# **WHC Nomination Documentation**

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SITE NAME ("TITLE") Chaco Culture National Historical Park

DATE OF INSCRIPTION ("SUBJECT") 11/12/1987

STATE PARTY ("AUTHOR") UNITED STATES OF AMERICA

CRITERIA ("KEY WORDS") C (iii)

#### DECISION OF THE WORLD HERITAGE COMMITTEE:

The Committee made no statement.

#### **BRIEF DESCRIPTION:**

This national park, in north-west New Mexico, contains the most important remains of the Chaco culture, which was at its height between about 1020 and 1110. It was characterized by a very elaborate system of urban dwellings surrounded by villages and linked by a network of roads

1.b. State, province or region: U.S.A., State – New Mexico

1.d Exact location:	Ref. point on map	UTM Zone	Easting	Northing
Chaco Canyon	1	13	238827	3997735
	2	13	243841	3985183
	3	12	763735	3988899
	4	12	768169	3997702

Convention Concerning the Protection of the World Cultural and Natural Heritage

WORLD HERITAGE LIST

Nomination Submitted by the United States of America

Chaco Culture National Historical Park

## SPECIFIC LOCATION

# Country

United States of America

# State

New Mexico

# Name of Property

Chaco Culture National Historical Park

# Exact Location of Property

Universal Transverse Mercator Coordinates. See Figure 2 for reference points on map.

Area name	Reference point on map	UTM Zone	Easting	Northing
Chaco Canyon	1	13	238827	3997735
	2	13	243841	3985183
	3	12	763735	3988899
	4	12	768169	3997702
Kin Bineola	5	12	757800	3988660
	6	12	758660	3984100
	7	12	757440	3984070
	8	12	756750	3988630
Kin Ya'a	9 10 11 12	12 12 12 12 12	761620 761280 760870 760830	3952300 3950680 3950670 3952280
Pueblo Pintado	13	13	259170	3984730
	14	13	259120	3983930
	15	13	258320	3983960
	16	13	258370	3984760

#### JURIDICAL DATA

### Owner

United States Department of the Interior National Park Service Washington, D.C.

#### Legal Status

#### Public Land

The area currently known as Chaco Culture National Historical Park was originally established as a national monument in 1907 by proclamation of President Theodore Roosevelt for the purpose of reserving for the public's benefit lands containing prehistoric remains of extraordinary interest because of their number, their great size, and their value. In 1980 the 96th Congress of the United States of America enacted Public Law 96-550 that: 1) redefined Chaco Canyon National Monument as Chaco Culture National Historical Park; 2) recognized a more representative area that depicts the unique cultural remains of the prehistoric Chacoans; and 3) provided for continued preservation, protection, research, and interpretation of the Chacoan culture.

The park is comprised of the main canyon area and three detached units: Kin Bineola, Kin Ya'a and Pueblo Pintado. Relative ownerships by specific entities are the United States Government (68%), Navajo Tribe (23%), State of New Mexico (5%), Indian allotment (3%), and other private (1%). The boundaries outline 13,749 hectares (33,974 acres) that are managed by the National Park Service. This total reflects the expansion legislated by Public Law 96-550 that authorized approximately 5,260 hectares (13,000 acres) be added to the existing park. Since enactment of the law, 905 hectares (2,236 acres) have been transferred in title to the National Park Service. Transfers will be pursued for the remaining authorized lands. During the interim they will be managed and administered by the National Park Service as indicated in formal agreements with the landowners. This nomination to the World Heritage List concerns only the resources on National Park Service-owned land.

Entry to the park can be made either from the north by traveling south on New Mexico 57 from Blanco Trading Post, located on New Mexico Highway 44, for approximately 48 kilometers (30 miles), or from the south by traveling north on New Mexico 57 from Interstate 40 at Thoreau, for about 105 kilometers (65 miles). The closest terminals for air and rail service are at Farmington, New Mexico, 114 kilometers (70 miles) northwest and at Gallup, New Mexico, 151 kilometers (94 miles) southwest, respectively. Once in Chaco Canyon the visitor may tour impressive prehistoric ruins, visit the museum, camp, and hike. In addition to its museum, the park's interpretive program consists of ranger- and self-guided tours of some of the major

ruins, a wayside exhibit, and daily availability of a park interpreter. Water and a campground with tables, fireplaces, and central toilets are provided at the park. Lodging, gasoline, repair service, food, and utility connections for trailers are not available, nor can the park accommodate overnight parking for trailers in excess of 12 meters (30 feet). The park receives 72,000 visitors annually and is closed to the public only on Thanksgiving, Christmas, and New Year's Days. Its managerial, interpretive, law enforcement, preservation, and maintenance functions are met by a permanent staff and augmented by temporary employees in the summer when visitation is greatest.

### Responsible Administration

The area is directly administered for the National Park Service, United States Department of the Interior, by the Superintendent, Chaco Culture National Historical Park, Star Route 4, Box 6500, Bloomfield, New Mexico 87413, U.S.A.

The park is under the general administration of the Regional Director, Southwest Region, National Park Service, P.O. Box 728, Santa Fe, New Mexico 87501, U.S.A.

#### IDENTIFICATION

Category: Cultural Heritage

#### Inventory

The range of cultural features at Chaco Culture are many and varied, extending from PaleoIndian times, at least 12,000 years ago, to the 20th century occupation by the Navajo. A recent parkwide archeological survey recorded 2,800 sites. Of these, more than 1,800 are associated with the prehistoric pueblo period for which Chaco Culture is universally renowned (AD 900 to 1150). The Chaco phenomenon was a complex system of dispersed communities bound by economic, political, and religious interdependence. The redistribution of resources supplied the system its lifeblood.

The "pueblo" site type was the basic habitation unit for most of the prehistoric Anasazi culture, and remains so today for its modern Native American descendants in New Mexico and Arizona. Such structures are the most frequent sites found in Chaco Canyon, numbering 795. The basic design is that of a surface roomblock surrounding a plaza with subterranean kivas, or ceremonial rooms. The traditional building materials used were sandstone, mud mortar, and pine beams. However, the Chacoans often abandoned simple construction for a more complex technique.

Wall features were planned to accommodate multi-story heights. The bases were thickly built and stepped as the walls ascended. Coursed masonry evolved to a fine art of layering thin tabular veneer that surrounded a rubble core. The use of mortar decreased until the joints were of minute thickness. Chacoan structures exhibit a beauty and strength unsurpassed in the prehistoric Southwest of North America.

Interpretation of Chaco as an economic center is inferred by the high incidence of storage rooms in the main towns of the canyon as compared to those in the more typical habitation sites. Early functional interpretation of these rooms as living space was responsible for prior population estimates of 10,000 and more. Current estimates are 3,000 for the main canyon area.

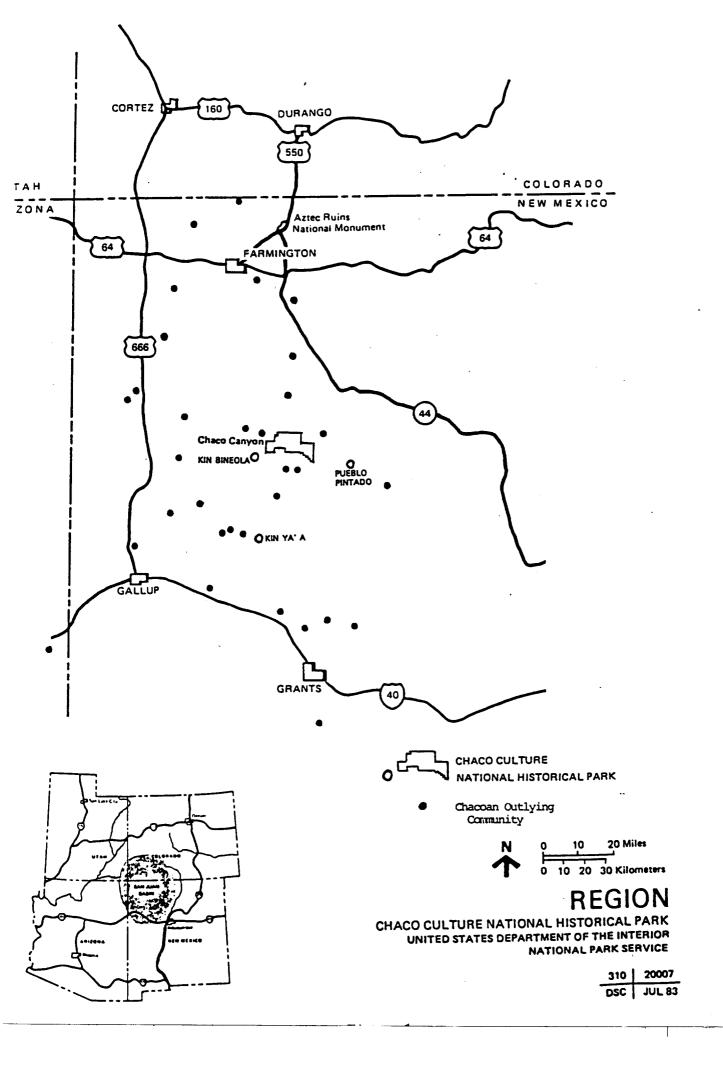
Complex religious ceremony permeated the Chacoan's daily lives, thus reinforcing the system's effectiveness. Religious features were integral components of all Chacoan communities. Almost 300 sites have a strong religious focus as evidenced by architecture. In Chacoan towns such architecture is exaggerated in the building of great kivas, noted so for their size and unusual features. Great kivas are unique to Chaco in both origin and use. The spacious great kivas and plazas in the canyon's towns are believed to have been the locations of centralized religious and other communal events that attracted people from as far as 160 kilometers (100 miles). Some 15 great kivas have been identified and, although relatively rare, they are strategically located so as to link the components of the system.

