Anasazi Research Projects

Paleohydrology is "the study of water use and handling by ancient people."

Wright Paleohydrological Institute (WPI) is a non-profit organization established in 1996 for the study of ancient water use. WPI is a public foundation with a proud record of public interest activities related to ancient water management.

WPI has completed six investigations of Ancestral Pueblo (Anasazi) water supplies to learn about the water handling practices of these early inhabitants of the Four Corners region. We learned that these early Americans were organized, industrious and knew how to harvest water where modern engineers would say there was none. The evidence shows that they were good engineers and made things work. The evidence also shows that these people had a hard life; they adjusted to adverse conditions, but in the end (about A.D. 1250 to 1300), they had to give in to civil unrest and climate changes that had begun a hundred years earlier.

Goodman Point

Goodman Point is part of Hovenweep National Monument. WPI studied the water sources for the settlement site in 2010 under the archaeological permit carried by the Crow Canyon Archaeological Center.

Engineer Brendon Langenhuizen installs a stream gage below Juárez Spring.

The Goodman Point area supported a sprawling population beginning during the early Pueblo II period. Around A.D. 1260, resources were scarcer and violence was on the rise. The Goodman Point Pueblo was a walled settlement where Pueblo III people collected for security; it was home to 500 to 800 people from A.D.1260 to1280.

Analyses of the spring yield and other water supply characteristics indicated that the Pueblo III people who lived at Goodman Point Pueblo had an adequate water supply. Supplementary water sources, half-a-mile distant from Goodman Lake and Mona Spring, were also investigated.

Mug House Cistern

A WPI engineer records the hydraulic characteristics of the notch through which water flows to fill the cistern.

In 2007, WPI studied the rate, quantity and reliability of the water supply for the cistern at the Mug House cliff dwelling at Mesa Verde National Park. The cliff dwelling was named for a cluster of mugs found hanging in the ruin in 1890. The Mug House area was occupied by the Anasazi from A.D. 1066 to about A.D. 1277.

The Mug House cistern is filled by water flowing through a notch from 85 feet above. Under a NPS Research Permit, WPI studied soil infiltration and climate data, characterized the drainage basin and investigated system hydraulics. The studies determined that the cistern water supply was a masterfully created public works project that helped make the Mug House residents' life better.

Wright Paleohydrological Institute

Studies

Supply/use
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Surveying
Geology
Soils
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Drainage
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Infiltration
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Anasazi Research Projects, continued

Morefield Reservoir

WPI's first Anasazi investigation was in 1995 at what was then called "Morefield Mound" at Mesa Verde National Park. The site was referred to as a mound because it was unclear whether the raised hill had been a dance platform, a reservoir or a remnant of an old terrace. Using level surveys and sedimentation and soil analyses, both with augers and in a large trench we were allowed to excavate, WPI determined that the site had been a reservoir with a feeder channel. As the reservoir and channel filled with sediment over 350 years of operation (A.D. 750–1100), constant dredging over the sides created a reservoir elevated 21 feet over its original bottom. The inlet canal elevation had to increase over the years to match the reservoir's higher elevation.

Far View Reservoir

Far View Reservoir is another Mesa Verde National Park feature for which its ancient purpose was unclear. For many years, the Park Service kept two interpretive signs at the site, speculating whether it was an ancient dance pavilion or a reservoir. WPI determined through detailed surveying, pollen analyses and engineering studies that the circular archaeological site had been a reservoir, but the question remained as to how it was filled. WPI experimentation and further studies showed that the agricultural area to the south, coupled with an increase in imperviousness due to people walking on the surrounding earth, would have provided occasional runoff to fill the reservoirs.

Sagebrush Reservoir

The Sagebrush Reservoir site is on a unnamed mesa at Mesa Verde National Park. Archaeologist Dr. Jack Smith, who originally excavated the site in 1972–1974, joined up with WPI in 1998 to incorporate further studies and finalize his findings. Like Far View Reservoir, the mesa-top Sagebrush Reservoir was filled by runoff from compacted earth. It was used between A.D. 950 and 1100, probably filling between five and six times per year. It would have required considerable and constant maintenance.

Box Elder Reservoir

In 2001, after the Bircher Wildfire at Mesa Verde National Park, Ranger Jim Kleidon reported a valley-bottom mound, much like Morefield Reservoir, that was suddenly visible after the trees burned away. WPI began to study this reservoir, now called Box Elder Reservoir, in 2002. Through augering (Richard Wiltshire and David Breternitz shown right) and soil analyses and the archaeologists' dating of pottery sherds found, we established the dates of use for the reservoir as A.D. 800–950. However, the water supply would have been sporadic with extensive dredging maintenance required.

Wright Paleohydrological Institute

Southwest Culture Chronology

Paleo-Indian
(? B.C. - 6500 B.C.)

Basketmaker I
(6500 B.C. - A.D. 1)

Basketmaker II
(A.D. 1 - 500)

Basketmaker III
(500-700)

Pueblo I
(700-900)

Pueblo II
(900-1100)

Pueblo III
(1100-1300)

Pueblo IV
(1300-1600)

Pueblo V
(1600-2000)

To further the knowledge of past civilizations through the study of ancient water management and practices.

Interested in learning more?

Water Mysteries of Mesa Verde by Kenneth R. Wright

Is available from Amazon.com

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