

Living on the Edge

Combining Traditional Pueblo Knowledge, Permaculture, and Archeology

Early Pueblo peoples did not just sit back passively and wait for the rain to fall to make a living.¹ Exciting new research, blending Pueblo traditional knowledge, permacultural teachings, and archeological and other social science findings, is shedding light on how the Pueblos interacted with their often-difficult southwestern environments, and is yielding compelling new insights into the region's dynamic historical ecology and the active roles that the people played in shaping their worlds.

A Landscape of Edges

Archeological research reveals that the scale and sophistication of the agronomic and hydrological accomplishments of early Pueblo farmers were far greater than what investigators have traditionally recognized in their constructions of the past. Over the past two decades, archeological and historical investigations of late pre-Columbian and early Historic period (A.D. 250-750) fields in north-central New Mexico's northern Rio Grande Valley have helped to identify and expand explanations of indigenous Pueblo farmers' integration of diverse technologies into their farm production. Researchers have documented field remnants that extend from the edges of the region's permanent streams deep into the juniper and piñon woodland habitats that dominate the foothills of the Sangre de Cristo and Jemez Mountains defining the physical edge of the Rio Grande rift country.

Benefited by the adoption of a cultural landscape perspective—which social scientists define as the essential interaction of nature and culture²—these studies emphasize how the

Pueblos designed and maintained their fieldworks to harvest and conserve water. For example, the Pueblos routinely irrigated across broad expanses and into their planting areas through the diversion of seemingly minor sources of runoff moisture from natural drainage courses. The findings also provide a context for reassessing the accounts offered by 16th- and 17th-century Spanish chroniclers who described the northern Rio Grande Valley as a virtual “Garden of Eden”—even though their Iberian prejudices led them to criticize the Pueblo people as lazy and hapless farmers.³ Ethnocentrism obscured their ability to recognize the sophistication and elegant cunning with which the people applied their technologically simple farming practices.

Studies demonstrate how the early Pueblos reduced the inherent subsistence risks of living at the proverbial economic edge. They allow researchers to assess the people's development of the economic technologies and social organizations needed to dampen the environmental vagaries that constantly threatened their farmland

“Not letting the fires burn out,” Picuris Pueblo, New Mexico, community garden. Photo by Louie Hena, 1998.



production. They show us how Pueblo people enhanced the ground's ability to absorb water coming from rainfall and snow melt, throughout the year, to meet the needs of their cultigens. Using refined techniques for processing and assessing field sediment samples in pollen analyses, researchers recognize that the existing definition of agriculture as the production of domestic cultigens does not capture either the structure or strategy of indigenous Pueblo farming. An expanding body of fossil pollen evidence suggests that northern Rio Grande Pueblo farmers managed a variety of weedy species (e.g., purslane and goosefoot) and cactuses (e.g., prickly pear) alongside their corn, beans, squash, and cotton plants.

Edge as a Way of Life

The thousands of acres of old fields throughout the northern Rio Grande Valley attest to much more than just the great ingenuity of the Pueblo people in occupying and transforming the broad physiographic edge between valley bottom and mountain top for farming. Through examining the archeological traces of the old fields and waterworks and fossil pollen assemblages, Pueblo environmentalists and farmers are able to identify methods used in the past that resemble permacultural techniques recently adopted by some community members working to sustain their peoples' agricultural traditions.

As defined by Bill Mollison, the founding figure of the contemporary permacultural movement, permaculture is a philosophy and an approach to land use that weave together climate, annual and perennial plants, insects, animals, soils, water management, and human needs into an integrated, productive ecological community.⁴ Edge is a key idea used in this discipline to convey how interfaces between unlike niches enhance the concentration of productive energy through the interaction of diverse but complementary parts. Such interactions are essential for creating and sustaining the healthy functioning of a system.

In permaculture, edge effects usually refer to the physical creation of ecological microhabitats characterized by biodiversity and heightened productivity among mutually beneficial plants, animals, insects, and soil microorganisms. In relating permacultural lessons back to their ageless codes of stewardship, Pueblo people quickly recognized that their communities historically

created and maintained edge effects to sustain not only their farmland production but also their community traditions. The benefits of edge effects are therefore not limited to just the material world. Edges apply equally to diverse ideas of how the world is and what people's relationships within the world should entail to maintain sustainable lifeways.

As conveyed eloquently by Gregory Cajete, an educator from Santa Clara Pueblo, the Pueblos (and many other traditional land-based communities) have developed comprehensive understandings of spiritual ecology that outline how people should interact with their worlds in their daily lives to sustain community across the generations.⁵ Within Pueblo permaculture programs, the idea of "living at the edge" is increasingly being promoted as a metaphor for a positive way of living that respects the ecology of community and place.