Other specific cultural remains of this period that are associated with Chacoan pueblo sites include roads, trails, stairways, rock art, sherd and lithic scatters, water control devices, quarries, and hearths, all of which merit preservation. However, the primary value of preserving such resources lies in our ability to interpret them. Decades of research by many experts have provided a fascinating history of the Chaco phenomenon, as described below.

### Maps

Attached are the following maps:

- Figure 1. Regional map, Chaco Culture National Historical Park, prepared by the Denver Service Center, National Park Service, July 1983.
- Figure 2. Boundary coordinates of main canyon and detached units, Chaco Culture National Historical Park, prepared by the Division of Cultural Research, National Park Service, October 1984.
- Figure 3. Locational map of major archeological ruins in Chaco Canyon, prepared by Harpers Ferry Center, National Park Service, GPO 1983-381-578/262.
- Figure 4. Six areas of influence created by the prehistoric Chacoan road systems, prepared by the Denver Service Center, National Park Service, June 1983.
- Figure 5. Illustration of resource development around Chaco Culture National Historical Park, prepared by the Southwest Regional Office, National Park Service, January 1984.



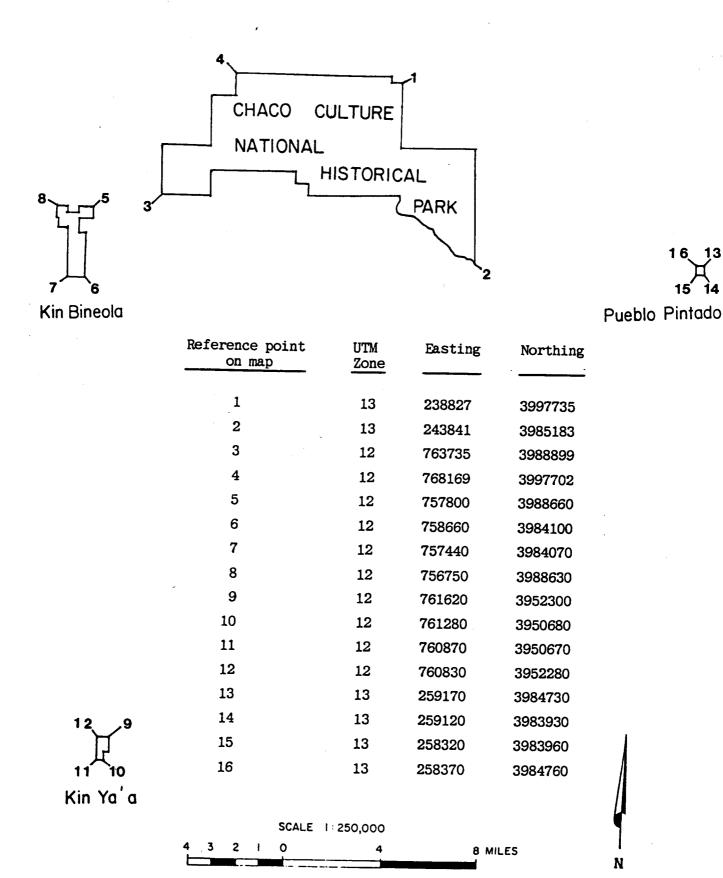


Figure 2. Boundary coordinates of main canyon and detached units.

#### Cultural History

The Anasazi are characterized as prehistoric pueblo people who occupied much of the southwestern United States from AD 300 to 1500. Archeological research has revealed that between AD 900 and 1150, a unique group evolved within the Anasazi culture who developed and controlled an extensive system of dispersed settlements, an accomplishment virtually unparalleled by socially and politically equivalent societies elsewhere in such a semi-arid environment. These extraordinary people are known as the Chaco Anasazi. As did their Mesa Verde neighbors to the north, the Chaco people developed a unique adaptation to their environment without significant influence from others, leaving behind the great monuments and fragile relics that we see today. The autonomous Chacoan society served to integrate and sustain a very large population throughout some 67,000 square kilometers (25,800 square miles). Chaco Canyon was the heart of this system.

The Chacoan system was remarkable in many ways. Studies reveal that it was comprised of numerous satellite communities, most of which consisted of great houses (towns) built in a unique Chacoan style, surrounded by smaller villages. The system allowed large communities to survive in a marginal environment by sharing the natural and human resources peculiar to each location. In the absence of extended periods of drought, it also provided the organizational structure as well as the initiative necessary for substantial labor investment in constructing and maintaining their seemingly extravagant facilities. What resulted are the earliest known massive pueblos inter-connected by an elaborate, long-distance road network.

Initial developments of the Chaco phenomenon began in the 10th century. During this period the residents occupied the full length of the canyon, although they were primarily clustered in and around the large towns of Peñasco Blanco, Pueblo Bonito and Una Vida. These communities seem to have exerted some degree of control over resources that were gathered from nearby villages and stored in the canyon. Quickly, however, communication and trade became increasingly formalized between Chaco Canyon and new outliers to the south. The South Road, identified as one of the six major prehistoric road systems, possibly was built in the early 900s.

The next major phase of development occurred between AD 1020 and 1050. The central portion of the canyon itself became architecturally dominant with the addition of Chetro Ketl and Pueblo Alto to the list of existing canyon towns. New outliers were built, again primarily south of Chaco Canyon. Stimulated by a relatively favorable climate, the system flourished. Formal site plans and impressive Chaco style masonry characterized new building. Strong social alliances produced an active trade network and also served to integrate religious activities.

During the next major phase (AD 1075 to 1115), construction activities soared. New developments were seen at Pueblo Bonito, Peñasco Blanco, Pueblo del Arroyo, and Wijiji. The outlier association shifted to the

north where most of the 19 new communities were established. Roads were built linking these communities to the canyon. In Chaco, massive structures were built to satisfy non-residential needs. Resources not indigenous to the canyon, such as larger game animals, ceramics, lithic material (including turquoise), and large construction beams, were imported in increasing quantities. Judging by the character and unusually high rate of consumption of these resources within short periods of time, Chaco had assumed the role of a focal point for special activities such as periodic religious pilgrimages. Overall, the already steady population increases at Chacoan communities exhibited a growth surge in the 11th century.

The relatively stable environment of northwestern New Mexico, which had previously been conducive to cultural expansion, began to fluctuate around AD 1100, greatly affecting the activities of a population which had become perhaps too dependent on the system. Architectural differences that began to appear around AD 1115 include the creation of additional rooms by subdividing existing ones and the use of large, blocky stone, rather than the highly aesthetic tabular stone used previously, when building new structures such as Kin Kletso, Casa Chiquita and New Alto. While the outlier association remained to the north, more self-supporting communities, such as Bis sa'ani, were established nearby. While permanent residency in the canyon increased slightly, the periodic influx of masses of people dramatically declined. Thus a noticeable reorganization in the function and probably the administrative importance of Chaco Canyon took place between AD 1115 and 1140. The administrative control previously centered in the canyon must have deteriorated as outliers became more independent.

Collapse of the Chacoan system came between AD 1140 and 1200. A drought of almost 50 years' duration was underway by AD 1140. The complex system which, through the interdependence of its components, had adapted so well to an inhospitable environment for some two centuries, fell victim to vulnerability created by that very adaptation. Extended years of reduced precipitation lowered crop yields and depleted stored goods to the point that recovery was impossible. The people left the Canyon and the phenomenon was ended.

