eastward and is discolored at the south and west sides. The flooring below the stove pipe hole has been removed and replaced with a single wood member. The door between Rooms Three and Four is in contact with the floor.

Baseboard, approximately eight inches high, is darkly stained. Baseboard is present on all walls but missing in the area below the ceiling exhaust hole. White-painted ceiling trim and battens are present on the west wall. They are approximately three inches wide. Door and window trim is slightly wider and painted white.

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<sup>50</sup> Monument staff speculates that this substance is bat guano.

Room Four Deficiency	Recommended Treatment*	Impact
Ceiling damaged around stove pipe. (Fig. 59)	Seal opening. Replace with matching beadboard around stove pipe. Paint to match.	Severe
Ceiling beadboard missing in areas. (Fig. 60)	Install matching beadboard where missing. Paint to match.	Severe
Unfinished walls exposed, with traces of wallpaper. (Fig. 61)	Wallpaper with similar texture, color, and pattern of extant wallpaper.	Severe
Wall damaged near location of stove in Room Three. (Fig. 61)	Wallpaper with similar texture, color, and pattern of extant wallpaper.	Moderate
Baseboard missing near location of stove in Room Three. (Fig. 61)	Install baseboard to match extant.	Low
Sticky substance on west wall.	Remove substance and replace wall members if necessary.	Moderate
Doors and windows askew.	Stabilize building and remove exterior walls where problematic. Insulate. Attach logs to hog-trough corners with rebar reinforcement, and if necessary, wood splices. Square doors and windows.	Severe
Floor slopes to east.	Install proper foundation more than 20 inches into the ground. Project foundation at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. Level building.	Severe
Floor discolored at south and west sides, and damaged near location of stove in Room Three. (Fig. 61)	Install floor and baseboard to match extant.	Moderate
Evidence of rodent infestation.	Seal building at perimeter with rodent-proof mesh. Daub and chink between logs. Seal gap between wall and roof members with preformed metal tie down straps.	Severe
* Note: Please see <i>Requirements for Treatment</i> for additional information on each recommendation.		



Fig. 59: Ceiling damage in Room Four, 2006.



Fig. 60: South wall of Room Four showing ceiling damage and wall condition, 2006.



Fig. 61: East wall of Room Four showing wallpaper and floor damage, 2006.



**RANGER CABIN**  
**TREATMENT & USE**

## ULTIMATE TREATMENT & USE

The following section recommends the rehabilitation of the Ranger Cabin into an exhibition space. The Secretary of the Interior defines rehabilitation as:

the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values.<sup>51</sup>

The Ranger Cabin should be returned to a safe and weather-tight condition by installing a proper foundation, repairing the main structural components, and replacing the sacrificial building components. Missing or damaged interior character-defining features and materials should be repaired or replaced. Both interior and exterior spaces should be modified to comply with current building, life safety, and accessibility codes. The Ranger Cabin must then be made to accommodate the programmatic needs of the proposed new use of exhibit space. Lastly, character-defining features of the Ranger Cabin site may be repaired or reconstructed. Treatment recommendations are specified in detail in the following section, *Requirements for Treatment*.

Adaptive rehabilitation of the Ranger Cabin into an exhibit facility will permit the retention of character-defining features. Throughout rehabilitation work, original materials should be retained as much as possible, although the removal of some potentially original building fabric will prove necessary.

### **Proposed New Use**

Generally, regular occupation or use of a building acts as its best advocate in ensuring cyclical maintenance and funding for major repairs. Because of the Ranger Cabin's secluded location and lack of modern conveniences, it does not easily lend itself to living or office space, or fulfill other space needs of Walnut Canyon National Monument. The Ranger Cabin does, however, offer an opportunity to interpret history.

Rehabilitation will allow the Ranger Cabin the opportunity to interpret history through informational panels and potentially other objects. The Ranger Cabin could interpret early Flagstaff history and tourism, Forest Service involvement, the American Antiquities Act, monument history, or the lifestyle of early rangers and their families. An interpretive plan should be developed by monument staff to determine an appropriate theme, exhibit displays, and expected visitation levels. There is not adequate documentation of the furnishings to interpret the Ranger Cabin as a house museum with a high level of accuracy.

The use of the Ranger Cabin as an exhibit facility was first proposed by the Daughter's of the American Revolution in the early 1950s. There has been discussion of interpreting the Ranger Cabin ever since. Most recently, the *General Management Plan* (2006) cites self-guided access to the Ranger Cabin as the preferred alternative to ranger-led hikes to the site. The *Comprehensive Interpretive Plan* (2003) supports self-guided access to the Ranger Cabin if the appropriate resource conditions are met and the building is made safe; a self-guided trail would be supported by a trail guide or wayside exhibits.

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<sup>51</sup> National Park Service, The Secretary of the Interior's Standards for Rehabilitation: <http://www.cr.nps.gov/hps/TPS/tax/rhb/stand.htm> (accessed 8/14/2006).

Several options exist as to the degree of interpretation, access, and staff monitoring of the Ranger Cabin. Staffing the Ranger Cabin, or having staff-led tours, would provide the most complete visitor experience. Staffing the Ranger Cabin would best protect the building and site. If funding were to become available, it is recommended that the Ranger Cabin be fully interpreted and staffed during normal business hours. However, funding is of concern to the management of Walnut Canyon National Monument, and all units throughout the National Park Service, making this option unrealistic at this time.

### **Case Studies**

Both not-for-profit and National Park Service sites offer real-life examples of exhibition options, and allow Walnut Canyon National Monument to learn from the trials, tribulations, and successful ventures of others. Although no site has the exact conditions and challenges as the Ranger Cabin, it is beneficial to explore other exhibit facilities that successfully meet the challenge of limited staffing and surveillance.

Listed below are sites that offer ‘best practices’ of exhibit spaces that function without paid staff. They are listed in order of increased monitoring and may be considered phases, culminating in the ultimate treatment of a volunteer-staffed exhibit space, or as different options, any one of which may best complement Walnut Canyon National Monument, depending on funding for exhibits and personnel. An analysis of the site as it applies to the Ranger Cabin follows each example.

#### Yellowstone National Park, Norris Geyser Basin Museum

The Norris Geyser Basin Museum, near the Norris Junction in Yellowstone National Park, interprets geothermal geology with little staff supervision. Completed in 1930 as an outdoor museum, it is now a National Historic Landmark, significant for its early stone-and-log ‘parkitecture.’ The small museum is divided into two wings separated by a breezeway. In this breezeway, an information desk is staffed by a National Park Service ranger during the summer season; it is not staffed the remainder of the year. The permanent exhibit consists of informational displays on panel board; exhibits were updated in 1995. The exhibit contains no museum objects. An adjacent bookstore is staffed during business hours in the park’s busy season, from late April through October.

Access to the Norris Geyser Basin Museum is gained during all hours of the day and night, and the museum closes only when the park is closed due to inaccessibility. Park staff monitors the museum a couple of times a year. Despite its remote location and that it is not staffed during a part of the year, the exhibit has suffered very limited vandalism.<sup>52</sup>

If Walnut Canyon National Monument were to follow the example of the Norris Geyser Basin Museum, the Ranger Cabin would be interpreted, unlocked, and unmonitored. Walnut Canyon National Monument may want to afford additional security to the Ranger Cabin by conducting a ‘sweep’ through the site at the day’s end to lock the building; this would necessitate unlocking the Ranger Cabin the following day. Display would be limited to things that cannot be removed, and interpretation focused on informational panels.

#### American Land Museum, Wendover Complex

The Center for Land Use Interpretation (CLUI) manages the first of its American Land Museum facilities as a series of exhibition spaces in Wendover, Utah. The Wendover Complex provides “regional interpretive programming” of

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<sup>52</sup> Vandalism is limited to some scratches on exhibit panels.

the Great Basin region through exhibit and site-specific art works.<sup>53</sup> During the summer, it supports the Wendover Residence program, which hosts artists that create “new and innovative interpretations of the region.”<sup>54</sup>

The Wendover Complex occupies an otherwise abandoned airbase in a remote area on the Utah/Nevada border, west of Salt Lake City. Wendover Airbase once functioned as one of the largest military bases in the world, and was the training site for the first atomic bombing missions during World War II. In 1963, the Air Force moved out of the complex of over 600 buildings and the site is now managed by Tooele County. The Center for Land Use Interpretation leases a number of buildings for the American Land Museum and Wendover Residence program.

The Wendover unit of the American Land Museum is composed of two exhibition halls. Neither is staffed, and instructions for access are posted on each door; a call to the Center for Land Use Interpretation headquarters gains a code required to unlock the building door. The main exhibition hall (Exhibit Hall 1) contains a permanent exhibit of regional land use on double-sided panel board, mounted on the ceiling along the long axis. A small room to the rear hosts a rotating exhibit of Wendover Residences’ works. Aside from the art in this rotating exhibit, there is nothing in the building that could potentially be removed. The Center for Land Use Interpretation has only minimally altered the building to serve its new interpretive purpose.

Exhibit Hall 2 shares a building with the studio central to the Wendover Residence program. Access to this exhibit is the same as Exhibit Hall 1 and it contains a rotating exhibit of art produced as part of the Wendover Residence program. This work may be two- or three-dimensional, and occasionally uses modern technology.

Although the Wendover Residence program provides additional security, by proxy, during the warmer months of the year, both Exhibit Halls remain open to visitation day and night, year-round. Door access codes are infrequently changed and staff monitors the Exhibit Halls only periodically. The exhibit halls have not suffered any vandalism. The Center for Land Use Interpretation believes that the Wendover Complex has not been a target for vandalism because of its proximity to occupied buildings and fences, and a lack of problematic area residents.

Walnut Canyon National Monument could use the Wendover Complex as a model of how a remote facility can be minimally altered for interpretive purposes, not staffed, and still somewhat secure. The Ranger Cabin could be rehabilitated into an exhibit space with little alteration of original fabric. Like the Wendover Complex, interpretive panels could be mounted from the Ranger Cabin’s ceiling, much of which is already damaged and needs replacement. Alternatively, panels could be freestanding and affixed to the floor.

The Ranger Cabin could be locked with a coded door and the code available at the visitor center information desk during normal working hours. This would allow staff to provide additional information to the Ranger Cabin-bound visitors and monitor access. A sweep along the access trail to the Ranger Cabin and the surrounding site at the end of the day would provide additional security by ensuring that all visitors have left the area; the Ranger Cabin could be securely locked at that time, but it would have to be unlocked the following day.

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53 The Center for Land Use Interpretation: [http://www.clui.org/clui\\_4\\_1/index.html](http://www.clui.org/clui_4_1/index.html) (accessed 8/17/2006).

54 The Center for Land Use Interpretation: [http://www.clui.org/clui\\_4\\_1/index.html](http://www.clui.org/clui_4_1/index.html) (accessed 8/17/2006).

Although this option would provide the Ranger Cabin a higher level of security than the Norris Geyser Basin Museum, it would still be vulnerable to vandalism. Exhibits should be limited to only that which cannot be destroyed or stolen.

### The Hermitage

President Andrew Jackson's Tennessee home and 1,050-acre farm once produced a variety of commodities, including vegetables, cotton, and racehorses. Worked first by slaves, and later by tenant farmers and paid day laborers, the operation necessitated numerous living quarters and outbuildings, some located in remote areas. After Jackson's death in 1845, the property could no longer support itself and began to decay. The Hermitage was purchased by the State of Tennessee soon after, but inadequate funding prevented any restoration work. In 1889, the Ladies' Hermitage Association, founded on the ideals and tactics of the Mount Vernon Ladies' Association of the Union which had recently saved George Washington's home, was given control of The Hermitage. They quickly began restoring the home and property, and have continuously managed the site ever since.

Given both the high humidity and modern visitation levels, the Ladies' Hermitage Association could not adequately protect the mansion's original wood furnishings. In 1989, the Ladies' Hermitage Association contracted with engineers to redesign the HVAC (heating, ventilation, and air conditioning) system. At that time, engineers recommended installation of glass doors to control environmental conditions within the mansion, while giving visitors visual access. Once installed, the Ladies' Hermitage Association was pleased to discover that the glass doors "provided clear viewing and excellent security," in addition to maintaining constant temperature and humidity levels in this staffed facility.<sup>55</sup> They then installed glass doors on three historic log slave cabins, located on the grounds and somewhat removed from staff surveillance. Due to recent interpretive changes, two of these cabins have been closed to the public, but a glass door still provides both security and viewing opportunities on the third.

The original glass doors, manufactured by a Nashville glass contractor "using standard hardware and regular safety-type plate glass," created glare, especially when used on the log slave cabins because of the contrast between the dark interiors and bright outdoors.<sup>56</sup> In 1996, the Ladies' Hermitage Association replaced many of the glass doors with Amiran, a glare-free glass manufactured by Schott North America.

The Ladies' Hermitage Association has never experienced vandalism of the glass doors. Their only complaint is that the glass doors are difficult to see, and until removable bars were installed across the opening, visitors occasionally did not see the glass and ran into the door.

Walnut Canyon National Monument could use glass doors like those employed at The Hermitage to both protect the Ranger Cabin and allow visitation, even if staff could not provide surveillance. Glass doors could be installed on one or more exterior door openings, allowing visitors to view the inside of the Ranger Cabin from the exterior. This would allow staff to interpret designated areas of the Ranger Cabin as time and funding permit. Alternately, entrance to the original cabin could be gained through the historic wood door, and both Room Two and Room Three furnished and sectioned off with glass doors. This would allow the visitor to experience the scale and feeling of the Ranger Cabin interior while protecting sensitive and character-defining features.