Pueblo Cultures at the Edge

The Pueblos' old fields and waterworks lapsed into obscurity when they fell into disuse during the 17th and 18th centuries. Spanish colonial, Mexican, and U.S. governments sequentially enacted policies that effectively removed people from their homelands and disrupted indigenous lifeways and subsistence practices. Traditional farming based on land-extensive practices incorporating

Flowering Tree Institute permaculture workshop, Santa Clara Pueblo, New Mexico, where "the old becomes new again," with elders sharing their memories with younger generations. The Flowering Tree Institute is the oldest permaculture demonstration project on Native American lands. Photo by Louie Hena, 1998.



Modern river cobble and wire basket gabion imitating the design and function of centuries-old indigenous terraces under construction at Tesuque Pueblo, New Mexico. Photo by Louie Hena, 1996.

long fallow cycles to allow habitats to renew their productivity was no longer feasible as the Pueblos became increasingly circumscribed to their small community grants. The Pueblos readily embraced animal-drawn plows, the hybridization of indigenous seeds stocks with varieties introduced from Mexico and the East, and the import of cultigens for the Old and New Worlds that are foreign to North America's northern Southwest to increase the land's production capacity. Some new crops, such as wheat and chiles, also easily won favor within Pueblo lifeways for the welcome diversity they brought to people's diets and economies.

Pueblo communities have passed their stewardship principles from one generation to the next through living traditions that inform the people "how they became who they are today."⁶ Relying upon constant reference and the reaffirmation of their heritage through their oral traditions, songs, prayers, and ceremonies, many Rio Grande Pueblo communities have sustained coherent identities despite the great environmental, economic, social, and political changes that have occurred in the people's everyday lives over the past four centuries. Nonetheless, the Pueblos' loss of access to major parts of their homelands and their accompanying large-scale adoption of new agricultural technologies have contributed to their forgetting information specific to the old fieldworks and waterworks lying just beyond the limits of their villages.

As a consequence, the long-neglected cobblestone terrace walls and gridded fields became curiosities. Pueblo people sometimes speculated that these rock alignments were the ruins of old houses that their ancestors neither completed nor occupied. Questions about why earlier generations would have constructed these structures across such broad expanses of communities' existing grant lands were not considered relevant by many. Queries requiring the explanation of empirically observed detail, such as those characterizing Western scientific traditions, often simply did not need to be asked, because community



traditions provided frameworks for understanding all that Pueblo communities needed to know about their past.⁷

World War II established the foundations for the potent trend toward the global economic, social, and cultural homogenization that characterizes the beginning of this new millennium, and now the northern Rio Grande Pueblos are facing yet another round of forceful challenges to their ability to sustain their community identities. Even though the defining lessons embodied in Pueblo traditions remain above question, many communities now recognize that a significant threat to their cultural survival resides in their increasing sense of disconnection from their past. For example, in the Community Preservation Program's Agriculture at Santa Clara Pueblo, program staff observe that "the words Pueblo and Agriculture are almost synonymous."⁸ They further note that, throughout the long history of Santa Clara Pueblo, the people have defined an intimate relationship with the land, its waters, and other natural resources to sustain their living as farmers. Given the great importance of farming in the community's traditions, they view the wide-scale disappearance of agricultural lifeways since the mid-20th century with alarm.

Perspectives Meeting at the Edge

On the one hand, the emergence of landscape perspectives in social science research has enhanced both the relevance and usefulness of information obtained through archeological and historical inquiry to people from traditional

communities. This approach facilitates dialogue between groups with cultural/historical links to an area and the archeologists working there because it recognizes how the past is relevant to the present. Although the landscape approach is a contributing factor to the establishment of new collaborative efforts, the Pueblos' formal introduction to permacultural principles is currently fueling an interest in archeological and historical findings. The coming together of Pueblo traditional knowledge, permacultural teachings, and archeological and other social science findings along a common intellectual edge helps the communities restore and again sustain their ageless traditions. In thinking about edges as interfaces rather than as impermeable boundaries, Pueblo people are embracing another indispensable permacultural principle: "The Problem is the Solution."⁹

Viewing northern Rio Grande archeological and historical information through permacultural perspectives, Pueblo people quickly understood that even though the word permaculture is quite new, its underlying principles are very old. Additionally, when one community member noted with satisfaction that "Everything old is new again," he recognized that today's efforts are reintroducing codes of stewardship to his community that his ancestors had previously incorporated into every aspect of their everyday lives. He also comprehended that remnant fieldworks and waterworks in the valleys and hills surrounding his home represent kinds of historical texts created by his ancestors to complement the oral traditions, songs, and prayers that he learned during childhood and that today, as an adult, he recites to his children. The stories embedded in these surviving archeological traces tell much about the lives—and lifeways—of earlier generations of Pueblo people. They can help unfold the layers of meaning embedded in Pueblo traditions that the people today have begun using within their communities for their own purposes, including efforts to promote and sustain a sense of identity.