#### Environment

The magnitude of the Chaco phenomenon is reflected in part by the magnificent ruins. A fuller appreciation of obstacles that were overcome is rendered when one considers the natural environment in which the system prospered. The 16.1-kilometer (10-mile) canyon is defined by several low mesas bordering a broad valley floor. A series of stepped benches along the upper margin of the mesas have been carved by wind and water erosion. The mesa tops have considerable areas of exposed sandstone bedrock which, though sparsely vegetated, do support occasional stands of pinyon-juniper.

The canyon floor is dissected by the Chaco Wash, the main drainage, which carries intermittent rain waters to the northwest where it combines with the Escavada Wash to become the Chaco River. The highly unpredictable late

summer rainfalls are funneled into pour-offs from the mesa tops down to the Chaco Wash, constantly etching a pathway and sometimes becoming quite tor-rential. A moderate growth of rabbitbrush, sagebrush, saltbush, grease-wood, snakeweed, grasses, and similar shrubbery typical of desert soil, covers the canyon floor. Elevation from Chaco Wash to the highest point atop the West Mesa ranges from 1841 to 2024 meters (6040 to 6638 feet). The common indigenous animal community includes mule deer, pronghorn, coyotes, jackrabbits, cottontails, and a variety of smaller rodents.

The cool, semi-arid climate, as well as the natural environment, has changed very little since the Chacoans settled in the area. Localized and sporadic summer precipitation averages 3.5 centimeters (1.2 inches) per month. Mid-winter temperatures consistently cool to  $0^{\circ}$ C (32°F) and rise to an average of  $21^{\circ}$ C (70°F) during the short summer season. The soil in the canyon's bottom has a high clay content mixed with sand. Occasional dunes of varying stability are interspersed throughout the canyon.

The environmental factors can be summarized as harsh at best, and of low productivity. Yet the Chacoans created their architectural masterpieces in such an environment. All construction materials brought to the canyon were without the benefit of beasts of burden or the wheel. Hundreds of thousands of ponderosa pine were felled, stripped of bark, and transported from as far as 70 kilometers (43 miles). Smaller posts and crossbeams also had to be imported. Even the sandstone that lent itself so well to the highly desired tabular form was not the easiest type to procure. Water for the volumes of mortar must have also been acquired from considerable distances. As can be appreciated, considerable labor and coordination of effort was necessary to extract from the environment the resources utilized by the Chacoans between AD 900 and 1150.

# Bibliography of Published Material

Adams, Karen R.

Pollen, Parched Seeds and Prehistory: A Pilot Investigation of Prehistoric Plant Remains from Salmon Ruin, a Chacoan Pueblo in Northwest New Mexico. San Juan Valley Archaeological Project, Eastern New Mexico University Contributions in Anthropolgy 9.

Portales.

Adams, Richard N.

Half House: A Pithouse in Chaco Canyon, New Mexico. Papers of the Michigan Academy of Science, Arts, and Letters, 35:273-295, Ann Arbor.

Allen, Christina G., and Ben A. Nelson, Eds.

Anasazi and Navajo Land Use in the McKinley Mine Area Near
Gallup, New Mexico. Office of Contract Archeology, University of
New Mexico, Albuquerque.

Anderson, Douglas and B. Anderson

Chaco Canyon: Center of a Culture. Southwest Parks and Monuments Association, Globe, Arizona.

Altschul, Jeffrey H.

The Development of the Chacoan Interaction Sphere. Journal of Anthropological Research 34:109-146, Albuquerque, New Mexico.

Bannister, Bryant

Tree-ring Dating of the Archaeological Sites in the Chaco Canyon Region, New Mexico. Southwestern Monuments Association, Technical Series 6(2), Globe, Arizona.

Betancourt, Julio L., and R. Van Devender

1981 Holocene Vegetation in Chaco Canyon, New Mexico. Science 214:656-658.

Biella, Jan V., et al., Eds.

1982 Newsletter. New Mexico Archeological Council 4(5&6). Albuquerque.

Bradley, Bruce

1974 Preliminary Report of Excavations at Wallace Ruin, 1969-1974. Southwestern Lore 40:63-71, Boulder, Colorado.

Bradley, Zorro A.

Site Bc 236, Chaco Canyon National Monument. National Park Service, Department of the Interior, Washington, D. C.

- Brand, Donald D., et al.
  - 1937 Tseh So, a Small House Ruin, Chaco Canyon, New Mexico.
    Preliminary Report. University of New Mexico Bulletin,
    Anthropological Series 2(2), Albuquerque.
- Brody, J. J.
  - The Chaco Phenomenon. Maxwell Museum of Anthropology, University of New Mexico. Albuquerque.
- Brugge, David M.
  - 1979 A History of the Chaco Navajos. Reports of the Chaco Center
    No. 4. Division of Cultural Research, National Park Service,
    Albuquerque, New Mexico.
  - n.d. Tsegai: Archeological Ethnohistory of the Chaco Region. National Park Service, U. S. Government Printing Office, Washington, D.C., in press.
- Bryan, Kirk
  - 1929 Flood water farming. The Geographical Review 19:444-456.
  - The Geology of Chaco Canyon, New Mexico in Relation to the Life and Remains of the Prehistoric Peoples of Pueblo Bonito.

    Smithsonian Miscellaneous Collection 122(7). Washington, D. C.
- Buchanan, Donal B.
  - Report on Inscriptions from the Southwest. Early Sites Research Society Bulletin, 6(1):28-33.
- Canby, Thomas Y.
  - The Anasazi. National Geographic, 162(5)554-629. National Geographic Society, Washington, D.C.
- Carlson, Roy L.
  - 1966 Twin Angels pueblo. American Antiquity. 31:676-682.
- Cully, Anne C.
  - 1979 Some Aspects of Pollen Analysis in Relation to Archeology. The Kiva, 44:2-3, Tucson
- Douglass, A. E.
  - Dating Pueblo Bonito and Other Ruins of the Southwest. National Geographic Society, Contributed Technical Papers, Pueblo Bonito Series, 1, Washington, DC.
- Drager, Dwight L. and T. R. Lyons
  - Remote Sensing in Cultural Resource Management: The San Juan Basin Project. National Park Service, Washington, D.C., and University of New Mexico, Albuquerque.

- Dutton, Bertha P.
  - Leyit Kin: A Small House Ruin, Chaco Canyon, New Mexico.

    University of New Mexico, Bulletin, Monograph Series, 1(5),

    Albuquerque.
- Earth Environment Consultants, Incorporated
  - Mining plan for the Gallo Wash Mine, San Juan County, New Mexico.

    Tucson, Arizona: Alamito Coal Company.
- Eddy, Frank W.
  - 1977 Archaeological Investigations at Chimney Rock Mesa, 1970-72.

    Memoirs of the Colorado Archaeological Society 1, Denver.
- El Palacio
  - 1916 Ancient Road Near Aztec, New Mexico. El Palacio 3(4):52.
- Euler, Robert C., et al.
  - The Colorado Plateau: Cultural Dynamics and Paleoenvironment. Science, 20(4411):1089-1101.
- Fisher, Reginald G.
  - Some Geographic Factors that Influenced the Ancient Populations of the Chaco Canyon, New Mexico: A Preliminary Report.

    University of New Mexico Bulletin, Archaeology Series, 3(1).

    Albuquerque.
  - 1934 The Chaco Canyon in 1934. <u>El Palacio</u>, 37(15-16):117-131, Santa Fe, New Mexico.
- Grebinger, Paul
  - 1973 Prehistoric Social Organization in Chaco Canyon: An Alternative Hypothesis. The Kiva 39:3-23.
  - Prehistoric Social Organization in Chaco Canyon, New Mexico: An Evolutionary Perspective. Discovering Past Behavior—Experiments in the Archaeology of the American Southwest, pp. 73-100, Gordon and Breach Publishing Co., New York.
- Hall, Stephen A.
  - 1977 Late Quaternary Sedimentation and Paleoecologic History of Chaco Canyon, N. M. Geological Society of America Bulletin 88:1593-1618.
- Hastings, Homer F.
  - 1960 Ancient Landmark Faces Extinction. El Palacio 67(2):72. Santa Fe, New Mexico.
- Hawley, Florence M.
  - 1934 The Significance of the Dated Prehistory of Chetro Ketl, Chaco Canyon, New Mexico. University of New Mexico Bulletin, Monograph Series 1(1). Albuquerque.