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<sup>55</sup> Mullin, Marsha A. Email to author, 24 August 2006.

<sup>56</sup> Ibid.

### Yellowstone National Park, Museum of the Park Ranger

The Museum of the Park Ranger, located in the Norris section of Yellowstone National Park, interprets the history of the park ranger profession through information displays, objects, and film. The museum, which opened in 1991, is housed in the Norris Soldier Station, originally constructed in 1908 and later rebuilt. The museum is open during the height of the tourist season – from Memorial Day to late September – and is staffed exclusively by retired National Park Service staff. These volunteers retired from a variety of positions, including superintendent, chief ranger, and regional director. They come from locations across the country.

Yellowstone National Park first advertised the need for volunteers through the *Arrowhead*, a newsletter for present and retired National Park Service employees. Word spread and the park ceased needing to advertise for volunteers; they now have a waiting list of potential volunteers. Priority is given to new volunteers, and many return. Volunteers work four day weeks for two-week terms, and three people are working any given term. In return, Yellowstone National Park provides volunteers housing during their stay.

Because of the relatively short duration of volunteer terms, Yellowstone National Park must interview, schedule, train and supervise a large number of volunteers every season. In the past, these tasks were managed by interpretive staff among their other projects and responsibilities. In 2006, a seasonal GS-7 employee was responsible solely for the daily operations of the Museum of the Park Ranger. If this position cannot be funded in the future, the park will consider Student Conservation Association interns (SCA) or Volunteers In Parks (VIP) and lengthen the duration of stay to the entire season. This will eliminate the need to repeatedly train and schedule volunteers throughout the season.

The Museum of the Park Ranger provides an interesting approach to staffing and security when funding is limited. Walnut Canyon National Monument may want to explore using Volunteers in Parks (VIP) without professional National Park Service experience, as well as those retired from the Forest Service and National Park Service. Although housing is limited within Walnut Canyon National Monument, provisions may exist in Flagstaff or nearby campgrounds for those with recreational vehicles (RVs). The presence of volunteer staff would provide the Ranger Cabin additional security, allowing it to be interpreted with objects and furnishings. Volunteers could easily lock the Ranger Cabin after business hours.

### **Summary**

A greater degree of security, whether provided by locked glass doors or volunteers, allows greater interpretation of the Ranger Cabin through exhibit displays. Interpreting the Ranger Cabin would allow the visitor to more thoroughly understand the building and monument history, and give them a well-rounded visit to Walnut Canyon National Monument.

Walnut Canyon National Monument must determine an efficient and controllable route of visitor access to the Ranger Cabin. Potential routes include Old 303 Road through the residential area, and a dirt road off the visitor center parking area that connects to Old 303 Road.

Before the Ranger Cabin is altered to accommodate interpretive exhibits, it must first be returned to a stable and safe condition. Requirements for repair follow.



## REQUIREMENTS FOR TREATMENT

This section presents the components of rehabilitating the Ranger Cabin into an exhibit space, and details the order in which they should occur. Recommendations respect the character-defining features of the Ranger Cabin and are intended to retain and preserve those features. Treatment recommendations are related to the deficiencies outlined in the *Physical Description* section of this report. For a comprehensive list of deficiencies, and the exact location of their occurrences, please see the *Physical Description* section. The intended positive results and potentially negative impacts of each recommendation are addressed in the following section, *Alternatives for Treatment*. Treatment alternatives are also address in that section.

The ultimate treatment of rehabilitating the Ranger Cabin into an exhibit space has five main components. In order of priority, they are:

1. Return the Ranger Cabin to a safe and weather-tight condition by installing a proper foundation, repairing the main structural components, and replacing the sacrificial building components.<sup>57</sup>
2. Repair or replace interior character-defining features and materials that have been destroyed or damaged due to deterioration or lack of maintenance.
3. Rehabilitate the Ranger Cabin's interior and exterior spaces to comply with current accessibility, life safety, and building codes.
4. Accommodate the programmatic needs of the proposed new use of exhibit space.
5. Repair specified character-defining features of the Ranger Cabin site and reconstruct specified non-extant character-defining features.

To remedy decades of neglect, recommendations are extensive. As discussed earlier, the Ranger Cabin is significant and all efforts should be made to rehabilitate it into a useful facility. Although the overall emphasis is to retain original materials, it is recommended that some damaged original materials, specified below, be replaced to ensure structural stability and architectural integrity. Some non-extant features, specified below, should be reconstructed to better understand the Ranger Cabin's historic use as a mixed residential and public space. Reconstructed features should be interpreted as modern improvements.

When original materials are to be removed for repair, they should be properly marked so that they may return to their original location. All work, whether it repair or replacement, should be documented by written summary and location mapping.

Although specific building components were not assessed for hazardous materials, it is assumed that some are present, including lead-based paint. All regulations must be followed in their remediation.

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<sup>57</sup> Sacrificial building components are those components that are intended to require replacement at the end of a relatively short lifespan, such as roof shingles and daubing. Sacrificial building components provide protection to building materials that should not require replacement, such as roof framing members and horizontal logs.

## Component One

*Return the Ranger Cabin to a safe and weather-tight building by installing a proper foundation, repairing the main structural components, and replacing the sacrificial building components.*

Before any other work is to commence on the Ranger Cabin, a proper foundation must be installed to prevent many of the deficiencies previously discussed, including differential settlement and sill log decay. There is currently no visible foundation above grade. The Ranger Cabin must be raised and a continuous foundation laid more than 20 inches into the ground, below the Flagstaff frost line. The foundation should project at least 8 inches above the ground line to protect sill logs from potential water wicking and decay. A perimeter drain system should be installed. All decayed floor joists should be replaced at that time and rigid insulation installed. Installation of rigid insulation around the foundation and below the flooring will help lengthen the Ranger Cabin's season of use.

Where possible, all log wall sections, including interior walls, should be repaired in place to eliminate improper connections and bowing. Some wall sections may need to be removed in order to properly eliminate structural deficiencies. If removed, logs should be marked so that they can be reinstalled in the same location. Modern interior wall bracing should be removed.

Once reinstalled, logs must be securely attached to one another, to the hog-trough joinery, and to door and window jambs. To do this, fiberglass reinforcing rebar can be used. Logs below the south window on the original cabin must be replaced with logs spanning the length of the original cabin. These logs must be of the same wood type and character as the existing logs. Before installation, they should be stored near the Ranger Cabin to dry and acclimatize. Walls should be insulated during reinstallation.

Board and batten on the Ranger Cabin's east and west elevations should be repaired where possible, and warped boards replaced where necessary.

Seriously cracked logs and decayed crowns should be strengthened with wood splices. Areas of crown decay should be sawn off and wood splices added. Care must be taken to retain the character of the Ranger Cabin and the length and diameter of the original crowns.

Daubing should be removed and wood chinking replaced where not currently present. Daubing should then be replaced using a mixture of local sand, Portland cement, and lime.

Doors and windows should be made square so that they are operable. A paint analysis should be conducted to determine the historic condition before any work is done. They should be stripped, refinished and painted to match the historic condition. Missing knobs and other hardware should be replaced in kind.

Exterior window and door trim should be painted to match the historic condition and replaced where missing. Historic photographs reveal that window and door screens were painted a contrasting color to the white trim; they are presently light green. A paint analysis should be conducted to determine the historic coloration before any work is done. Door and window screens should be stripped and refinished, and painted to match the historic condition.

All shingles and sheathing must be removed from the roof to determine which roof framing members are creating the roof sag. Once determined, these members should be repaired or replaced to create an even ridge line across the main section of the Ranger Cabin. The shingles and sheathing over the Room Two addition should likewise be removed to determine which roof framing members are causing the gap between the roof and the north wall. These members should be repaired or replaced to eliminate the gap between roof and wall. Preformed metal tie down straps can be used to connect the roof and walls.

When shingles and sheathing are removed, it should be determined if the existing number of rafters are appropriate for the roof load. Additional rafters may need to be added at the time of roof repair.

Once the framing members are in proper placement, the roof should be sheathed and cedar shingles, treated with preservatives and fire-retardants, installed. Flashing should be installed around the tree and on the Room Two addition at the junction of Room One. Vents should be covered with insect screens to prevent varmint access.

Gutters should be repaired where possible, and replaced where beyond repair. They should be reshaped where bent to effectively move water towards the downspouts. Gutters on the east elevation should be properly angled and redirected toward the cistern. They should be completely cleaned. Gutters should be raised to the appropriate height to catch roof runoff, and additional downspouts installed on each elevation.

The area around the Ranger Cabin must be re-graded to direct water away from all sides of the building.

## **Component Two**

*Repair or replace interior character-defining features and materials that have been destroyed or damaged due to deterioration or lack of maintenance.*

Linoleum flooring in Room Two should be removed and accessioned into the museum collection. The damaged flooring on the east wall of Room Four should be replaced. Wood flooring throughout the Ranger Cabin should be cleaned.

Fiber wallboard should be removed and replaced with drywall in Rooms One and Two, painted to match the existing walls. Where damaged or missing in Room Three, wallboard should be replaced with wallboard removed from Rooms One and Two, painted to match the existing wall coloration of Room Three. Room Four should be wallpapered with a pattern, color, and texture similar to the existing remnants. The existing remnants should be accessioned into the museum collection.

Kitchen cabinets should be cleaned and repaired, and a drawer made to replace the missing drawer. It should be of similar wood character, painted to match, and matching hardware installed.

Existing ceiling beadboard should be retained where in good condition. Beadboard should be removed where damaged and replaced with new beadboard, painted to match, and installed in the same manner.

### Component Three

*Rehabilitate the Ranger Cabin's interior and exterior spaces to comply with current accessibility, life safety, and building codes.*

This component seeks to make improvements and/or alterations that would increase the Ranger Cabin's utility to park visitors and staff. Care should be taken to avoid defamation of the building, or inappropriate treatment of the character-defining elements of the Ranger Cabin.

Wheelchair accessibility must be provided when the building is modified; entrance to the Ranger Cabin can be obtained through the original cabin door. Because of level changes throughout the Ranger Cabin and the small character of the space, wheelchair accessibility will be limited to Room One. The entire cabin can be visually experienced from this room. Original door hardware will have to be removed so that ADA-compliant hardware can be installed. Any removed hardware should be accessioned into the museum collection.

For better accessibility and fewer maintenance concerns, the plank walkway along the north elevation of the Ranger Cabin (installed during the 1991 stabilization) should be removed and replaced with poured concrete, matching the dimensions and character of its historic condition. An approach walkway should likewise be poured to match its historic condition, but instead of a step at the north end, it should be constructed as a ramp for accessibility. Expansion joints should be placed to alleviate maintenance concerns.

Trees in contact or close proximity to the Ranger Cabin should be trimmed or thinned as appropriate to alleviate potential fire hazards. Doing so complies with the *Fire Management Plan* (2006). Installing a fire suppression system would necessitate plumbing the Ranger Cabin and is not recommended.

Electricity should be extended to the Ranger Cabin. Electricity can be extended above ground, but in the vicinity of the Ranger Cabin, cables should be placed underground. This will prevent the electrical wiring from impinging on the remote character of the site and building. Outlets should be floor-mounted. Recommended lighting fixtures are discussed in Component Four.

The Ranger Cabin should not be modified to accommodate modern heating, ventilation, and air conditioning (HVAC) systems. The Ranger Cabin can be naturally ventilated by opening the windows and doors. The existing stove can be used for heating, if necessary.

A security system should be installed in the Ranger Cabin to deter theft and vandalism. It should be tied to the main network.

Compliance with other codes must be addressed at the time of the work related to those materials. For example, hazardous materials must be remedied when repair or replacement of affected building materials is necessary. Remediation of lead-based paint must occur when walls containing lead-based paint are repaired or removed, which is recommended under Component Two.

Additionally, the Ranger Cabin must be sealed to prevent varmint access, and recommendations to seal specific building materials are listed under Components One and Two. All efforts should be made to prevent varmint access to the building interior, but the treatments must be sensitive to the character and significance of the Ranger Cabin.

#### **Component Four**

*Accommodate the programmatic needs of the proposed new use of exhibit space.*

Non-reflective glass doors should be mounted in place of original wood doors, where desired. If an original wood door or screen is removed from the Ranger Cabin, it should be accessioned into the museum collection.

The missing kitchen stove should be replaced with a stove dating to the period of significance and a stove pipe installed to the ceiling.

Interpretive panels should be installed in the least-intrusive manner to the structure of the Ranger Cabin; they should be on free-standing displays, and not against the ceiling, walls, doors or windows so that potentially original building materials are not unnecessarily altered or damaged. Modern lighting, appropriate for the illumination and preservation of display materials, should be installed on these free-standing panels.

#### **Component Five**

*Repair specified character-defining features of the Ranger Cabin site. Reconstruct specified non-extant character-defining features.*

Once all other rehabilitation components are completed, the Ranger Cabin site may be repaired and reconstructed to interpret the period of significance.