Building Understanding and Relationships Across the Edge

The renewed collaboration among archeologists and Pueblo community members through landscape and permacultural perspectives represents another step showing how the science of archeology can serve Pueblo communities today. While globalization remains a potent challenge, Pueblo people express excitement with their rediscovery of misplaced old tools that they can use in their struggle to sustain their community identities in the face of ever-building pressures for economic, social, and cultural homogenization. By using archeological information, the people are renewing an appreciation of the resourcefulness and wisdom of their ancestors in developing methods and strategies for sustaining community. People view the agronomic and hydrological accomplishments of their earlier generations with pride—the ancient Greeks, Egyptians, and Romans were not the only peoples in the distant past to have made important technological contributions. Moreover, they cite the age-old fieldworks and waterworks as practical examples of Pueblo doctrines of respect, sharing, and caring. Through the collaboration of community members, permacultural principles, and archeological information, the Pueblos are redefining permaculture from the specific idea of "permanent agriculture" to a general process of "permanent culture." This transformation of contemporary ideas echoes a combined adage and admonition passed from elder to youth: "Don't let the fires burn out."

A 14th- and 15th-century stone-mulched field on a mesa near the contemporary Hispano village of Chimayo, New Mexico. The stone border and four-inch thick layer of gravel fill inside the plot conserved moisture from melting snows and falling rains throughout the year and warmed the soil for planting and seed germination in the spring. Photo by Kurt F. Anschuetz, 1997.



Other benefits derived from these collaborations flow toward the scientific community. The Pueblos' introduction of permacultural perspectives to archeological and historical studies is helping social scientists to develop new theories and methods for evaluating how the northern Rio Grande Valley's Pueblo peoples maintained their livelihoods in an ever-changing environment. Community representatives have already shared insights that are helping archeologists to recognize, measure, assess, and interpret material traces that they have either not recognized or not considered relevant within the scope and design of their traditional studies of the Pueblos' past. Pueblo collaborators are providing intellectual frameworks that challenge many archeologists' common-sense views—for example, farming is not just a warm-season economic activity, and the residential withdrawal of people from a locality is neither necessary nor sufficient evidence of its final abandonment.

The Pueblos' participation in scientific enterprise is helping to forge perspectives that enable investigators to ask qualitatively different, but testable, questions about the past. In this atmosphere of exchange and cooperation, the information being compiled possesses the potential to help transform the scope and content of the archeological constructions of northern Rio Grande Pueblo history and culture. We will increasingly see constructions of the past that are populated with peoples who were creative agents in the shaping of their landscapes rather than with faceless blobs who responded unthinkingly to whatever environmental vagaries befell them. Perhaps the archeological community and the greater public alike will finally be equipped to acknowledge Pueblo landscape innovations and to convey respect for accomplishments based on keen observation, deductive reasoning, and long-term commitments to community and place.

Notes

- 1 Kurt F. Anschuetz, *Not Waiting for the Rain: Integrated Systems of Water Management for Intensive Agricultural Production in North-Central New Mexico*. Ann Arbor: Ph.D. dissertation, Department of Anthropology, University of Michigan. (Ann Arbor: University Microfilms, 1998). Timothy D. Maxwell and Kurt F.

Anschuetz, "The Southwestern Ethnographic Record and Prehistoric Agricultural Diversity," in *Gardens in Prehistory: The Archaeology of Settlement Agriculture in Greater Mesoamerica*, edited by Thomas W. Killion (Tuscaloosa: University of Alabama Press, 1992), 35-68.

- 2 E. H. Zube, "Values and Planning in Arid/Semi-arid Landscapes: Conflict and Compromise," *Mass* 10 (1994):1-5.
- 3 Kurt F. Anschuetz, *Not Waiting for the Rain: Integrated Systems of Water Management for Intensive Agricultural Production in North-Central New Mexico*. Ann Arbor: Ph.D. dissertation, Department of Anthropology, University of Michigan (Ann Arbor: University Microfilms, 1998):171-172.
- 4 Bill Mollison, *Permaculture: A Designer's Manual* (Tyalgum, Australia: Tagair Publications, 1988).
- 5 Gregory Cajete, *Look to the Mountain: An Ecology of Indigenous Education* (Durango, Colorado: Kivaki Press, 1994).
- 6 Stewart Peckham, *From This Earth: The Ancient Art of Pueblo Pottery* (Santa Fe: Museum of New Mexico Press, 1990):2-4.
- 7 Tessie Naranjo, "Thoughts on Migration by Santa Clara Pueblo," *Journal of Anthropological Archaeology* 14 (1995):247-250.
- 8 Santa Clara Pueblo Preservation Program, *Agriculture at Santa Clara Pueblo* (Santa Clara Pueblo: Cultural Preservation Program, 1995):33.
- 9 Bill Mollison, *Permaculture: A Designer's Manual* (Tyalgum, Australia: Tagair Publications, 1988):35.

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