- Hawley, Florence M.
  - The Family Tree of Chaco Canyon Masonry. American Antiquity 3:247-255.
- Hayes, Alden C.
  - 1976 A Cache of Gardening Tools: Chaco Canyon. In Collected Papers in Honor of Marjorie Ferguson Lambert, Albert H. Schroeder, ed., Papers of the Archeological Society of New Mexico 3, pp. 73-84. Albuquerque, New Mexico.
- Hayes, Alden C. and T. C. Windes
  - An Anasazi Shrine in Chaco Canyon. In Collected Papers in Honor of Florence Hawley Ellis, T. R. Frisbie, ed., pp. 143-156. Papers of the Archaeological Society of New Mexico: 2, Albuquerque.
- Hayes, Alden C., et al.
  - Archeological Surveys of Chaco Canyon, New Mexico. National Park
    Service Archeological Series 18A: Chaco Canyon Studies,
    Washington, D. C.
- Hewett, Edgar L.
  - The Chaco Canyon and its Ancient Monuments. Art and Archaeology 11(1-2):3-28.
  - The Excavation of Chetro Ketl, Chaco Canyon 1932-33. Art and Archaeology, 35(2):51-68,
  - The Chaco Canyon and its Monuments. Handbooks of Archaeological History, University of New Mexico Press, Albuquerque.
- Howe, Sherman S.
  - 1947 My Story of the Aztec Ruins. <u>Times Hustler Press</u>, Farmington, New Mexico.
- Huntington, Ellsworth
  - The Successive Stages of Culture in Northern New Mexico.

    Carnegie Institute of Washinton Publication No. 192, pp. 75-93,

    New York.
- Irwin-Williams, Cynthia
  - 1972 The Structure of Chacoan Society in the Northern Southwest, Investigations at the Salmon Site - 1972. Eastern New Mexico University Contributions in Anthropology 4, Portales.
- Jackson, William H.
  - Report on the Ancient Ruins Examined in 1875 and 1877. In Tenth Annual Report of the U.S. Geological and Geographical Society of the Territories, Embracing Colorado and Parts of Adjacent Territories, Being a Report of Progress of the Exploration of the Year 1876, F. V. Hayden, ed., pp. 411-450. Washington, D.C.

- Judd. Neil M.
  - Archaeological Investigations at Pueblo Bonito, Smithsonian Miscellaneous Collections, 74(5).
  - Two Chaco Canyon Pithouses, Annual Report of the Smithsonian Institute for 1922, Washington, D. C..
  - 1925 Explorations in Prehistoric Pueblo Bontio, Chaco Canyon, New Mexico, Geographic Society of Philadelphia Bulletin 23(82).
  - Archaeological Investigations and Pueblo Bonito and Pueblo del Arroyo, Smithsonian Miscellaneous Collections, 78(1).
  - Pueblo Bonito and its Architectural Development. Proceedings: 23rd International Congress of Americanists, pp. 70-73.
  - The Material Culture of Pueblo Bonito. Smithsonian Miscellaneous Collections 124.
  - 1959 Pueblo del Arroyo, Chaco Canyon, New Mexico. Smithsonian Miscellaneous Collections 138.
  - 1964 The Architecture of Pueblo Bonito. Smithsonian Miscellaneous Collections 147.
- Judge, W. James
  - The Development of a Complex Cultural Ecosystem in the Chaco Basin, New Mexico. In Proceedings of the First Conference on Scientific Research in the National Parks, 3, R. M. Linn, ed., pp. 901-906, National Park Service Transactions and Proceedings Series 5, Washington, DC.
  - n.d. Chaco Canyon-San Juan Basin. <u>In Dynamics of Southwestern</u> Prehistory. D. Schwartz, ed., School of American Research, Santa Fe, New Mexico, in press.
- Judge, W. James, et al.
  - 1975 Sampling in Regional Archeological Survey. In Sampling in Archaeology, James W. Mueller, ed., pp. 82-123. University of Arizona, Tucson.
  - 1981 Tenth Century Developments in Chaco Canyon. <u>In Collected Papers</u> in Honor of Erik Kellerman Reed, A.H. Schroeder, ed., pp. 65-98. Archaeological Society of New Mexico Anthropological Papers 6, Albuquerque.
- Judge, W. James and J.D. Schelberg, Eds.
- 1984 Recent Research on Chaco Prehistory, Chaco Canyon, New Mexico.

  Reports of the Chaco Center, No. 8. Division of Cultural

  Research, National Park Service, Albuquerque, New Mexico.
- Kagaku Ashai
  - 1982 A Monthly Journal of Science, printed in Tokyo, Japan.

- Kelley, J. Charles and E. A. Kelley
  - An Alternative Hypothesis for the Explanation of Anasazi Culture History. In Collected Papers in Honor of Florence Hawley Ellis, T. R. Frisbie, ed., pp. 178-223. Papers of the Archaeological Society of New Mexico 2, Albuquerque.
- Kelly, Klara B.
  - The Chaco Canyon Ranch: Ethnohistory and Ethnoarchaeology.

    Navajo Nation Papers in Anthropology 8., Navajo Tribe, Window Rock, Arizona.
  - Anasazi and Navajo Land Use in the McKinley Mine Area near Gallup, New Mexico, Volume 2: Navajo Ethnohistory, Office of Contract Archeology, University of New Mexico, Albuquerque.
  - Navajo Farming in the Vicinity of the Gallo Wash Mine Lease.

    Working Papers of the Navajo Nation Cultural Resource Management

    Program 8.
- Kincaid, Chris, Ed.
  - Chaco Roads Project, Phase I. Bureau of Land Management,
    District Office, Albuquerque.
- Kluckhohn, Clyde and P. Reiter, Eds.
  - 1939 Preliminary Report on the 1937 Excavations at Bc 50-51, Chaco Canyon, New Mexico. University of New Mexico Bulletin 345, Anthropological Series 3(2), Albuquerque.
- Lekson, Stephen H.
  - Cognitive Frameworks and Chacoan Architecture. New Mexico Journal of Science, 21(1):27-36. Las Vegas, New Mexico.
  - 1983 Chacoan Architecture in Continental Context. In Proceedings of the Anasazi Symposium 1981, Jack E. Smith, ed., pp.183-194, Mesa Verde National Park, Colorado.
  - The Architecture and Dendrochronology of Chetro Ketl, Chaco Canyon, New Mexico. Reports of the Chaco Center, No. 6.
    Division of Cultural Research, National Park Service,
    Albuquerque.
  - Great Pueblo Architecture of Chaco Canyon, New Mexico. National Park Service Archeological Series 18B: Chaco Canyon Studies, Denver, Colorado.
- Lightfoot, Kent
  - 1979 Food Redistribution among Prehistoric Pueblo Groups. The Kiva 44(4):319-339.

- Lister, Robert H. and F. C. Lister
  - 1968 Earl Morris and Southwestern Archeology. University of New Mexico Press, Albuquerque.
  - 1981 Chaco Canyon, Archaeology and Archaeologists, University of New Mexico Press, Albuquerque.
  - 1983 Chaco Culture National Historical Park, In Southwestern Archeology in the National Park System, Those Who Came Before, pp. 109-115, Southwest Parks and Monuments Association, Globe, and The University of Arizona Press, Tucson.
- Love, David W.
  - Dynamics of Sedimentation and Geomorphic History of Chaco Canyon National Monument, New Mexico. New Mexico Geologic Society Guidebook, 28th Field Conference, San Juan Basin 3:291-300, Socorro.
- Lyons, Thomas R., Ed.
  - 1976 Remote Sensing Experiments in Cultural Resource Studies: Non-destructive Methods of Archeological Exploration, Survey, and Analysis. Reports of the Chaco Center, No. 1. National Park Service, Albuquerque, New Mexico.
- Lyons, Thomas R., et al.
  - 1976 Archaeological Analysis of Chaco Canyon Region, New Mexico. In ERTS-1 A New Window on Our Planet, R. S. Williams, Sr. and W. D. Carter, eds., U. S. Geological Survey Professional Paper 929, pp. 304-306. Washington, D. C..
- Lyons, Thomas R. and R. K. Hitchcock
  - 1977 Remote Sensing Interpretation of an Anasazi Land Route System.

    In Aerial Remote Sensing Techniques in Archaeology, T. R. Lyons
    and R. K. Hitchcock eds., pp. 111-134. Reports of the Chaco
    Center Number 2, National Park Service, Albuquerque, New Mexico.
- Lyons, Thomas R. and T. A. Avery
  - Remote Sensing: A Handbook for Archeologists and Cultural Resource Managers. Cultural Resources Management Division, National Park Service, U.S. Department of the Interior, Washington, D.C.
- Marshall, Michael P., et al.
  - 1979 Anasazi communities in the San Juan Basin. Public Service Company of New Mexico.
- Martin, Paul S.
  - 1936 Lowry Ruin in Southwestern Colorado. Field Museum of Natural History, Anthropological Series 23(1), Chicago, Illinois.