The historic wooden post and wire fence may be reconstructed in front of the Ranger Cabin to provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument. Because photographic documentation exists only of the fence in front of the Ranger Cabin and it is unknown if the fence spanned any other elevations, its reconstruction should be limited to this area. Reconstruction should follow the form and dimension of that found in historic photographs. A picket gate, and the diagonal bracing flanking it, should be reconstructed to align with the concrete approach walkway.

The outhouse may be repaired to interpret living conditions during the period of significance. Decayed or missing components can be replaced in kind.

The birdbath should be stabilized to prevent further movement of the structural stone. The concrete basin can be removed and new concrete poured in the same form and dimension. The retaining wall should be stabilized to prevent further movement.

The apple tree and rose bush in front of the Ranger Cabin may be pruned. The chicken wire fence around the apple tree should be removed and replaced with a fence appropriate to the character of the Ranger Cabin site. If Walnut Canyon National Monument were to obtain funds for regular maintenance, the terraced garden beds could be replanted with varieties specified in Neil Erickson's diary.



### **Additional Requirements for Treatment**

As stated in the Director's Order on Cultural Resource Management (DO-28) and according to federal law and National Park Service policy, "all historic structures in which the Service has a legal interest are to be managed as cultural resources. Regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity."<sup>58</sup>

Section 106 of the National Historic Preservation Act (NHPA) mandates that all federal agencies, including the National Park Service, take into account the effects of their actions on properties listed, or eligible for listing, in the National Register of Historic Places. The Advisory Council on Historic Preservation must be given a reasonable opportunity to comment on any actions effecting federal properties.

Treatment of the Ranger Cabin should follow the Secretary of the Interior's Standards for the Treatment of Historic Properties, and the guidelines for applying those standards. See Appendices B and C for rehabilitation standards and guidelines. In addition to National Park Service codes and standards, all treatments must comply with the requirements of the following:

- International Building Code 2003 (IBC-2003)
- Minimum Design Loads for Buildings and Other Structures (ASCE 7-98)
- Seismic Evaluation of Existing Buildings 2003 (ASCE 03-031)
- National Design Specifications for Wood Construction (NDS-2005)

Treatments that address handicapped accessibility must comply with the Americans with Disabilities Act of 1990 (42 USC 12101, Title III).

### **Recommendation for Further Study**

All efforts were made to provide complete and thorough information in this *Historic Structure Report*, but further study is required in some areas.

The National Register of Historic Places nomination, which lists only 1904 as a significant date, should be updated to reflect a broader understanding of the period of significance. Because the Ranger Cabin is important as the site of early Forest Service administration, the period of significance should span the date of construction to the transfer to the National Park Service (1904-1934). The nomination should be further updated to include the building history as documented in this report.

The Ranger Cabin site, which is assessed in this *Historic Structure Report*, should be further documented. Site features should be measured and scaled drawings produced. Archeological examination of the site may render information on the barn (no longer extant) and vegetable plantings.

Although Walnut Canyon National Monument has a current *Comprehensive Interpretive Plan* (2003), it does not address the needs of rehabilitating the Ranger Cabin into an exhibit facility. An Interpretive Plan unique to the Ranger Cabin should be written to include an assessment of the access route, potential visitation levels, season of use, hours, and other factors. The plan should determine an appropriate interpretive theme and related exhibit displays.

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<sup>58</sup> National Park Service, Director's Order #28: Cultural Resource Management: [http://www.cr.nps.gov/history/online\\_books/nps28/28chap8.htm](http://www.cr.nps.gov/history/online_books/nps28/28chap8.htm) (accessed 13 September 2006).

## ALTERNATIVES FOR TREATMENT

The following section further explores the treatment recommendations discussed in *Requirements for Treatment*. Treatment recommendations, intended to return the Ranger Cabin to a safe and stable condition, and rehabilitate it for use as an exhibit facility, will undoubtedly impact historic building materials. Outlined below are the intended positive results and potential negative impacts of each treatment recommendation. Alternative recommendations to each proposed treatment are offered and their limitations explored. Treatments are listed by building material within each component.

### **Component One**

**Return the Ranger Cabin to a safe and weather-tight building by installing a proper foundation, repairing the main structural components, and replacing the sacrificial building components.**

#### **Foundation**

A. Lay a continuous foundation more than 20 inches into the ground, below the Flagstaff frost line. The foundation should project at least 8 inches above the ground line.

Result: Laying a continuous foundation will provide even support and prevent differential settlement. Raising the Ranger Cabin above grade will protect sill logs from potential water wicking and decay.

Impact: Laying a continuous foundation will necessitate raising the Ranger Cabin and may increase structural instability until other actions (specified below as additional treatment recommendations) are taken.

*Alternative 1:* Support the building at its corners and replace sill logs.

Limitation: Without being elevated from the ground, sill logs will continue to decay. Supporting only the building corners will cause horizontal logs to bow and other structural instability to ensue.

*Alternative 2:* No action.

Limitation: Water will continue to cause sill log decay. Structural instability will eventually cause the Ranger Cabin to collapse.

B. Install a perimeter drain system.

Result: Installing a perimeter drain system will divert water away from the foundation and prevent potential damage to the foundation and sill log decay.

Impact: No impact. No original building materials will be affected.

*Alternative:* No action.

Limitation: Water will continue to accumulate at the base of the building and accelerate sill log decay.

C. Replace decayed floor joists.

Result: Replacing decayed floor joists will help eliminate structural problems.

Impact: Replacing decayed floor joists will necessitate the removal of potentially original building materials.

*Alternative:* No action.

Limitation: The Ranger Cabin will eventually collapse.

D. Install rigid insulation.

Result: Insulating the floor will lengthen Ranger Cabin's season of use.

Impact: No impact. No original building materials will be affected.

*Alternative:* No action.

Limitation: Varmints will continue to gain access into the Ranger Cabin and destroy potentially original building materials. Lack of insulation will limit season of use.

Walls

A. Repair all walls in place to eliminate improper connections and bowing. Replace logs only where necessary.

Result: Repairing walls and replacing logs where necessary will help eliminate structural problems.

Impact: Replacing decayed logs will necessitate the removal of potentially original building material.

*Alternative 1:* Replace all logs to eliminate improper connections and bowing.

Limitation: Total replacement is unnecessarily costly and necessitates the removal of potentially original building materials.

*Alternative 2:* No action.

Limitation: The Ranger Cabin will eventually collapse.

B. Remove modern interior wall bracing.

Result: Removing modern wall bracing will help return the Ranger Cabin to its historic condition and halt any further damage to character-defining features.

Impact: No impact. No original building materials will be affected.

*Alternative:* No action.

Limitation: Modern bracing will continue to affect the character of the Ranger Cabin's interior and propagate misunderstanding of its historic condition.

C. Attach existing horizontal logs to one another, to the hog-trough joinery, and to door and window jambs with fiberglass reinforcing rebar.

Result: Properly attaching horizontal logs will help remedy current structural issues and prevent future structural problems.

Impact: Installation of rebar will necessitate the alteration of potentially original building materials.

*Alternative 1:* Replace existing horizontal logs with longer horizontal logs and attach to hog-trough joinery, and to door and window jambs with fiberglass reinforcing rebar.

Limitation: Replacing horizontal logs is costly and necessitates the removal of potentially original building materials.

*Alternative 2:* Eliminate hog-trough corners and replace with saddle notched horizontal logs on original cabin.

Limitation: Saddle notched corners are historically inappropriate and would require the replacement of horizontal logs.

*Alternative 3:* No action.

Limitation: The Ranger Cabin will eventually collapse.

D. Replace logs below the south wall window on the original cabin with logs spanning the length of the original cabin.

Result: Replacement of logs running the length of the wall will help remedy current structural issues and prevent future structural issues.

Impact: Replacement of logs will necessitate the removal of potentially original building materials.

*Alternative 1:* Attach existing logs with rebar reinforcement.

Limitation: Existing logs may not be original. They were positioned as recently as 1991 and have bowed excessively in the time since. Rebar reinforcement may not be enough to eliminate structural problems.

*Alternative 2:* No action.

Limitation: The south wall of the Ranger Cabin will eventually collapse, causing further structural damage to the rest of the building.

E. Insulate walls.

Result: Insulating the walls will help lengthen Ranger Cabin's season of use.

Impact: No impact. No original building materials will be affected.

*Alternative:* No action.

Limitation: Varmints will continue to gain access into the Ranger Cabin and destroy potentially original building materials. Lack of insulation will limit season of use.

F. Repair board and batten on the Ranger Cabin's east and west elevations where possible, and replace warped boards where necessary.

Result: Repair and replacement of board and batten will help prevent varmints and water from accessing the interior and causing additional damage.

Impact: Repair of board and batten will necessitate the alteration of potentially original building materials. Replacement of board and batten will necessitate the removal of potentially original building materials.

*Alternative 1:* Replace all boards and battens.

Limitation: Total replacement is unnecessarily costly and necessitates the removal of potentially original building materials. Total replacement will destroy weathered character of existing board and batten.

*Alternative 2:* No action.

Limitation: Varmints and water will continue to gain access to the interior of the Ranger Cabin and destroy potentially original building materials.

G. Strengthen seriously cracked logs and decayed crowns with wood splices.

Result: Strengthening horizontal logs and crowns will increase their lifespan and help prevent further structural problems.

Impact: Repair of horizontal logs and crowns will necessitate the alteration of potentially original building materials.

*Alternative 1:* Replace seriously cracked logs.

Limitation: Total replacement is unnecessarily costly and necessitates the removal of potentially original building materials.

*Alternative 2:* Repair seriously cracked logs and crowns with epoxy.

Limitation: Epoxy is not resilient to UV damage and lacks the appearance of natural wood unless painted. Painting would alter the appearance and character of the Ranger Cabin.

*Alternative 3:* No action.

Limitation: The Ranger Cabin will eventually collapse.



H. Remove daubing and replace with mixture of local sand, Portland cement, and lime.

Result: Properly daubing the Ranger Cabin will help prevent varmints and water from accessing the interior and causing additional damage. Daubing will help protect the horizontal logs and increase their lifespan.

Impact: No impact. No original building materials will be affected.

*Alternative 1:* Remove daubing and replace with concrete.

Limitation: Concrete will fail to suitably protect the horizontal logs. It will reduce the building's breathability and increase water saturation of the logs.

*Alternative 2:* No action.

Limitation: Varmints and water will continue to gain access the Ranger Cabin interior and destroy potentially original building materials.

### Fenestration

A. Square doors and windows.

Result: Squaring doors will make them operable and allow them to close, helping to seal the Ranger Cabin and prevent varmints and water from accessing the interior and causing additional damage. Squaring windows will have the same effect and allow natural ventilation when necessary.

Impact: Squaring doors and windows will necessitate alteration of potentially original building material.

*Alternative:* No action.

Limitation: Doors will continue to not close properly and the Ranger Cabin will be susceptible to varmint infestation. The Ranger Cabin will remain vulnerable to vandalism. Windows will continue to be inoperable.

B. Replace missing knobs and other hardware in kind.

Result: Replacing hardware will return doors and windows to a functioning condition, thereby respecting the character-defining features of the Ranger Cabin.

Impact: Replacing door and window hardware may necessitate the alteration of potentially original building materials and may propagate misunderstanding of the hardware as historic.

*Alternative:* No action.

Limitation: Doors and windows will continue to be inoperable and lack historical accuracy.

C. After paint analysis, strip, refinish, and paint doors, windows, and trim to match the historic condition.

Result: Painting doors, windows, and trim respects the character-defining features of the Ranger Cabin and its historical significance. Painting will increase the lifespan of said features.

Impact: Painting doors, windows, and trim will necessitate the removal of potentially original finishes and the alteration of potentially original building materials.

*Alternative 1:* Paint with the same coloration as existing.

Limitation: Painting with the existing coloration may make determining the original color more difficult. Painting with the existing coloration will propagate misunderstanding of the historically accurate coloration.

*Alternative 2:* No action.

Limitation: Paint will continue to peel and leave the wood susceptible to expedited decay.

### Roof

A. Repair or replace roof members to create an even ridge line across the main section of the Ranger Cabin.

Result: Repairing the roof to create an even ridge line will help eliminate structural problems.

Impact: Repair of roof members will necessitate the alteration of potentially original building materials. Replacement will necessitate the removal of potentially original building materials.

*Alternative:* No action.

Limitation: The Ranger Cabin will eventually collapse.

B. Repair or replace roof members to eliminate the gap between the roof and wall at the kitchen addition. Preformed metal tie down straps can be used to connect the roof and walls.

Result: Elimination of the gap between the wall and roof will prevent varmints and water from accessing the interior and causing additional damage.

Impact: Repair of roof members will necessitate the alteration of potentially original building materials. Replacement will necessitate the removal of potentially original building materials.

*Alternative:* No action.

Limitation: Varmints and water will continue to gain access to the interior of the Ranger Cabin and destroy potentially original building materials.

C. Remove shingles and sheathing. Replace with cedar shingles, treated with preservatives and fire-retardants.

Result: New shingles and sheathing will help prevent varmints and water from accessing the interior and causing additional damage.

Impact: No impact. No original building materials will be affected.

*Alternative 1:* Remove shingles and replace with untreated cedar shingles.

Limitation: Shingles will have a shorter lifespan and will leave the Ranger Cabin more susceptible to potential fire danger.

*Alternative 2:* Remove shingles and replace with other roofing material.

Limitation: Treatment with anything other than cedar shingles is historically inaccurate and potentially damaging to the building.