- Mathien, Frances Joan
  - Economic Exchange Systems in the San Juan Basin, Dissertation, University Microfilms, Ann Arbor, Michigan.
  - Neutron Activation of Turquoise Artifacts from Chaco Canyon, New Mexico. Current Anthropology, 22(3):293-294.
  - The Mobile Trader and the Chacoan Anasazi. In Proceedings of the Anasazi Symposium 1981. Jack E. Smith, ed, pp. 197-206, Mesa Verde National Park, Colorado.
- Maxon, J. C.
  - 1963 Lizard House (Bc 192), National Park Service.
- McAnany, Patricia A., and Ben A. Nelson, Eds.
  - Cultural Resources Overview for the New Mexico Synfuels Project.

    Office of Contract Archeology, University of New Mexico,
    Albuquerque.
- McKenna, Peter J.
  - Architecture and Material Culture of 29SJ1360, Chaco Canyon, New Mexico. Reports of the Chaco Center, No. 7. Division of Cultural Research, National Park Service, Albuquerque, New Mexico.
- McNitt, Frank
  - 1957 Richard Wetherill: Anasazi. University of New Mexico Press, Albuquerque.
- McNitt, Frank (editor and annotator)
  - Navajo expedition: Journal of a Military Reconnaissance from Santa Fe, New Mexico to the Navaho Country Made in 1848, by Lieutenant James H. Simpson. University of Oklahoma Press, Norman.
- Morehead, Warren K.
  - 1906 A Narrative of Explorations in New Mexico, Arizona, Indiana, Etc., Bulletin III, Department of Archaeology, Phillips Academy, Massachusetts, pp. 32-54, Andover.
- Morris, Earl H.
  - 1915 The Excavation of a Ruin near Aztec, San Juan County, New Mexico, American Anthropologist, 17:666-684.
  - 1919 The Aztec Ruin. Anthropological Papers of the American Museum of Natural History, 26(1), New York.
  - The House of the Great Kiva at the Aztec Ruin. Anthropological Papers of the American Museum of Natural History, 26(2), New York.
  - The Aztec Ruin Annex. Anthropological Papers of the American Museum of Natural History, 26(4), New York.

- Morris, Earl H.
  - Burials in the Aztec Ruin. Anthropological Papers of the American Museum of Natural History, 26(3), New York.
- Pepper, George H.
  - 1905 Ceremonial Objects and Ornaments from Pueblo Bonito, New Mexico, American Anthropologist 7 No. 2.
  - Human Effigy Vases from Chaco Canyon, New Mexico, Boas
    Anniversary Volume, Anthropological Papers, G.E. Stechert and
    Co., New York.
  - The Exploration of a Burial-Room in Pueblo Bonito, New Mexico, The Torch Press, Cedar Rapids, Iowa.
  - 1920 Pueblo Bonito. Anthropological Papers of the American Museum of Natural History 27, New York.
- Pippin, Lonnie C.
  - 1979 Prehistory and Paleoecology of Guadalupe Ruin, Ph.D. Dissertation, University Microfilm, Ann Arbor, Michigan.
- Plog, Fred and W. Wait, Eds.
  - The San Juan Tomorrow, Planning for the Conservation of Cultural Resources. National Park Service, Southwest Region, in coorporation with the School of American Research, Santa Fe.
- Powers, Robert P., et al.
  - 1983 The Outlier Survey: A Regional View of Settlement in the San Juan Basin. Reports of the Chaco Center, No. 3. Division of Cultural Research, National Park Service, Albuquerque.
- Putnam, F. W.
  - Ancient Pueblos of Chaco Canyon, American Journal of Archaeology
    4.
- Reed, Alan D., et al.
  - 1979 The Archaeology and Stabilization of the Dominguez and Escalante Ruins, Bureau of Land Management, Colorado, <u>Cultural Resource</u> Series 7, Denver, Colorado.
- Reher, Charles A., Ed.
  - 1977 Settlement and Subsistence along the Chaco River: The C.G.P. Survey, University of New Mexico Press, Albuquerque.
- Reyman, Jonathan E.
- 1971 Mexican Influence on Southwestern Ceremonialism. Ph.D. Dissertation, Southern Illinois University. University Microfilms, Ann Arbor, Michigan.

- Reyman, Jonathan E.
  - The Winter Solstice at Pueblo Bonito, Part I., Griffith Observer, 42(12):16-20.
- Richert, Roland
  - Excavation of a Portion of the East Ruin, Aztec Ruins National Monument, New Mexico. Southwestern Monuments Association, Technical Series, 4, Globe, Arizona.
- Roberts, Frank H. H., Jr.
  - The Ceramic Sequence in the Chaco Canyon, New Mexico., and its Relation to the Culture of the San Juan Basin. Ph.D.

    Dissertation, University Microfilms, Ann Arbor, Michigan.
  - Shabik'eschee Village, A Late Basket Maker Site in the Chaco Canyon, New Mexico. Bureau of American Ethnology Bulletin 92, Government Printing Office, Washington, D. C.
  - Early Pueblo Ruins in the Piedra District, Southwestern Colorado.

    <u>Bureau of American Ethnology Bulletin</u> 96, Government Printing

    <u>Office, Washington, D. C.</u>
  - Village of the Great Kivas on the Zuni Reservation, New Mexico.

    Bureau of American Ethnology Bulletin 111, Government Printing

    Office, Washington, D. C.
- Robinson, William J., et al.
  - 1974 Tree-ring dates from New Mexico B: Chaco-Gobernador area.

    Laboratory of Tree-Ring Research, University of Arizona, Tucson.
- Schelberg, John D.
  - Social Complexity in Chaco Canyon. Second Conference on Scientific Research in the National Parks 1:414-437. Washington,
  - Economic and Social Development as an Adaptation to a Marginal Environment in Chaco Canyon, New Mexico, Ph.D. Dissertation, University Microfilm, Ann Arbor, Michigan.
- Schroeder, Albert H.
  - How Far Can a Pochteca Leap Without Leaving Footprints? In Collected Papers in Honor of Eric K. Reed, A. H. Schroeder, ed., Papers of the Archaeological Society of New Mexico, 6:43-64, Albuquerque.
- Senter, Donovan
- 1937 Tree Rings, Valley Floor Deposition and Erosion in Chaco Canyon, New Mexico. American Antiquity, 3(1):68-75.
  - Excavation Report, Chaco Canyon, Bc 50, Season 1939, University of New Mexico Press, Albuquerque.

- Shepard, Anna O.
  - Technology of La Plata Pottery. Appendix A in Archaeological Studies in the La Plata District, Southwestern Colorado and Northwestern New Mexico. E.H. Morris, pp. 249-287. Carnegie Institution of Washington Publication 519, Washington.
- Simmons, Alan H., Ed.
  - Prehistoric Adaptive Strategies in the Chaco Region, Northwestern New Mexico 1, Navajo Nation Papers in Anthopology 9, Window Rock, Arizona.
- Smith, Jack E. (Compiler and Editor)
  - Proceedings of the Anasazi Symposium 1981, Mesa Verde Museum Association, Mesa Verde National Park, Colorado.
- Sofaer, Anna, et al.
  - 1979 A Unique Solar Marking Construct, Science, 206(4416):283-291.
- Stamm, Winifred
  - 1930 First Month's Excavation at Chaco Completed. Digs, 2(2):13-27.
  - 1930 Work on Chetro Ketl. Digs, 1:2-12.
- Stuart, David E. and R. P. Gauthier
  - 1981 Prehistoric New Mexico: Background for Survey. Historic Preservation Bureau, Santa Fe.
- Tainter, Joseph A. and D. A. Gillio
  - 1980 Cultural Resources Overview, Mt. Taylor Area, New Mexico. U. S. Department of Agriculture, Forest Service, Albuquerque, New Mexico.
- Toll, H. Wolcott III
  - 1981 Ceramic Comparisons Concerning Redistribution in Chaco Canyon, New Mexico. In Production and Distribution: A Ceramic Viewpoint. H. Howard and E. L. Morris, eds., British Archaeological Reports 120:83-121, Oxford, England.
- Toll, H. Wolcott, et al.
  - 1980 Late Ceramic Patterns in Chaco Canyon: The Pragmatics of Modeling Ceramic Exchange. Society for American Archaeology Papers 1:95-117.
- Vivian, Gordon
  - The Hubbard Site and other Tri-wall Structures in New Mexico and Colorado. National Park Service, Archaeological Research Series, 5, National Park Service, Washington, D.C.
  - The Three-C Site, an Early Pueblo II Ruin in Chaco Canyon, New Mexico. University of New Mexico Publication in Anthropology, No. 13, Albuquerque.