*Alternative 3:* No action.

Limitation: Varmints and water will continue to gain access to the interior of the Ranger Cabin and destroy potentially original building materials.

D. Install flashing around the tree and on the Room Two addition at the junction of Room One.

Result: Installing flashing will prevent varmints and water from accessing the interior and causing additional damage. It will ensure the longevity of adjacent shingles.

Impact: No impact. No original building materials will be affected.

*Alternative:* No action.

Limitation: Varmints and moisture will continue to gain access into the Ranger Cabin through the area around the tree and cause damage to potentially original building materials. Water will continue to cause damage and decay of potentially original building materials at the junction of Rooms One and Two.

E. Cover vents with insect screens to prevent varmint access.

Result: Covering vents will prevent varmints and water from accessing the interior and causing additional damage.

Impact: Covering vents with insect screens will necessitate minor alteration to potentially original building materials.

*Alternative:* No action.

Limitation: Varmints will continue to gain access to the interior of the Ranger Cabin and destroy potentially original building materials.

F. Repair gutters where possible, and replaced where beyond repair to effectively move water towards the downspouts.

Result: Repairing gutters will direct water away from the Ranger Cabin and eliminate future water damage and decay.

Impact: No impact. No original building materials will be affected.

*Alternative 1:* Remove and do not replace gutters.

Limitation: Water will pool at the sides of the Ranger Cabin causing sill log decay and structural damage. Water will continue to run down the sides of the Ranger Cabin causing log decay and structural instability.

*Alternative 2:* No action.

Limitation: Water will continue to run down the sides of the Ranger Cabin causing log decay and structural instability.

#### G. Clean gutters.

Result: Cleaning gutters will help direct water away from the Ranger Cabin and eliminate future water damage and decay.

Impact: No impact. Cleaning shall not be abrasive and will have no negative impact.

*Alternative:* No action.

Limitation: Gutters will continue to fail to adequately move water away from the Ranger Cabin, causing decay and structural instability.

#### H. Raise gutters to the appropriate height to catch roof runoff, and install additional downspouts on each elevation.

Result: Raising gutters and installing additional gutters will help direct water away from the Ranger Cabin and eliminate future water damage and decay. It will increase the lifespan of sill logs.

Impact: Adding an additional gutter is not historically accurate but will not have a negative impact on any potentially original building materials.

*Alternative:* No action.

Limitation: Water will continue to run down the sides of the Ranger Cabin causing log decay and structural instability. Water will pool at the sides of the Ranger Cabin causing sill log decay.

#### Site

##### A. Re-grade site to direct water away from all sides of the building.

Result: Regrading the site will prevent water and snow accumulation around the Ranger Cabin and help eliminate future water damage and decay. It will increase the lifespan of sill logs.

Impact: No impact. No original building materials will be affected.

*Alternative:* No action.

Limitation: Water will continue to cause sill log decay and structural damage.



## **Component Two**

**Repair or replace interior character-defining features and materials that have been destroyed or damaged due to deterioration or lack of maintenance.**

### **Floors**

A. Remove linoleum floor from Room Two and accession into the museum collection.

Result: Because the flooring sample is small, it does not add to the understanding of this room and instead makes the room appear dirty and unmanaged. Removing it respects the character of the Ranger Cabin and its historic significance. Accessioning the flooring sample into the museum collection ensures its preservation and availability for future study and reproduction.

Impact: Accessioning this section of flooring will remove potentially original building material from the Ranger Cabin. Although it will be preserved in the museum collection, the general public will likely not see the flooring sample.

*Alternative 1:* Leave linoleum floor in place and cover with viewing window for interpretive purposes.

Limitation: There is likely not enough of a linoleum floor sample, or accurate information about its history, for it to be of any value to visitors.

*Alternative 2:* Remove linoleum floor and discard.

Limitation: Discarding linoleum floor (or any historic building material) eliminates the possibility that it may provide additional information in the future, and destroys the chance for accurate reproduction.

*Alternative 3:* No action.

Limitation: Because of the small size of the linoleum floor remnant, allowing it to remain in situ subjects it to potential destruction or uninformed removal.

B. Replace damaged flooring in Room Four in kind.

Result: This damaged section of flooring does not add to the understanding of this room and instead makes it appear dirty and unmanaged. Removing it respects the character of the Ranger Cabin and its historic significance.

Impact: Replacing this section of flooring necessitates removal of potentially original building material.

*Alternative:* No action

Limitation: This alternative is legitimate and would allow the Ranger Cabin to be understood as a building that functioned over time and its alterations as historically important. However, the damaged section of floor does little to aid in the interpretation of the Ranger Cabin and may leave the building appearing dirty and unmanaged.

C. Clean wood floor throughout the Ranger Cabin.

Result: Cleaning the floor will remove rodent droppings and other potentially harmful substances. It will respect this character-defining feature of the Ranger Cabin and its historic significance.

Impact: Non-abrasive cleaning will have no impact on potentially original building materials.

*Alternative 1:* Sand and refinish wood floor throughout the Ranger Cabin.

Limitation: Sanding the floor will necessitate the alteration of a character-defining feature. Refinishing the wood floor will make it shiny and negatively affect the character of the Ranger Cabin.

*Alternative 2:* No action

Limitation: The wood floor will continue to harbor rodent droppings and other potentially harmful substances.

Walls

A. Remove and replace fiber wallboard with drywall in Rooms One and Two, painted to match the existing walls. Retain wallboard for installation in Room Three.

Result: Replacing wallboard with drywall respects the character of the Ranger Cabin and its historic significance while reducing the potential fire hazard of installing new wallboard. Replacing damaged wallboard helps seal the building interior and prevent varmint access.

Impact: Replacing damaged wallboard will necessitate the removal of potentially original building materials from this area of the Ranger Cabin. Retaining this material for use in other areas of the building will not necessitate their removal from the Ranger Cabin.

*Alternative 1:* Remove and replace damaged fiber wallboard with new fiber wallboard.

Limitation: Fiber wallboard creates an unnecessary fire hazard.

*Alternative 2:* No action.

Limitation: Allowing the interior walls of the Ranger Cabin to remain unchanged does not respect the character of the building, or its historic significance. The existing wall condition is a result of stabilization efforts and detrimentally affects the character-defining features of the Ranger Cabin.

B. Replace damaged or missing wallboard in Room Three with wallboard removed from Rooms One and Two, painted to match the existing wall coloration of Room Three.

Result: Replacing damaged wallboard with wallboard from other rooms of the Ranger Cabin respects the character-defining features and historic significance of this important room by returning it to its original condition. Replacing damaged wallboard helps seal the building interior. It prevents varmints from gaining access to the interior of the Ranger Cabin and the additional damage they may cause.

Impact: Replacing damaged wallboard will necessitate the removal of potentially original building material.

*Alternative 1:* Replace damaged wallboard in Room Three with new drywall, painted to match the existing wall coloration.

Limitation: This is a legitimate alternative, but does not take advantage of the potential re-use of character-defining material in the most intact room of the Ranger Cabin.

*Alternative 2:* No action.

Limitation: Allowing the interior walls of the Ranger Cabin to remain unchanged does not respect the character of the building, or its historic significance. The existing wall condition is a result of stabilization efforts and detrimentally affects the character-defining features of the Ranger Cabin.

C. Wallpaper Room Four with a pattern, color, and texture similar to existing remnants. Accession the existing remnants into the museum collection.

Result: Wallpapering Room Four respects the character and significance of the Ranger Cabin while preserving potentially original building materials in the museum collection.

Impact: Wallpapering Room Four with reproduction wallpaper will necessitate the removal of potentially original building materials and propagate misunderstanding of the paper as historic.

*Alternative 1:* Cover walls of Room Four with drywall to match the other rooms of the Ranger Cabin.

Limitation: There is no proof that the walls of Room Four were ever treated with fiber wallboard, or any other such material. To do so now would be historically inaccurate and propagate misunderstanding of its historically accurate condition.

*Alternative 2:* No action.

Limitation: Allowing the interior walls of the Ranger Cabin to remain unchanged does not respect the character of the building, or its historic significance. The existing wall condition detrimentally affects the character of the Ranger Cabin.

### Ceiling

A. Retain the existing ceiling beadboard where in good condition. Remove where damaged and replace with new beadboard, painted to match, and installed in the same manner.

Result: Replacing the damaged beadboard respects the character and historic significance of the Ranger Cabin. Replacing the damaged beadboard helps seal the building interior. It prevents varmints from accessing the interior and causing additional damage.

Impact: Replacing the beadboard where damaged removes potentially original building material.

*Alternative 1:* Replace existing beadboard ceiling with drywall.

Limitation: Replacing a character-defining feature with an unlike material does not respect this character-defining feature of the Ranger Cabin, or its historic significance.

*Alternative 2: No action.*

Limitation: Allowing the ceiling of the Ranger Cabin to remain unchanged does not respect the character of the building, or its historic significance. The existing ceiling condition is a result of stabilization efforts and detrimentally affects the character of the Ranger Cabin.

### Furniture

#### A. Clean and repair kitchen cabinets.

Result: Cleaning and repairing kitchen cabinets respects these character-defining features of the Ranger Cabin and the building's historic significance.

Impact: Repairing cabinets may necessitate the alteration of potentially original building materials.

*Alternative 1: Remove kitchen cabinets.*

Limitation: Removing character-defining features does not respect the character of the building, or its historic significance. Removing the kitchen cabinets would propagate misunderstanding of the use of this room and its historically accurate condition.

*Alternative 2: No action.*

Limitation: Allowing the kitchen cabinets to remain in a state of disrepair does not respect the character of the building, or its historic significance. They will continue to be subjected to undue stress and further damage.

#### B. Install drawer of similar wood character, painted to match, to replace the missing drawer.

Result: Installing a drawer where missing respects the character and historic significance of the Ranger Cabin.

Impact: Installing a drawer where missing will not affect potentially original building materials but may propagate misunderstanding of this drawer as historic.

*Alternative: No action.*

Limitation: Allowing the kitchen cabinets to remain in a state of disrepair does not respect the character of the building, or its historic significance. They will be subjected to undue stress and further damage.

#### C. Install matching hardware.

Result: Installing hardware where missing respects the character and significance of the Ranger Cabin.

Impact: Installing hardware will necessitate the alteration of potentially original building materials and may propagate misunderstanding of the hardware as historic.

*Alternative:* No action.

Limitation: Allowing the kitchen cabinets to remain in a state of disrepair does not respect the character of the building, or its historic significance. Failure to repair the cabinets subjects them to undue stress and further damage.



### **Component Three**

#### **Rehabilitate the Ranger Cabin's interior and exterior spaces to comply with current building, life safety, and accessibility codes.**

A. Provide wheelchair accessibility through the original cabin door to the original cabin. Hardware will have to be removed and accessioned into the museum collection so that ADA-compliant hardware may be installed.

Result: Providing ADA-compliant access to the Ranger Cabin enables a significant portion of the public to experience the Ranger Cabin and meets federal regulation. The entire cabin can be visually experienced from this room.

Impact: Because of level changes throughout the Ranger Cabin and the small character of the space, wheelchair accessibility would be limited to Room One. Installation of ADA-compliant hardware necessitates the removal and alteration of potentially original building materials.

*Alternative 1:* Alter the flooring throughout the Ranger Cabin to provide wheelchair access into each room.

Limitation: Altering the flooring necessitates the destruction of potentially original building materials. Additionally, altering the flooring disrespects the character of the Ranger Cabin and its historical significance of being an original cabin with two additions at later times, each with its own character.

*Alternative 2:* No action.

Limitation: Failure to provide wheelchair accessibility when possible is against federal law and prevents a significant portion of the public from experiencing the Ranger Cabin.

B. Remove the plank walkway along the north elevation of the Ranger Cabin and replace with poured concrete, matching the dimensions and character of its historic condition. An approach walkway should likewise be poured to match its historic condition, but instead of a step at the north end, it should be constructed as a ramp for accessibility. Expansion joints should be installed.

Result: Replacing the plank walkway with concrete will help alleviate maintenance concerns and provide a level surface for ADA-compliant access to the Ranger Cabin. Providing wheelchair accessibility to the Ranger Cabin enables a significant portion of the public to experience the Ranger Cabin and meets federal regulation.

Impact: No impact on potentially original building materials. Vegetation will be impacted in the area slated for walkway installation.

*Alternative 1:* Repair plank walkway.

Limitation: Wood planks will continue to warp and cause future maintenance concerns. Planks will prove more difficult for wheelchair-bound visitors to the Ranger Cabin. The reconstructed wood plank walkway is historically accurate, but for only a short period of time and photographic documentation proves that it was replaced with poured concrete within the period of significance.

*Alternative 2:* No action.

Limitation: Warped planks will continue to prevent doors from being fully operable and leave the Ranger Cabin susceptible to varmint infestation, interior water damage, and potentially vandalism.

C. Trim or thin trees in contact or in close proximity to the Ranger Cabin.

Result: Trimming and thinning trees will help alleviate potential fire hazards to the Ranger Cabin and comply with the *Fire Management Plan* (2006).

Impact: No impact on potentially original building materials. Vegetation will be impacted by removal.

*Alternative 1:* Remove all vegetation in the vicinity of the Ranger Cabin.

Limitation: The historic natural setting will be compromised and inaccurate.

*Alternative 2:* No action.

Limitation: The Ranger Cabin will continue to be threatened by vegetation in case of lighting strike or other fire start in the vicinity.

D. Do not install a fire suppression system in the Ranger Cabin.

Result: Installing a sprinkler system necessitates the extension of the water system to the Ranger Cabin. Once extended, water would have to be piped up the walls and sprinkler heads installed on the ceiling. Piping and sprinkler heads would be highly visible and detract from the character of the Ranger Cabin.

Impact: By not installing a sprinkler system, potentially original building materials will not be altered or damaged unless there is a fire. Without a sprinkler system, fire has a greater chance of potentially impacting the Ranger Cabin.

*Alternative:* Extend water supply to the Ranger Cabin and install a sprinkler system.

Limitation: This is a legitimate alternative but the extension of the water system and installation of a sprinkler system is costly and necessitates the alteration of potentially original building materials. Piping and sprinkler heads would be highly visible and detract from the character of the Ranger Cabin.

E. Extend electricity to the Ranger Cabin.

Result: Providing electricity within the Ranger Cabin allows visitors to see and read interpretive panels.

Impact: Installation of electrical wiring will necessitate alteration of potentially original building materials. Electricity will impact the remote character of the Ranger Cabin and may propagate misunderstanding of its historically accurate condition.

*Alternative:* No action.

Limitation: Failure to provide electricity to the Ranger Cabin limits its functionality.

F. Extend electricity above ground to the Ranger Cabin except in the vicinity of the Ranger Cabin. In the vicinity of the Ranger Cabin, place cables underground.

Result: Placing cables underground in the vicinity of the Ranger Cabin will prevent them from impinging on the remote character of the site and building.

Impact: No impact. No original building material will be affected.

*Alternative 1:* Extend electricity above ground to the Ranger Cabin.

Limitation: Electrical cables will impinge on the remote character of the site and building.

*Alternative 2:* Extend electricity below ground to the Ranger Cabin.

Limitation: Placing cables (spanning this distance) underground is unnecessarily costly and may disturb archeologically significant sites.

G. Floor-mount electrical outlets.

Result: Floor-mounting outlets will make them less visually distracting while providing electricity directly to free-standing display panels.

Impact: Installation of electrical outlets will necessitate the alteration of potentially original building material.

*Alternative:* Wall-mount outlets.

Limitation: Wall-mounted outlets will be visually distracting and may propagate misunderstanding that they are historic to the Ranger Cabin.

H. Do not modify the Ranger Cabin to accommodate modern HVAC (heating, ventilation, and air conditioning) systems. Use the existing stove for heating, if necessary. Naturally ventilate the Ranger Cabin by opening the windows and doors.

Result: The season of use for a rehabilitated the Ranger Cabin has yet to be determined, but it will likely be limited to summer based on snow accumulation and visitation levels. Heating will not be required during the summer season, and given Flagstaff's temperate summer weather, neither will air conditioning. If heating is ever required, it can be provided in the manner historic to the Ranger Cabin – wood burning stoves.

Impact: No impact. No original building materials will be affected.

*Alternative 1:* Install radiant heating in the Ranger Cabin.

Limitation: Concurrent with the installation of a new foundation, radiant heating would not be

difficult to install and is accurate to the period of significance. However, it will necessitate a costly extension of the water system to the Ranger Cabin. Installation of a propane tank and furnace would impact the character of the Ranger Cabin site. Other potentially original building materials will be affected and installation may propagate misunderstanding of it as historic to the Ranger Cabin.

*Alternative 2:* Install forced air heating in the Ranger Cabin.

Limitation: Forced air heating will necessitate a costly extension of the water system to the Ranger Cabin. Installation of an air handler and furnace would impact the character of the Ranger Cabin site. Other potentially original building materials will be affected.

G. Install a security system in the Ranger Cabin. Tie it to the main network.

Result: A security system will deter theft and vandalism of the Ranger Cabin. It will respect the historic significance of the Ranger Cabin.

Impact: Installation of a security system will necessitate the alteration of potentially original building materials.

*Alternative:* No action.

Limitation: The Ranger Cabin will continue to be threatened with vandalism which may cause extensive damage or destruction of the building and site.

#### **Component Four**

##### **Accommodate the programmatic needs of the proposed new use of exhibit space.**

A. Mount non-reflective glass doors in place of original wood doors, where desired. Accession any removed original doors into the museum collection.

Result: Mounting glass doors will enable the public to view areas of the Ranger Cabin without necessitating staff surveillance.

Impact: Replacing mortise-and-tenon wood doors with glass will remove potentially original building materials. Although wood doors would be preserved in the museum collection, the general public would likely not see them. Mounting glass doors may necessitate the alteration of potentially original building materials.

*Alternative:* No action.

Limitation: Without staff and the security of glass partitions, interpretation of the Ranger Cabin would be limited to panel displays.

B. Replace the missing kitchen stove with a stove dating to the period of significance and install a stove pipe to the ceiling.

Result: Replacing the kitchen stove will provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

Impact: Installing a stove may propagate misunderstanding that it is historic to the Ranger Cabin. The stove should be installed a manner that does not affect potentially original building material.

*Alternative:* No action.

Limitation: This is a legitimate alternative but does not take advantage of the potential to provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

C. Install interpretive panels on free-standing displays, the least intrusive display to the building fabric.

Result: Installing free-standing displays allows interpretation of the Ranger Cabin without being intrusive or damaging potentially original building materials.

Impact: No impact. No original building materials will be affected.

*Alternative:* Mount interpretive panels to ceiling or walls.

Limitation: Mounting interpretive panels to existing ceiling or walls will damage character-defining features. Mounting to newly installed drywall or beadboard ceiling would not damage original character-defining features.

D. Install modern LED lighting on free-standing display panels.

Result: Modern LED lighting will provide direct lighting on display panels, allowing visitors to view and read interpretive information. LED lighting on free-standing panels can be wired from the flooring and will be neither visually distracting nor misunderstood as historic to the Ranger Cabin.

Impact: No impact. No original building materials will be affected.

*Alternative:* Install period lighting in the Ranger Cabin.

Limitation: Period lighting would have to be ceiling- or wall-mounted and will necessitate the alteration of potentially original building materials. Period lighting will propagate misunderstanding of it as historic to the Ranger Cabin.



### **Component Five**

**Repair specified character-defining features of the Ranger Cabin site. Reconstruct specified non-extant character-defining features.**

**A. Reconstruct the historic wooden post and wire fence in front of the Ranger Cabin.**

**Result:** Reconstructing the historic fence in front of the Ranger Cabin will provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

**Impact:** No impact on original building materials. Vegetation will be impacted in the area slated for fence installation.

*Alternative 1:* Construct a wooden post and wire fence on all four sides of the Ranger Cabin.

**Limitation:** There is no proof that the post and wire fence was constructed on all sides of the Ranger Cabin. To do so now would be historically inaccurate and propagate misunderstanding of its historically accurate condition.

*Alternative 2:* Construct a fence with different materials or in a different style.

**Limitation:** There is no proof that another type of fence existed around the Ranger Cabin. To do so now would be historically inaccurate and propagate misunderstanding of its historically accurate condition.

*Alternative 3:* No action.

**Limitation:** This is a legitimate alternative, but does not take advantage of the potential to provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

**B. Reconstruct a picket gate, and the diagonal bracing flanking it, to align with the concrete approach walkway.**

**Result:** Reconstructing the picket gate will provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

**Impact:** No impact on original building materials. Vegetation will be impacted in the area slated for gate installation.

*Alternative 1:* Construct a gate with different materials or in a different style.

**Limitation:** There is no proof that another type of gate existed in front of the Ranger Cabin. To do so now would be historically inaccurate and propagate misunderstanding of its historically accurate condition.

*Alternative 2:* No action.

**Limitation:** This is a legitimate alternative, but does not take advantage of the potential to provide

a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

C. Repair the outhouse to interpret living conditions during the period of significance, replacing decayed or missing components in kind.

Result: Repairing the outhouse will respect this significant site feature and allow it to be properly interpreted.

Impact: Repairing the outhouse will necessitate the alteration of potentially original building materials. Replacement of decayed components will necessitate the removal of potentially original building materials.

*Alternative:* No action.

Limitation: If this significant feature is not repaired in the near future, it will collapse and decay, eliminating any potential for repair or interpretation.

D. Stabilize the birdbath to prevent further movement of the structural stone.

Result: Stabilization will prevent further movement of the structural stone and its collapse.

Impact: Stabilization will necessitate the alteration of potentially original building materials.

*Alternative 1:* Remove the birdbath.

Limitation: To remove the birdbath will diminish one's understanding of the Ranger Cabin site and limit future interpretation.

*Alternative 2:* No action.

Limitation: The birdbath will eventually collapse.

E. Remove the birdbath's damaged concrete basin and pour new concrete in the same form and dimension.

Result: Replacing the damaged basin will help stabilize the birdbath.

Impact: Basin replacement will necessitate the removal of potentially original building materials.

*Alternative:* No action.

Limitation: The damaged basin will continue to help cause the structural instability of the birdbath.

F. Stabilize the retaining wall.

Result: Stabilizing the retaining wall will prevent further movement of the stones.

Impact: Stabilization will necessitate the alteration of potentially original building materials.

*Alternative:* No action.

Limitation: The retaining wall will eventually collapse.

G. Prune the apple tree and rose bush in front of the Ranger Cabin.

Result: Pruning the apple tree and rose bush will ensure their longevity as significant site features.

Impact: No impact on original building materials. Vegetation will be positively affected.

*Alternative:* No action.

Limitation: This alternative does not respect the character of the site and the potential significance of these features.

H. Remove the chicken wire fence around the apple tree and replace with a fence appropriate to the character of the Ranger Cabin site.

Result: Replacement with a fence appropriate to the character of the Ranger Cabin site respects its historic significance while protecting the tree.

Impact: Replacement may propagate misunderstanding of the historically accurate site condition. It may emphasize the tree as more significant than it was historically considered.

*Alternative 1:* Remove the chicken wire fence and construct a fence sufficient to protect the tree from grazing by wildlife.

Limitation: To construct a fence that could suitably protect the apple tree from wildlife grazing would diminish the character of the site and be historically inaccurate.

*Alternative 2:* Remove the chicken wire fence and do not install a replacement fence.

Limitation: The tree will not be protected or recognized as potentially significant. It may be unintentionally damaged by monument visitors or staff.

*Alternative 3:* No action.

Limitation: The chicken wire fence will continue to diminish the character of the site.

I. Replant the terraced garden beds with varieties specified in Neil Erickson's diary.

Result: Replanting the garden provides the potential to better understand the Ranger Cabin's historic use as a private residence within a national monument.

Impact: No impact on original building materials. Vegetation will be impacted in the area planned for gardening.

It may propagate misunderstanding that the plants remain from the period of significance.

*Alternative 1:* Plant garden beds to replicate Mattie Pierce's garden.

Limitation: No documentation exists as to what, if anything, was planted by Mattie Pierce. To attempt recreation of her garden would be historically inaccurate.

*Alternative 2:* No action.

Limitation: This is a legitimate alternative, but does not take advantage of the potential to provide a better understanding of the Ranger Cabin's historic use as a private residence within a national monument.

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**RANGER CABIN**  
**APPENDICES**



## **APPENDIX A**

### **ARCHITECTURAL DRAWINGS & PHOTOGRAPHIC DOCUMENTATION**

The following drawings are contained in this section:

- Site Plan
- Evolution of Floor Plan
- Floor Plan
- Roof Plan
- North Elevation
- South Elevation
- East & West Elevations
- Fenestration - Windows
- Fenestration - Doors

Additionally, the following condition assessment photographs are marked with deficiencies:

- North Elevation
- South Elevation
- East & West Elevations

They are followed by a chart listing all exterior condition deficiencies and recommended treatments.

A separate binder containing photographic documentation of the Ranger Cabin was provided to Walnut Canyon National Monument with this report. Contained in the binder are 51 black and white prints and their corresponding negatives, and a disk with 276 digital photographs. Photographs were taken by the University of Arizona project team in April and May of 2006. They show both character-defining features and deficiencies.

As part of this report, photographs of the Ranger Cabin accessioned into the monument's museum collection were scanned and saved to disk. A disk containing scanned files of all known photographs of the Boundary Fence was included in this binder.





**APPENDIX B**  
**THE SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION**  
(copied from the National Park Service website:  
[http://www.cr.nps.gov/hps/tps/standguide/rehab/rehab\\_standards.htm](http://www.cr.nps.gov/hps/tps/standguide/rehab/rehab_standards.htm))

**Rehabilitation** is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.



## APPENDIX C

### GUIDELINES FOR REHABILITATING HISTORIC BUILDINGS

(copied from the National Park Service website:  
[http://www.cr.nps.gov/hps/tps/standguide/rehab/rehab\\_approach.htm](http://www.cr.nps.gov/hps/tps/standguide/rehab/rehab_approach.htm))

#### Choosing Rehabilitation as a Treatment

In **Rehabilitation**, historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation; however, an assumption is made prior to work that existing historic fabric has become damaged or deteriorated over time and, as a result, more repair and replacement will be required. Thus, latitude is given in the **Standards for Rehabilitation and Guidelines for Rehabilitation** to replace extensively deteriorated, damaged, or missing features using either traditional or substitute materials. Of the four treatments, only Rehabilitation includes an opportunity to make possible an efficient contemporary use through alterations and additions.