- Vivian, Gordon and T. W. Mathews
  - 1965 Kin Kletso: A Pueblo III Community in Chaco Canyon, New Mexico.

    Southwestern Parks and Monuments Association, Technical Series
    6(1). Globe, Arizona.
- Vivian, Gordon and P. Reiter
  - The Great Kivas of Chaco Canyon and their Relationships. School of American Research and the Museum of New Mexico Monograph 22, Santa Fe, New Mexico.
- Vivian, R. Gwinn
  - An Inquiry into Prehistoric Social Organization in Chaco Canyon,
    New Mexico. In Reconstructing Prehistoric Pueblo Societies,
    W. A. Longacre, ed., pp. 59-83, School of American Research Book,
    University of New Mexico Press, Albuquerque.
  - 1974 Conservation and Diversion: Water Control Systems in the Anasazi Southwest. In Irrigation's Impact on Society, T. E. Downing and M. Gibson, eds., pp. 95-112, University of Arizona Anthropological Papers 25, Tucson.
- Vivian, R. Gwinn, et al.
  - 1978 Wooden Ritual Artifacts from Chaco Canyon, New Mexico: The Chetro Ketl Collection. University of Arizona, Anthropological Papers 32, Tucson.
- Washburn, Dorothy K.
  - The Mexican Connection: Cylinder Jars from the Valley of Oaxaca.

    In New Frontiers in the Archaeology and Ethnohistory of the
    Greater Southwest, C.L. Riley and B.C. Hedrick, eds.,
    Transactions of The Illinois Academy of Science 72:4:70-85.
- Wilson, John P.
  - 1979 Cultural Resources of the Alamito Coal Lease Area, Northwestern New Mexico. Alamito Coal Company, Tucson, Arizona.
- Wells, S. G., et al.
  - Chaco Canyon Country, A Field Guide to the Geomorphology,
    Quaternary Geology, Paleoecology, and Environmental Geology of
    Northwestern New Mexico, Adobe Press, Albuquerque, New Mexico.
- Windes, Thomas C.
  - 1978 Stone Circles of Chaco Canyon, Northwestern New Mexico. Reports of the Chaco Center, No. 5, Division of Cultural Research, National Park Service, Albuquerque, New Mexico.
  - A view of the Cibola Whiteware from Chaco Canyon. In Regional Analysis of Prehistoric Ceramic Variation: Contemporary Studies of the Cibola Whitewares, A.P. Sullivan and J.L. Hantman, eds., pp. 94-119, Arizona State Museum, Tempe.

Winter, Joseph

1980 Human Adaptation in a Marginal Environment. In Human Adaptations in a Marginal Environment: The UII Project, J.L. Moore and J. Winter, eds., pp. 483-520. Office of Contract Archaeology, University of New Mexico, Albuquerque.

#### STATE OF PRESERVATION

#### Diagnosis

The relatively good state of preservation of the archeological remains in Chaco Canyon is a result of quality craftsmanship that has survived the elements through the centuries because of its dry and remote location. Protection from detrimental acts of people has been afforded through the parks enabling legislation, which requires that preservation of cultural resources be given high priority. Many walls, tools, personal goods, datable material, and other objects of information remain in their original context.

This is not to imply that all Chacoan features are safe. Evidence of the Chacoan system extends far beyond the park's boundaries and, therefore, outside the protective jurisdiction of the National Park Service. Gas and mineral deposits have spawned greater activity in the area by the industrial world. Encroaching mining and energy developments are threatening the integrity of many outlying Chacoan communities. Specific guidelines have been set forth in the Land Protection Plan for Chaco Culture that will guard against the loss of cultural resources and resolve the disputed issues of land use for economic reasons as opposed to preservation. Under the plan, resource disturbing activities in the park must be clearly justified. Acquisition and preservation by cooperative protection efforts are proposed for those sites not controlled by the National Park Service.

#### Agent Responsible for Preservation/Conservation

The Superintendent is responsible for carrying out the preservation and conservation mission of the National Park Service at Chaco Culture. The general responsibility falls within the guidance provided by the Regional Director, Southwest Region. Assistance to the superintendent is readily available from the region's preservation experts.

#### History of Preservation/Conservation

Preservation philosophies and techniques have changed dramatically since early expeditions first encountered the ruins in Chaco Canyon. Spanish troops are thought to have entered Chaco Canyon in the middle 1600s. Documentation of their impressions, findings, and activities is presumed to have been destroyed during the Pueblo Revolt of 1680, however a record does exist that provides for land grants in 1768 of an area immediately south of Chaco Canyon to two Spaniards. Some of the first American pioneers and military expeditions passed through the canyon on their way west, however they were more concerned about possible confrontations with the local Navajos than about investigating the ruins of the Anasazi. Their periodic expeditions were made until the 1840s.

In 1849, detailed descriptions, measurements, and drawings were done of Pueblo Pintado, Una Vida, Hungo Pavi, Chetro Ketl, Pueblo Bonito, Pueblo del Arroyo, and Penasco Blanco by First Lieutenant James H. Simpson while on reconnaissance for the United States Army. The next close examination began in 1877 by William Jackson, a photographer for the Geological Survey. He expanded on the descriptions made by Simpson and also recorded information on Kin Kletso, Casa Chiquita, Pueblo Alto, and a prehistoric stairway. By the 1880s a wealth of descriptive data had been compiled, including documentation of pilfering at Pueblo Bonito.

A new era of "preservation" began in 1895 when Richard Wetherill entered the canyon as a guide and later homesteaded next to Pueblo Bonito. Wetherill was responsible for generating finances for the first archeological excavation in 1896, which was directed by George Pepper. Although a final report was never prepared, Pepper's work resulted in a book-length publication of his field notes and a few articles in journals. The relics recovered were property of the Hyde Exploring Expedition and were donated to the American Museum of Natural History, with whom Pepper was affiliated. There has been speculation that a few of the artifacts recovered served as marketable items of reimbursement to the expedition's financiers. Nearly the entire collection currently remains in storage at the museum.

Less substantial recovery parties came and went until 1900 when Dr. Edgar Hewett of the Museum of New Mexico lobbied to establish a national policy to protect the integrity of our cultural resources. His conscientious and successful efforts, which resulted in the passage of the 1906 Antiquities Act, were largely inspired by the severe damage to the ruins caused by the removal and subsequent sale of Chacoan artifacts. In 1901 the United States government assigned special agent S. J. Holsinger to assess the value of the canyon's cultural heritage and threats to its preservation. As a conse quence, Holsinger provided information on the previously unrecorded ruins of Casa Rinconada, Tsin Kletzin, Kin Klizhin, Kin Bineola, and Kin Ya'a. His report was instrumental in suspending activities detrimental to the preservation of culturally significant resources of the park.

The National Geographic Society sponsored excavations in the 1920s led by Neil Judd at Pueblo del Arroyo and Pueblo Bonito. For the first time, structural treatment was performed. One of Judd's project goals was to record architectural features after exposing the walls, which left them vulnerable to rapid deterioration. Rather than backfilling to stabilize walls, as was done previously, masonry was replaced by using original construction rubble. Additionally, measures were taken to direct erosional forces away from the rooms. One hundred thirty-eight rooms and 24 kivas at Pueblo Bonito along with 44 rooms and 7 kivas at Pueblo del Arroyo were preserved in this manner.

The next major projects involving preservation were those conducted by Dr. Hewett who directed the University of New Mexico archeological field school. Full-scale excavation commenced in 1929 at Chetro Ketl and, a few years later, at the great kivas of Casa Rinconada and Kin Nahasbas. The nature and extent of these earlier endeavors are somewhat vague since the

procedures, by today's standards, were not recorded in sufficient detail. The University's field school excavations continued periodically until 1948 under the direction of several faculty members and, over the years, produced another preservation problem. Original fill dirt was carted away and dumped in or near the Chaco Wash, thus reducing availability of backfill material. The park responded to the problem by stabilizing several sections of most of the major sites which had been excavated. The park initiated a major preservation project in 1951 when they began the stabilization of Kin Kletso. Throughout the park's preservation history varying methods and materials were successfully used, leaving the original fabric and design for future research and interpretation.

Currently, Chaco Culture's paramount problem in ruins preservation is counteracting normal deterioration. Preservation methods employed conform to National Park Service standards and are of a non-destructive nature. The processes selected to be followed are tested before they are implemented. A schedule has been developed to stabilize all exposed walls. Backfilling of rooms has been determined to be the most effective technique for stabilizing many walls. Plans are currently underway to provide extensive stabilization for each major ruin, after which time they will be adequately cared for by annual cyclic maintenance on 15% of a structure's surface. This procedure is adequate in controlling the natural attrition rate. It will eventually eliminate stressful pressure points, the need for extensive mortar repointing, the need for veneer replacement, and it will also reduce drainage problems.

Improvements in preservation methods are constantly being developed. One that has revolutionized the approach to preservation is remote sensing. Locating, monitoring, mapping, and delineating archeological features can be accomplished with virtually no disturbance to the resources, which is of tremendous benefit when working with fragile, non-renewable resources.

Special techniques in aerial photography have made possible the discovery and mapping of most of the prehistoric road systems. More than 400 kilometers (250 miles) of Chacoan roads have been mapped using remote sensing techniques. Success in identifying the roads has led to several worthwhile projects, including the first excavations and scientific analysis of these traveled corridors.

Chacoan outliers have been extensively documented using aerial photographs and, thus, provided an illustrative basis that was instrumental in the passage of Public Law 96-550. Their usefulness continued as they served as interpretive maps in their nomination to, and subsequent listing on, the National Register of Historic Places. Other types of advanced technology in photogrammetry have resulted in precision graphic documentation of large, structural sites. This method has been used to produce maps of almost all of the prehistoric towns in Chaco Canyon.

The data collected at Chaco during recent archeological investigations were not limited to cultural remains. Natural resources such as soils, geology, hydrology, and vegetation have been described and plotted, making available various zone maps of the area. These maps obviously serve to facilitate

studies other than archeological research. The park's soil erosion study, which included seismographic testing, is an example. The data have provided the park with the first reliable interpretation on the effects of soil movement and ground shocks by various forces.

Benefits of remote sensing are substantial when compared to the lengthy process of relying solely on "hands-on" methods. Products can usually be generated with the same or better degree of accuracy, in less time, and at a fraction of the cost required to make direct measurements. An unusual benefit is being able to conduct experiments to assess the usefulness of various remote sensing techniques since there is no disturbance to the resources.

The new material produced by remote sensing that pertain to the roads, buildings, and environment of Chaco has proven to compliment and supplement existing maps. This is especially true in situations where landforms and environment are changing, where minute movements in structures are occurring, and when previous maps are of inadequate resolution. The Southwest Regional Office expertise will allow remote sensing to continue as an important factor in the preservation of Chaco's resources.

#### Means for Preservation/Conservation

The United States government recognizes an obligation to conserve its prominent cultural resources. Therefore, Chaco Culture and other authorized units of the National Park Service receive the greatest available protection in the country. The park is a secure component of the federal government, receiving annual appropriations to carry out its conservation mission.

There is a host of federal conservation laws that share relevance to the park, including the Antiquities Act, Historic Sites Act, National Historic Preservation Act (as amended), Archeological Resources Protection Act, American Indian Religious Freedom Act, National Environmental Policy Act, Clean Air Act, water pollution acts, Endangered Species Act, and other conservation acts. There is a variety of executive orders, including E0-11593, which deals specifically with cultural resources. In addition, Chaco Culture is on the National Register of Historic Places. The interest in preserving the area is also explicit in the Antiquities Preservation Law and natural resources protection laws established by the State of New Mexico.

The knowledge we have gained towards understanding the cultural process of the Chacoan occupation is accomplished through research. A 15-year archeological survey and excavation project was begun in 1971. The research conducted by the Division of Cultural Research (NPS) brought to light new aspects of the Chacoans and their environment. Several publications have been released, with more forthcoming. The division maintains a special collection of manuscripts that report on the research. The National Park Service commitment, demonstrated by sponsorship of the project, has inspired a multitude of studies by outside entities. We now have a broader

knowledge of the Chacoan system, the cultural processes within the system, the limitations on the people by their physical environment, the effect that the people had on their natural environment, and ways to better manage the park's resources.

## Management Plans

As a regular course of action, park administrators prepare and update General Management, Resource Management, Joint Management, and Land Protection Plans specific to the park. Guides such as the Statement for Management, Basic Operations Statement, and Prehistoric Structures Preservation Guide, assist in reaching management objectives.

The National Park Service has consolidated its nationwide policy in its Cultural Resource Management Guidelines (NPS-28) which is augmented by a Technical Supplement. Site- and park-specific documents such as Historic Structure Reports, Cultural Sites Inventories, and List of Classified Structures provide an abundance of quantifiable data relative to the park's resources.

## JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST

Chaco Culture National Historical Park has been identified as the center of a complex prehistoric culture that administered a socioeconomic and religious network of widespread outlying communities. No system of this character was developed elsewhere by socially and politically similar societies in equivalent environments.

Chacoans are distinguished as a sub group within the prehistoric Anasazi culture. Generally, groups of Anasazi were separated by geographical boundaries which set the conditions for their evolution into subtly distinct groups. Among these sub groups are the Mesa Verde, Chaco, Rio Grande, and Kayenta Anasazi. As a World Heritage Site, Mesa Verde National Park is an excellent representation of the prehistoric Anasazi culture. It contains fine examples of generic Anasazi traits, especially the well preserved cliff dwellings for which it is most famous.

Chaco Culture National Historical Park displays a markedly separate and unique significance as compared to Mesa Verde. Distinctions of sub groups within a culture rely on slight variations in life style, material culture, and technology. However, slight variations are not what characterize the Chaco Anasazi. Their deviations are of considerable scope and magnitude. Chacoans cannot be thought of as average Anasazi people nor can they adequately be represented by those generic criteria.

# Cultural Properties Criteria

iii) unique or at least exceptional testimony to a civilization which has disappeared.

Chaco Culture preserves the physical remains of the Chacoans; a unique population of a culture that has been extinct for hundreds of years. The structures in Chaco Culture are the most outstanding examples of the communities that were built during the phenomenon. All of the cultural remains at the park including 2800 ruins and archeological sites meet the test of authenticity in design, materials, craftsmanship, and location.

Chaco Canyon with 795 prehistoric structures represents the nucleus of the Chaco culture. The structure of the prehistoric Chaco Canyon society is not exactly known, however there is evidence to indicate that it supported positions of high social status and that the economy involved the redistribution of resources among outlying communities, as well as possible pilgrimages of large numbers of people to the central canyon area.

The development of the Chaco phenomenon began as early as AD 900 when an extensive trade and alliance network was in operation. Construction of the large masonry structures in Chaco Canyon was initiated then and its economy and religion became highly integrated. Eventually the system comprised as many as 70 outlying communities, encompassing most of northwestern New Mexico. After the basic network became formalized, the people enjoyed approximately 150 years of the system's success before it collapsed, resulting in the ultimate extinction of the Chacoan adaptation soon after AD 1150.

The scale of effort depicted in almost all Chacoan features resulting from AD 900 to 1150 far surpasses anything achieved by their contemporary neighbors. The rooms, kivas, and communities were twice the size of common Anasazi structures. They introduced and fully integrated a road system and great kivas for mass communal activities. They developed a successful import business. They restructured the normal Anasazi way of life.

A unique representation of this tradition, from its emergence as a distinct entity to its extinction, is contained within the boundaries of Chaco Culture National Historical Park. At the very least, Chaco is a remarkable example of early massive pueblo architecture. The buildings preserved at Chaco Canyon are by far the earliest examples of the modern Pueblo Indian building tradition: terraced room blocks massed around plazas, with central kivas. This concept continues over 1,000 years later in the modern pueblos.

Chacoan building probably represents the highest development of technical excellence, craftsmanship, and coordination of effort in the prehistoric Anasazi era. Chacoan builders used very simple materials (sandstone, mud mortar and pine beams) to erect walls which still stand over five stories. The scale and planning of these buildings, which is most evident in the geometry and symmetry of their plan or layout, and labor investment, is unique in the southwest. The buildings must have been designed by a small group or possibly even a single individual. In the creative sense, Chacoan architecture was building inspired by an advanced society, and not simply expedient housing.

The Chacoan system itself was its peoples' most remarkable achievement given the natural resistence to the restructuring of a society. The marginal environment of Chaco had no natural resources of benefit yet it was the nucleus of a widespread and dominant society. What was derived from Chaco was the ability to organize and manage highly dispersed resources and to control the cultural values of others. Chaco was not merely an influence over a span of time, it dominated and altered the traditional social, economic, and religious practices over a large area in a marginal environment. These monuments to a vanished civilization are worthy of World Heritage status.