#### Identify, Retain, and Preserve Historic Materials and Features

Like Preservation, guidance for the treatment **Rehabilitation** begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained in order to preserve that character. Therefore, guidance on *identifying, retaining, and preserving* character-defining features is always given first. The character of a historic building may be defined by the form and detailing of exterior materials, such as masonry, wood, and metal; exterior features, such as roofs, porches, and windows; interior materials, such as plaster and paint; and interior features, such as moldings and stairways, room configuration and spatial relationships, as well as structural and mechanical systems.

#### Protect and Maintain Historic Materials and Features

After identifying those materials and features that are important and must be retained in the process of **Rehabilitation** work, then *protecting and maintaining* them are addressed. Protection generally involves the least degree of intervention and is preparatory to other work. For example, protection includes the maintenance of historic material through treatments such as rust removal, caulking, limited paint removal, and re-application of protective coatings; the cyclical cleaning of roof gutter systems; or installation of fencing, alarm systems and other temporary protective measures. Although a historic building will usually require more extensive work, an overall evaluation of its physical condition should always begin at this level.

#### Repair Historic Materials and Features

Next, when the physical condition of character-defining materials and features warrants additional work *repairing* is recommended. **Rehabilitation** guidance for the repair of historic materials such as masonry, wood, and architectural metals again begins with the least degree of intervention possible such as patching, piecing-in, splicing, consolidating,

or otherwise reinforcing or upgrading them according to recognized preservation methods. Repairing also includes the limited replacement in kind--or with compatible substitute material--of extensively deteriorated or missing parts of features when there are surviving prototypes (for example, brackets, dentils, steps, plaster, or portions of slate or tile roofing). Although using the same kind of material is always the preferred option, substitute material is acceptable if the form and design as well as the substitute material itself convey the visual appearance of the remaining parts of the feature and finish.

## Replace Deteriorated Historic Materials and Features

Following repair in the hierarchy, **Rehabilitation** guidance is provided for *replacing* an entire character-defining feature with new material because the level of deterioration or damage of materials precludes repair (for example, an exterior cornice; an interior staircase; or a complete porch or storefront). If the essential form and detailing are still evident so that the physical evidence can be used to re-establish the feature as an integral part of the rehabilitation, then its replacement is appropriate. Like the guidance for repair, the preferred option is always replacement of the entire feature in kind, that is, with the same material. Because this approach may not always be technically or economically feasible, provisions are made to consider the use of a compatible substitute material. It should be noted that, while the National Park Service guidelines recommend the replacement of an entire character-defining feature that is extensively deteriorated, they never recommend removal and replacement with new material of a feature that--although damaged or deteriorated--could reasonably be repaired and thus preserved.

## Design for the Replacement of Missing Historic Features

When an entire interior or exterior feature is missing (for example, an entrance, or cast iron facade; or a principal staircase), it no longer plays a role in physically defining the historic character of the building unless it can be accurately recovered in form and detailing through the process of carefully documenting the historical appearance. Although accepting the loss is one possibility, where an important architectural feature is missing, its replacement is always recommended in the **Rehabilitation** guidelines as the first or preferred, course of action. Thus, if adequate historical, pictorial, and physical documentation exists so that the feature may be accurately reproduced, and if it is desirable to re-establish the feature as part of the building's historical appearance, then designing and constructing a new feature based on such information is appropriate. However, a second acceptable option for the replacement feature is a new design that is compatible with the remaining character-defining features of the historic building. The new design should always take into account the size, scale, and material of the historic building itself and, most importantly, should be clearly differentiated so that a false historical appearance is not created.

## Alterations/Additions for the New Use

Some exterior and interior alterations to a historic building are generally needed to assure its continued use, but it is most important that such alterations do not radically change, obscure, or destroy character-defining spaces, materials, features, or finishes. Alterations may include providing additional parking space on an existing historic building site; cutting new entrances or windows on secondary elevations; inserting an additional floor; installing an entirely new

mechanical system; or creating an atrium or light well. Alteration may also include the selective removal of buildings or other features of the environment or building site that are intrusive and therefore detract from the overall historic character. The construction of an exterior addition to a historic building may seem to be essential for the new use, but it is emphasized in the **Rehabilitation** guidelines that such new additions should be avoided, if possible, and considered only after it is determined that those needs cannot be met by altering secondary, i.e., non character-defining interior spaces. If, after a thorough evaluation of interior solutions, an exterior addition is still judged to be the only viable alternative, it should be designed and constructed to be clearly differentiated from the historic building and so that the character-defining features are not radically changed, obscured, damaged, or destroyed. Additions and alterations to historic buildings are referenced within specific sections of the Rehabilitation guidelines such as Site, Roofs, Structural Systems, etc., but are addressed in detail in New Additions to Historic Buildings (see nav bar, right).

## **Energy Efficiency/Accessibility Considerations/Health and Safety Code Considerations**

These sections of the guidance address work done to meet accessibility requirements and health and safety code requirements; or retrofitting measures to improve energy efficiency. Although this work is quite often an important aspect of **Rehabilitation** projects, it is usually not a part of the overall process of protecting or repairing character-defining features; rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to radically change, obscure, damage, or destroy character-defining materials or features in the process of meeting code and energy requirements.





**BOUNDARY FENCE**  
**DEVELOPMENTAL HISTORY**  
**& TREATMENT AND USE**

## HISTORICAL BACKGROUND & CONTEXT

The Boundary Fence on Walnut Canyon National Monument's northern edge, along Forest Road 303, is considered a worm fence (also known as the Virginia rail fence, crooked rail fence, zigzag fence, snake fence and rick-rack fence). A worm fence consists of round or split rails, sections of which meet at obtuse angles. Logs rest upon those of the proceeding section and may be slightly notched. The overall effect is that of zigzagging, or undulation, which increases the fence's stability. The worm fence was historically constructed so that the length between successive zigs or zags would equal 16.5 feet, the dimension of a rod. The rod is a unit of length used to measure land - an acre is equal to 160 square rods. The bottom log was placed directly on the ground, or atop a stone to help prevent rot. The worm fence was typically five logs high, although some builders made them up to nine logs high.

The first documented worm fence was built in Long Island, but various sources claim its origin in Virginia and the Delaware Valley. Regardless, the worm fence became extremely popular across the United States where trees were plentiful. In the American west, worm fencing was utilized to border fields and pastures, as well as construct unique hexagonal or star shaped corrals. The worm fence was more efficient than other fence styles, such as post and rail, as it eliminated the need for post hole digging and mortise-and-tenon notching.

### Civilian Conservation Corps

The Boundary Fence was constructed by the Civilian Conservation Corps (CCC), a New Deal work program. The CCC was created to both give work to the employed and improve public land. They had a surplus of labor, an ethic of craftsmanship, and access to trees – a combination of factors that led to the construction of the labor- and resource-intensive Boundary Fence.

Although President Franklin D. Roosevelt passed the Civilian Conservation Corps Act in March of 1933, a local camp was not established until five years later. Once created, the local CCC camp at Mount Elden, NM-5-A (redesignated NP-12-A), completed extensive work on Walnut Canyon National Monument's infrastructure, altering the face and use of the monument. Supervised by Project Superintendent William Stevenson, the CCC completed a trail, two residences, a combined administrative building and museum, and restrooms within Walnut Canyon National Monument by 1941. They participated in other projects as well, including the Boundary Fence.

Trespass cattle and sheep were a documented problem during Neil Erickson's tenure and continued throughout Paul Beaubien's until the Boundary Fence was built on the north monument boundary. In 1937, Beaubien reported that cows, horses, and other livestock "make their headquarters at the ranger station [Ranger Cabin]" at least three days a week.<sup>1</sup> In August 1938, a rail fence was applied for, and work continued until the CCC was disbanded in 1942.

### Period of Significance

The Boundary Fence is significant because it was built by the CCC in the traditional worm style with local materials in the late 1930s, an era when other fence types would have been more efficient. The period of significance spans the years of construction by the CCC, 1938-1942. Because information regarding additions and alterations is limited, the period of significance cannot be extended with any degree of certainty.

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<sup>1</sup> Paul Beaubien, Monthly Report for June 1937, Walnut Canyon National Monument, Southwestern Monuments, National Park Service.

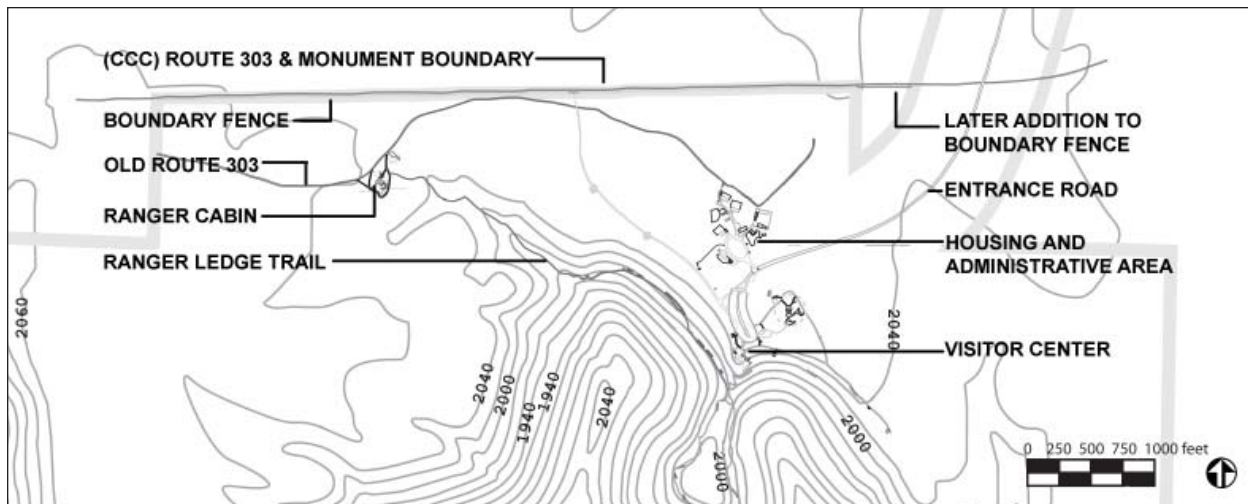


Fig. 1: Plan of developed area of Walnut Canyon National Monument showing location of Boundary Fence (Source: Walnut Canyon National Monument map by Chris Donnermeyer, altered by author)



Fig. 2: Section of Old Road 303 completed by CCC, 1941 (WACA)



Fig. 3: Section of post and rail fence at early monument entrance, 1942 (WACA)

## CHRONOLOGY OF DEVELOPMENT

In August of 1938, a rail fence, “necessary to define boundaries and exclude range cattle which are now an uncontrolled nuisance [in Walnut Canyon National Monument],” was applied for by Superintendent of the Southwest Monuments Frank Pinkley, and was to be completed by the CCC.<sup>2</sup> His original application called for 1,100 logs, 8,000 man days and \$100 in materials. Rails were to be obtained from Forest Service land and wire and spike fastenings used. The proposal was approved by Acting Region III Director L. Vernon Randau with concurrence by various landscape architects, a forester, and an engineer in the same month.

Drawings of the proposed Boundary Fence were approved in September of 1938. Drawings called for “pitchy pine” rail poles 5”-10” in diameter, three logs high.<sup>3</sup> Rail logs were to rest on foundation posts of 12-15” diameter. The fence was to be strengthened by 4”-6” diameter diagonal braces tied to the rail logs with wire.

Work began and an additional 63 man days were approved in September of 1939. When the CCC was disbanded in March of 1942, they left the Boundary Fence 75% completed.<sup>4</sup> In all, 620 rods, 671 man-days and \$34.67 were used to complete approximately 1.8 miles of fencing; the remainder was to be completed with regular monument funds and wire available from surplus.

The Boundary Fence originally had an opening at the location of the original monument entrance. This entrance was flanked by a post and rail fence, three rails high, which connected to the split rail Boundary Fence. In 1956, the point of entrance into the monument was altered by a Mission 66 project and this original entrance was closed. It is unknown when the post and rail fence was removed. A section of split-rail fence is now in its place, connected on both sides to the Boundary Fence.

All maintenance to the Boundary Fence has gone undocumented. Discussed here are maintenance efforts revealed through interviews with past and present monument and National Park Service staff. In 1954, concurrent with the stringing of telephone lines, some maintenance was done on the Boundary Fence. At that time, fallen logs were put back together utilizing wire when available. No nails were observed in the fence at that time, and no logs were replaced.<sup>5</sup>

In 1997, the Boundary Fence underwent maintenance and replacement of logs from the Forest Service under the direction of Pam Meck. Ponderosa pine logs were acquired from the Forest Service after the Hochderffer fire. These logs were partially damaged or cut as part of thinning process to control the spread of fire. It is estimated that 20-30% of the Boundary Fence logs were replaced as part of this project.<sup>6</sup> New logs were treated with Timbor, a non-toxic Borate product, to prevent rot and insect infestation. Work was completed by an Americorps crew and monument maintenance staff.

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<sup>2</sup> Walnut Canyon National Monument, National Park Service, Job Application and Completion Record, 31 August 1938.

<sup>3</sup> Walnut Canyon National Monument, National Park Service, Rail Boundary Fence Job 10-131 (Drawing Number: N.M. WAL-2028), September 1938.

<sup>4</sup> The resolution of the remaining 25% of the fence is unknown. No documents exist to prove that it was ever completed.

<sup>5</sup> Cook, John. Interview by author. 16 August 2006.

<sup>6</sup> Barrow, Jake. Interview by author. 14 August 2006.

## PHYSICAL DESCRIPTION

The Boundary Fence is typically composed of split logs, four logs high, with both wire and a nail between the top two rails present at each intersection, and the bottom rail resting upon one stone. However, a combination of atypical conditions exist throughout the length of the Boundary Fence, including spans of five logs high, the absence of wire, the absence of nails or the presence of nails between more than the top two rails, and the bottom rail resting upon no stones, or more than one stone. Both round and split logs have been used for constructing the fence. There are three types of split rails: 1/2, 1/3, and 1/4 log sections. Most rails are not notched at their connections, but some are slightly notched. See Appendix A for drawings on the existing form of the Boundary Fence.

The foundation post and vertical bracing specified on the original Boundary Fence drawings are not currently present, and there are no visible clues that they ever existed. Archeology may reveal further information, but it appears as though the Boundary Fence was not constructed as originally designed.

Both eastern and western termini of the Boundary Fence meet a modern metal post and barbed wire fence. At the eastern end, the Boundary Fence is neither supported by this modern fence nor self-supporting, and is collapsed as a result. However, the western end is self-supported by the triangulation of two additional rail sections.

The eastern 10% of the Boundary Fence has different proportions than the greater span and is, according to monument staff, a later addition to the CCC fence.<sup>7</sup> It has a typical rail length of 8 1/2 feet compared to rails that range between 15 to 18 feet on the majority of the fence. Excluding the eastern portion, the average section length of the Boundary Fence is approximately 14 feet, which nearly conforms to the rod dimension typical of historic worm fences.

The Boundary Fence consistently follows the worm undulation, except in two places where a section is parallel to the road. In two other instances, the Boundary Fence ends where it encounters areas of dense trees. At these points, the trees act as a natural fence and prevent trespass.

The Boundary Fence is currently in need of repair. Damages include the displacement of support stones which force the bottom log to rest directly upon the ground and rot to ensue. In some cases, junctions are totally failed and the adjoining sections have collapsed. Logs are missing in some places, and cracked into two or more pieces in others. Logs are commonly rotted, warped, and bowed. See Appendix B for detailed information on various conditions of rail connections along the length of the Boundary Fence.

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<sup>7</sup> No documentation exists as to the construction of this section of the fence.





Fig. 4: Eastern termination of Boundary Fence, 2006.



Fig. 5: Western termination of Boundary Fence, 2006.



Fig. 6: Typical connection along Boundary Fence, 2006.



Fig. 7: Eastern proportions of Boundary Fence, 2006.



Fig. 8: Majority proportions of Boundary Fence, 2006.



Fig. 9: Section of Boundary Fence parallel to road and five logs high, 2006.



Fig. 10: Intersection of Boundary Fence and tree, 2006.



Fig. 11: Combination of full and split logs, 2006.





Fig. 12: Rotted log, 2006.



Fig. 13: Failure and collapse at junction, 2006.



Fig. 14: Cracked and displaced log, 2006.



Fig. 15: Bottom logs rests upon two stones, 2006.



Fig. 16: Cracked top log, 2006.

# ULTIMATE TREATMENT & REQUIREMENTS FOR TREATMENT

## Ultimate Treatment

The Boundary Fence currently fulfills Walnut Canyon National Monument's need for a perceptual monument boundary. In addition, the Boundary Fence prevents cattle trespass and allows wildlife access between the monument and Coconino National Forest. But without repair and regular maintenance, the Boundary Fence will decay and no longer function as needed.

Treatment of the Boundary Fence is not specified in any management documents. The Boundary Fence should be preserved to maintain the existing form constructed by its original builders. Existing materials should not be altered or replaced unless necessary for structural integrity. The Secretary of the Interior defines preservation as:

the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.<sup>8</sup>

## Requirements for Treatment

As stated in the Director's Order on Cultural Resource (DO-28) and according to federal law and National Park Service policy, "all historic structures in which the Service has a legal interest are to be managed as cultural resources. Regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity."<sup>9</sup> Considered a historic structure by the National Park Service, the Boundary Fence must be afforded this level of consideration and maintenance.

The Boundary Fence should be repaired by fixing displaced logs and collapses. Extensively damaged logs should be replaced in kind. Ponderosa pine logs should be cut to the same length as those that are to be replaced and split by hand. New logs should be treated with Timbor to stave off rot and insect infestation, and old logs treated with Boricare, a similar product for dry wood. Typical connections should be maintained, with the bottom rail resting on one stone, a nail driven through the top two rails, and wire woven around the rails. For structural stability, the eastern terminus of the Boundary Fence, now collapsed, should be constructed to match that found on the western end.

All replacement logs should be discretely date stamped to differentiate them from the existing logs. All future maintenance should be properly documented, including the work completed, the date, and those involved. Areas of work should be photographed and mapped.

The impact of the work specified above shall be to preserve and retain the character and function of the Boundary Fence. Where possible, all effort should be made to retain existing materials. But severely deteriorated logs that no longer function as required should be removed from the Boundary Fence. This will negatively impact the integrity of some existing materials.

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<sup>8</sup> National Park Service, The Secretary of the Interior's Standards for Preservation: [http://www.cr.nps.gov/hps/tps/standguide/preserve/preserve\\_index.htm](http://www.cr.nps.gov/hps/tps/standguide/preserve/preserve_index.htm) (accessed 13 September 2006).

<sup>9</sup> National Park Service, Director's Order #28: Cultural Resource Management: [http://www.cr.nps.gov/history/online\\_books/nps28/28chap8.htm](http://www.cr.nps.gov/history/online_books/nps28/28chap8.htm) (accessed 13 September 2006).

Treatment of the Boundary Fence should follow the Secretary of the Interior's Standards for the Treatment of Historic Properties, and the guidelines for applying those standards. See Appendices C and D for preservation standards and guidelines.

Section 106 of the National Historic Preservation Act (NHPA) mandates that all federal agencies, including the National Park Service, take into account the effects of their actions on properties listed, or eligible for listing, in the National Register of Historic Places. The Advisory Council on Historic Preservation must be given a reasonable opportunity to comment on any actions effecting federal properties.

## SOURCES CONSULTED

Sources are grouped into topics and listed in the order in which the topic appears in the text. In addition to the sources below, Walnut Canyon National Monument archives were extensively consulted.

### **LOCAL & WALNUT CANYON NATIONAL MONUMENT HISTORY**

Barrow, Jake (Exhibit Specialist, National Park Service). Interview by author. 14 August 2006.

Cook, John (Retired, National Park Service). Interview by author. 16 August 2006.

### **BUILDING PRESERVATION**

National Park Service. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings. <http://www.cr.nps.gov/hps/tps/standguide/> (accessed 30 January 2006).

### **WOODEN FENCES**

Dreicer, Gregory K., ed. *Between Fences*. New York, New York: Princeton Architectural Press, 1996.

Jordan, Terry G., Kilpinen, Jon T., Gritzner, Charles F., *The Mountain West: Interpreting the Folk Landscape*. Baltimore, Maryland: The Johns Hopkins University Press, 1997.

Nash, George. *Wooden Fences*. Newton, Connecticut: The Taunton Press, Inc., 1999.

**BOUNDARY FENCE**  
**APPENDICES**



## **APPENDIX A**

### **ARCHITECTURAL DRAWINGS & PHOTOGRAPHIC DOCUMENTATION**

The following drawings are contained in this section:

Historic Plan & Elevation

Plan & Elevation of Typical Section

Plan & Elevation of Eastern Section

A separate binder containing photographic documentation of the Boundary Fence was provided to Walnut Canyon National Monument with this report. Contained in the binder are 15 black and white prints and their corresponding negatives, and a disk with 93 digital photographs. Photographs were taken by the University of Arizona project team in April and May of 2006. They show both character-defining features and deficiencies.

As part of this report, photographs of the Boundary Fence accessioned into the monument's museum collection were scanned and saved to disk. A disk containing scanned files of all known photographs of the Boundary Fence was included in this binder.





## APPENDIX B

### BOUNDARY FENCE ANALYSIS

At the request of Jeri DeYoung, the project team conducted a condition assessment of each connection along the length of the Boundary Fence.<sup>1</sup> The goal was to determine the standard connection and document the location of non-standard connections.

Beginning east to west, the project team numbered each connection between rail sections. Each forward connection was given a number (1, 2, 3...), and each back connection given the midpoint between them (1.5, 2.5, 3.5...).



First, the project team walked the length of the fence to determine the standard connection. The most common connection was determined as the presence of four rail logs supported by a single stone, connected with a nail through the first two logs, and wire wrapped around the connection.

Next, the project team developed a spreadsheet with fields for the standard connection and various non-standard connections. The team again walked the length of the Boundary Fence, comparing each connection with the standard condition and documenting their occurrences.

Measurements were taken at regular intervals along the length of the Boundary Fence. To determine typical length and compare with the standard rod dimension, measurements of the top rail log were taken every ten sections (1.5, 5.5, 10.5...).

The following spreadsheet details the connection conditions, as they existed May 29, 2006. The following fields are included:

**Rail Segment** – number given to the connection between rail segments

**Standard Connection** – rail segment meets the definition of a standard connection: presence of four rail logs supported by a single stone, connected with a nail through the first two logs, and wire wrapped around the connection

**Non-Standard Connection Variations** – rail segment does not meet the definition of a standard connection and has varied connection style, potentially including:

**Five Rails** – presence of five horizontal logs (rails) at connection

**No Stones** – lack of stones supporting rails at connection

**Two Stones** – presence of two logs supporting rails at connection

**No Nail** – lack of nail between the top two rails at connection

**Nail in > Two Rails** – presence of nail in more than the top two rails at connection

**No Wire** – lack of wire wrapped around rails at connection

**Other** - various non-standard conditions not otherwise specified; presence of these other conditions should not be considered exhaustive

**Rail Dimension** – measurement taken of top rail of eastern section at connection

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<sup>1</sup> This assessment is limited to connections between rail sections, and does not include rail conditions.

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
001.0	x							Collapsed	
001.5			x						8'-11"
002.0	x								
002.5	x								
003.0	x								
003.5	x								
004.0	x								
004.5	x								
005.0	x								
005.5	x								8'-4"
006.0	x								
006.5	x								
007.0	x								
007.5	x								
008.0	x								
008.5	x								
009.0	x								
009.5	x								
010.0					x				
010.5					x				7'-10"
011.0					x				
011.5	x								
012.0	x								
012.5					x				
013.0					x				
013.5					x				
014.0					x				
014.5					x				
015.0			x		x				
015.5			x		x				8'-6"
016.0			x		x				
016.5	x							Collapsed	
017.0					x				

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
017.5					x				
018.0					x				
018.5	x								
019.0					x	x			
019.5					x				
020.0			x						
020.5					x				7'-11"
021.0					x				
021.5					x				
022.0					x				
022.5					x				
023.0					x				
023.5					x				
024.0					x			Collapsed	
024.5	x								
025.0	x								
025.5	x								
026.0	x								
026.5	x								
027.0	x								
027.5	x								
028.0	x								
028.5	x								
029.0	x								
029.5	x								
030.0	x								
030.5	x								14'-3"
031.0					x				
031.5					x				
032.0	x								
032.5	x								
033.0	x								
033.5	x								
034.0	x								

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
034.5				x		x			
035.0		x			x				
035.5		x			x			Dug out	14'-6"
036.0		x							
036.5					x				
037.0	x								
037.5	x								
038.0	x								
038.5	x								
039.0	x								
039.5			x						
040.0			x						
040.5	x								14'-2"
041.0	x								
041.5		x			x				
042.0		x							
042.5		x							
043.0		x							
043.5	x								
044.0	x								
044.5	x								
045.0	x								
045.5	x								15'-9"
046.0	x								
046.5	x								
047.0					x				
047.5	x								
048.0	x								
048.5						x			
049.0	x								
049.5	x								
050.0	x								
050.5	x								14'-6"
051.0	x								

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
051.5				x					
052.0	x								
052.5	x								
053.0					x				
053.5	x								
054.0	x								
054.5	x								
055.0	x								
055.5	x								15'-2"
056.0			x					Stone displaced	
056.5	x								
057.0			x		x				
057.5					x				
058.0	x								
058.5					x				
059.0					x				
059.5	x								
060.0	x								
060.5					x				15'-7"
061.0							x		
061.5					x				
062.0			x						
062.5							x		
063.0	x								
063.5	x								
064.0	x								
064.5	x								
065.0			x						
065.5	x								13'-2"
066.0			x		x				
066.5	x								
067.0			x		x				
067.5							x		
068.0	x								

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
068.5	x								
069.0	x								
069.5	x								
070.0			x						
070.5					x				13'-4"
071.0					x		x		
071.5							x		
072.0					x				
072.5	x								
073.0					x				
073.5						x			
074.0					x				
074.5	x								
075.0	x								
075.5					x				15'-9"
076.0	x								
076.5	x								
077.0	x								
077.5					x				
078.0					x				
078.5							x		
079.0					x				
079.5					x				
080.0	x								
080.5	x								16'-0"
081.0	x								
081.5					x				
082.0					x				
082.5	x								
083.0					x				
083.5	x								
084.0					x				
084.5	x								
085.0					x				



Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
085.5					x				16'-0"
086.0							x		
086.5							x		
087.0	x								
087.5							x		
088.0	x								
088.5					x				
089.0	x								
089.5					x				
090.0	x								
090.5	x								15'-1"
091.0	x								
091.5			x		x				
092.0	x								
092.5	x								
093.0				x	x				
093.5	x								
094.0	x								
094.5							x		
095.0	x								
095.5					x				14'-5"
096.0			x						
096.5					x				
097.0					x				
097.5	x								
098.0	x								
098.5	x								
099.0	x								
099.5			x						
100.0	x								
100.5					x				14'-6"
101.0			x						
101.5							x		
102.0					x				

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
102.5					x				
103.0	x								
103.5	x								
104.0							x		
104.5					x				
105.0	x								
105.5					x				15'-3"
106.0			x		x				
106.5							x		
107.0	x								
107.5					x				
108.0	x								
108.5	x								
109.0					x				
109.5					x				
110.0					x				
110.5			x		x				14'-9"
111.0	x								
111.5	x								
112.0	x								
112.5			x		x				
113.0			x		x				
113.5	x								
114.0	x								
114.5	x								
115.0	x								
115.5	x								13'-0"
116.0	x								
116.5					x				
117.0	x								
117.5					x				
118.0	x								
118.5	x								
119.0	x								

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
119.5	x								
120.0					x				
120.5					x				13'-0"
121.0	x								
121.5	x								
122.0	x								
122.5	x								
123.0	x								
123.5	x								
124.0	x								
124.5					x				
125.0	x								
125.5					x				14'-10"
126.0	x								
126.5	x								
127.0	x								
127.5					x				
128.0					x				
128.5					x				
129.0	x								
129.5	x								
130.0					x				
130.5	x								13'-4"
131.0					x				
131.5							x		
132.0							x		
132.5							x		
133.0					x				
133.5							x		
134.0							x		
134.5	x								
135.0	x								
135.5	x								12'-5"
136.0					x				

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
136.5	x								
137.0					x				
137.5	x								
138.0					x				
138.5	x								
139.0					x				
139.5	x								
140.0	x								
140.5				x					14'-6"
141.0	x								
141.5	x								
142.0	x								
142.5	x								
143.0	x								
143.5						x			
144.0	x								
144.5	x								
145.0	x								
145.5	x								15'-3"
146.0	x								
146.5	x								
147.0	x								
147.5			x						
148.0	x								
148.5	x								
149.0							x		
149.5	x								
150.0	x								14'4"
150.5	x								
151.0	x							Unstable	
151.5			x					Stone buried in ground	
152.0	x								
152.5	x								
153.0	x								

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
153.5		x					x		
154.0		x							
154.5		x	x						
155.0		x		x					13'8"
155.5		x						Leans backward	
156.0	x								
156.5			x					Collapsed	
157.0	x								
157.5			x						
158.0	x								
158.5	x								
159.0	x								18'
159.5	x								
160.0	x								15'8"
160.5	x								
161.0	x								
161.5	x								
162.0				x					
162.5	x								
163.0				x					
163.5				x					
164.0	x								13'7"
164.5							x		
165.0	x								
165.5							x		
166.0	x								
166.5	x								
167.0	x								
167.5			x						
168.0	x								
168.5				x					
169.0	x								
169.5				x					
170.0				x					15'9"

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
170.5				x					
171.0	x								
171.5							x		
172.0							x		
172.5	x								
173.0							x		
173.5							x		
174.0	x								
174.5							x		
175.0	x								16'4"
175.5	x								
176.0	x								
176.5	x								
177.0	x								
177.5	x								
178.0	x								
175.5							x		
179.0							x		
179.5							x		14'6"
180.0	x								
180.5							x		
181.0	x								
181.5	x								
182.0			x						
182.5							x		
183.0			x						
183.5	x								
184.0				x					13'10"
184.5		x	x						
185.0		x	x					Fallen log	
185.5	x							Collapsed	
186.0	x							Unstable	
186.5	x								
187.0	x							Unstable	

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
187.5	x								
188.0	x								
188.5	x								
189.0	x								
189.5							x		
190.0	x								12'2"
190.5	x								
191.0	x								
191.5	x							Tree at connection	
192.0	x								
192.5	x								
193.0			x						
193.5	x								
194.0							x		
194.5						x	x		
195.0						x	x		13'10"
195.5	x								
196.0	x								
196.5							x		
197.0	x								
197.5	x								
198.0	x								
198.5	x								
199.0	x								
199.5	x								
200.0				x					16'1"
200.5				x			x		
201.0	x								
201.5							x		
202.0							x		
202.5							x		
203.0				x			x	Unstable	
203.5							x		
204.0							x		



Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
204.5	x								
205.0	x								16'
205.5	x								
206.0	x								
206.5				x			x		
207.0	x								
207.5				x					
208.0				x					
208.5							x		
209.0							x		17'10"
209.5							x		
210.0	x							Leans backward	
210.5	x								
211.0	x								
211.5							x		
212.0				x			x		
212.5					x				
213.0	x								
213.5	x							Damaged	
214.0	x								
214.5							x		
215.0			x					Stone displaced	15'1"
215.5				x			x		
216.0			x						
216.5	x								
217.0	x								
217.5							x		
218.0	x								
218.5	x								
219.0	x								
219.5			x						
220.0	x								16'2"
220.5	x								
221.0				x			x		

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
221.5			x				x		
222.0				x					
222.5	x								
223.0			x						
223.5				x					
224.0				x					16'1"
224.5				x		x			
225.0	x								
225.5							x		
226.0			x						
226.5	x								
227.0	x								
227.5	x								
228.0	x								
228.5					x				
229.0				x			x		16'
229.5					x				
230.0					x				
230.5	x								
231.0	x								
231.5	x								
232.0	x								
232.5	x								
233.0	x								
233.5				x			x		
234.0	x								
234.5		x			x				
235.0		x			x				
235.5		x			x				13'10"
236.0		x							
236.5		x							
237.0		x							
237.5		x		x	x		x		
238.0		x							

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
238.5		x							
239.0	x								
239.5					x				
240.0	x								16'11"
240.5				x	x				
241.0	x								
241.5							x		
242.0	x								
242.5	x								
243.0	x								
243.5	x								
244.0	x								
244.5							x		
245.0		x							15'4"
245.5		x							
246.0		x					x		
246.5		x					x		
247.0		x							
247.5		x		x			x		
248.0							x		
248.5							x		
249.0		x	x			x	x	Stone buried in ground	15'10"
249.5		x	x			x	x	Collapsed	
250.0		x					x		
250.5		x					x		
251.0		x	x						
251.5		x							
252.0		x					x		
252.5		x					x		
253.0							x		
253.5				x					
254.0	x								
254.5	x								
255.0				x			x		14'3"

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
255.5	x								
256.0			x				x		
256.5	x								
257.0	x								
257.5				x			x		
258.0				x		x	x		
258.5	x								
259.0							x		
259.5							x		
260.0		x							18'
260.5		x	x	x		x			
261.0		x	x			x			
261.5					x				
262.0					x			Collapsed	
262.5				x		x			
263.0	x								
263.5	x								
264.0	x								
264.5	x								
265.0				x			x		18'1"
265.5		x				x	x		
266.0				x		x	x		
266.5	x								
267.0		x		x					
267.5		x							
268.0		x		x				Wire at bottom only	
268.5		x		x					
269.0		x		x					
269.5		x							
270.0		x		x				Wire on top two logs only	14'3"
270.5		x					x		
271.0		x				x	x	Three nails	
271.5				x			x	Connection raised	
272.0				x			x		

Rail Segment	Standard Connection	Non-Standard Connection Variations							Rail Dimension
		Five Rails	No Stones	Two Stones	No Nail	Nail in > Two Rails	No Wire	Other	
272.5				x			x		
273.0				x		x	x		
273.5							x		
274.0							x		
274.5				x			x		
275.0				x			x		15'9"
275.5				x			x		
276.0				x			x		
276.5							x		
277.0							x		
277.5				x			x		
278.0							x		
278.5		x	x				x	Stone displaced	
279.0		x					x		
279.5		x					x		
280.0		x		x			x	Stone displaced	
280.5		x					x	Leans inward	17'6"
281.0		x					x		
281.5							x		
282.0		x					x		
282.5		x					x		
283.0		x			x		x		
283.5		x	x		x		x	Stone displaced	16'6"

## **APPENDIX C**

### **THE SECRETARY OF THE INTERIOR'S STANDARDS FOR PRESERVATION**

(copied from the National Park Service website:  
[http://www.cr.nps.gov/hps/tps/standguide/preserve/preserve\\_standards.htm](http://www.cr.nps.gov/hps/tps/standguide/preserve/preserve_standards.htm))

**Preservation** is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.



## APPENDIX D

### GUIDELINES FOR PRESERVING HISTORIC BUILDINGS

(copied from the National Park Service, website:  
[http://www.cr.nps.gov/hps/tps/standguide/preserve/preserve\\_approach.htm](http://www.cr.nps.gov/hps/tps/standguide/preserve/preserve_approach.htm))

#### Choosing Preservation as a Treatment

In Preservation, the options for replacement are less extensive than in the treatment, Rehabilitation. This is because it is assumed at the outset that building materials and character-defining features are essentially intact, i.e., that more historic fabric has survived, unchanged over time. The expressed goal of the **Standards for Preservation and Guidelines for Preserving Historic Buildings** is retention of the building's existing form, features and detailing. This may be as simple as basic maintenance of existing materials and features or may involve preparing a historic structure report, undertaking laboratory testing such as paint and mortar analysis, and hiring conservators to perform sensitive work such as reconstituting interior finishes. Protection, maintenance, and repair are emphasized while replacement is minimized.

#### Identify, Retain, and Preserve Historic Materials and Features

The guidance for the treatment **Preservation** begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained in order to preserve that character. Therefore, guidance on *identifying, retaining, and preserving* character-defining features is always given first. The character of a historic building may be defined by the form and detailing of exterior materials, such as masonry, wood, and metal; exterior features, such as roofs, porches, and windows; interior materials, such as plaster and paint; and interior features, such as moldings and stairways, room configuration and spatial relationships, as well as structural and mechanical systems; and the building's site and setting.

#### Stabilize Deteriorated Historic Materials and Features as a Preliminary Measure

Deteriorated portions of a historic building may need to be protected through preliminary stabilization measures until additional work can be undertaken. *Stabilizing* may include structural reinforcement, weatherization, or correcting unsafe conditions. Temporary stabilization should always be carried out in such a manner that it detracts as little as possible from the historic building's appearance. Although it may not be necessary in every preservation project, stabilization is nonetheless an integral part of the treatment Preservation; it is equally applicable, if circumstances warrant, for the other treatments.

#### Protect and Maintain Historic Materials and Features

After identifying those materials and features that are important and must be retained in the process of **Preservation** work, then *protecting and maintaining* them are addressed. Protection generally involves the least degree of



intervention and is preparatory to other work. For example, protection includes the maintenance of historic materials through treatments such as rust removal, caulking, limited paint removal, and re-application of protective coatings; the cyclical cleaning of roof gutter systems; or installation of fencing, alarm systems and other temporary protective measures. Although a historic building will usually require more extensive work, an overall evaluation of its physical condition should always begin at this level.

## **Repair (Stabilize, Consolidate, and Conserve) Historic Materials and Features**

Next, when the physical condition of character-defining materials and features requires additional work, *repairing* by *stabilizing, consolidating, and conserving* is recommended. **Preservation** strives to retain existing materials and features while employing as little new material as possible. Consequently, guidance for repairing a historic material, such as masonry, again begins with the least degree of intervention possible such as strengthening fragile materials through consolidation, when appropriate, and repointing with mortar of an appropriate strength. Repairing masonry as well as wood and architectural metal features may also include patching, splicing, or otherwise reinforcing them using recognized preservation methods. Similarly, within the treatment **Preservation**, portions of a historic structural system could be reinforced using contemporary materials such as steel rods. All work should be physically and visually compatible, identifiable upon close inspection and documented for future research.

## **Limited Replacement In Kind of Extensively Deteriorated Portions of Historic Features**

If repair by stabilization, consolidation, and conservation proves inadequate, the next level of intervention involves the *limited replacement in kind* of extensively deteriorated or missing parts of features when there are surviving prototypes (for example, brackets, dentils, steps, plaster, or portions of slate or tile roofing). The replacement material needs to match the old both physically and visually, i.e., wood with wood, etc. Thus, with the exception of hidden structural reinforcement and new mechanical system components, substitute materials are not appropriate in the treatment **Preservation**. Again, it is important that all new material be identified and properly documented for future research. If prominent features are missing, such as an interior staircase, exterior cornice, or a roof dormer, then a Rehabilitation or Restoration treatment may be more appropriate.

## **Energy Efficiency/Accessibility Considerations/Health and Safety Code Considerations**

These sections of the **Preservation** guidance address work done to meet accessibility requirements and health and safety code requirements; or limited retrofitting measures to improve energy efficiency. Although this work is quite often an important aspect of preservation projects, it is usually not part of the overall process of protecting, stabilizing, conserving, or repairing character-defining features; rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to obscure, damage, or destroy character-defining materials or features in the process of undertaking work to meet code and energy requirements.