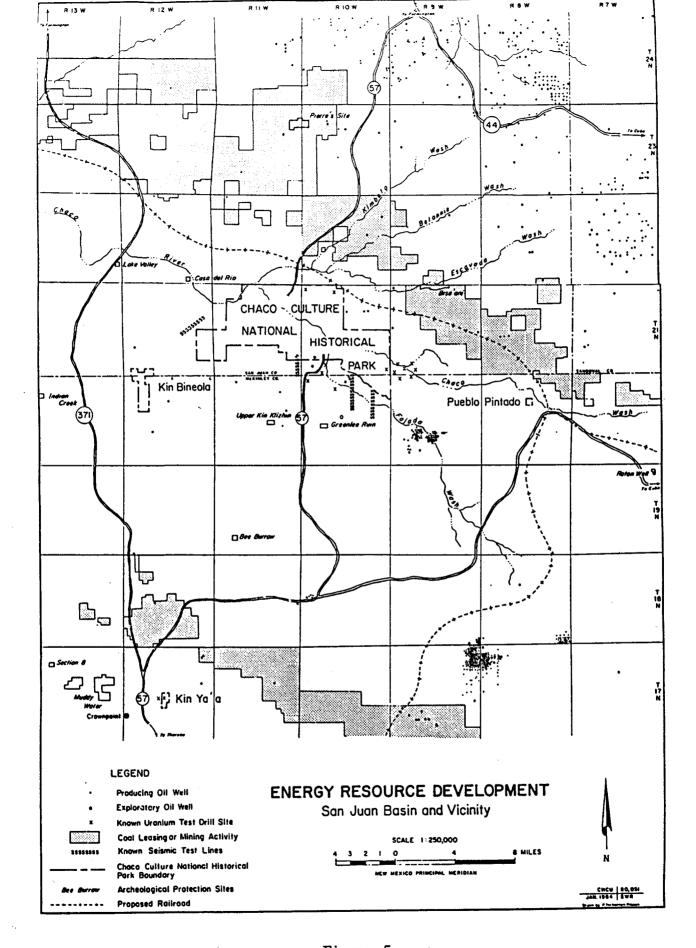


Figure 5

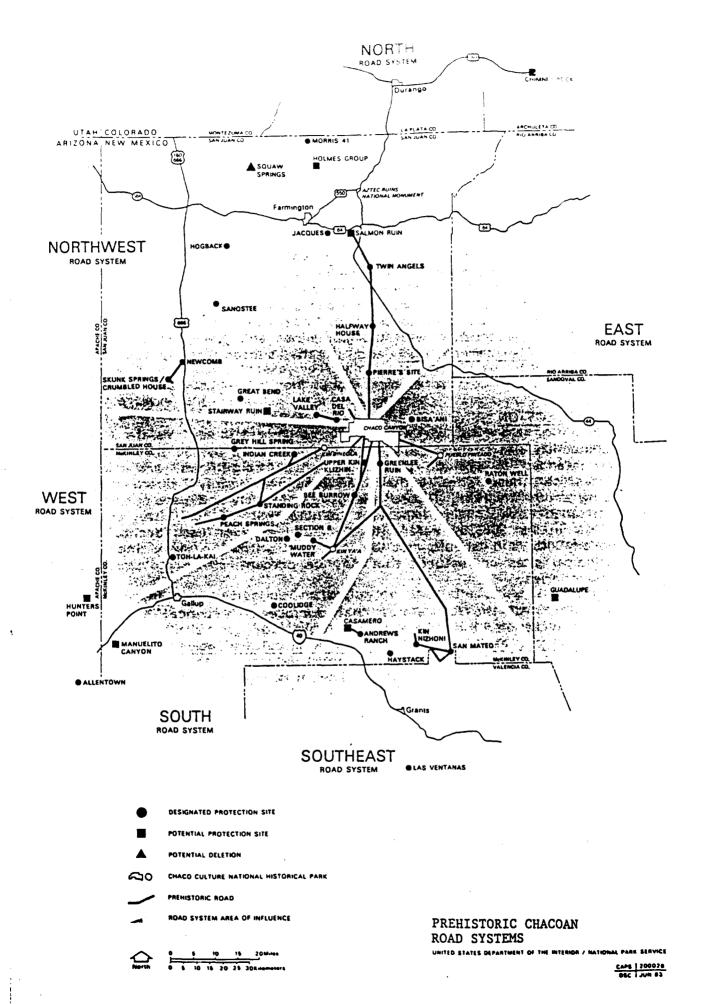


Figure 4

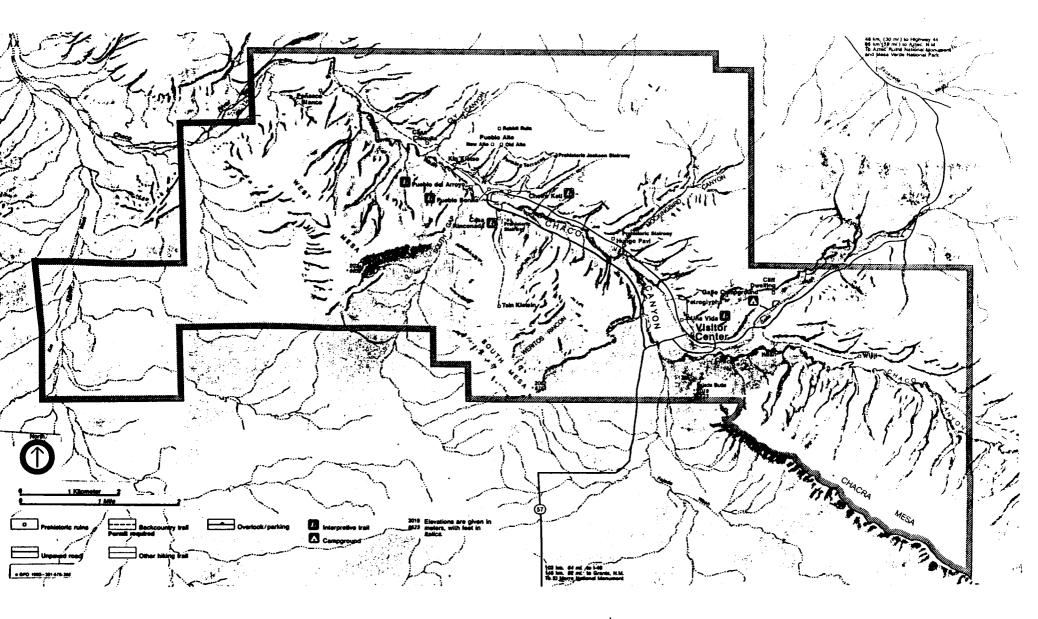


Figure 3. Locational map of major archeological ruins in Chaco Canyon.



# **ICOMOS**

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS МЕЖЛУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ WORLD HERITAGE LIST N° 353 Rev.

#### A) IDENTIFICATION

Nomination: Chaco Culture National Historical Park

Location: New Mexico

State Party: United States of America

Date: April 16, 1987

#### B) ICOMOS RECOMMENDATION

That the proposed cultural property be included on the World Heritage List on the basis of criterion III.

#### C) JUSTIFICATION

In 1985 ICOMOS expressed a favourable opinion for inclusion of this property on the World Heritage List.

However, it regretted that some famous sites, such as the Pueblo Aztec and the very characteristic road network of the Chacoan culture at its apogee (ca. 1020 - ca. 1110) had been excluded from the nomination.

Consequently, the Bureau of the World Heritage Committee recommended that the United States government examine the possibilities of extending the proposed zone to assure a broader representation of archaeological evidence of the prehistoric Chacoan culture.

The new proposal received on 16 April 1987 perfectly satisfies these wishes and includes Pierre's site, Halfway House, Twin Angels and Pueblo Aztec -these four sites stretching along the south-north great road beginning at Chaco- and Kin Nizhoni and Casamero -two sites depending on the south road network.

This new nomination better illustrates the specificity of the Chacoan culture and ICOMOS recommends inclusion of this cultural property on the World Heritage List on the basis of criterion III.

ICOMOS, May 1987

# **ICOMOS**

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS МЕЖДУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ

#### LISTE DU PATRIMOINE MONDIAL

WORLD HERITAGE LIST N° 353

A) IDENTIFICATION	A) IDENTIFICATION		
Bien proposé: Parc national historique de la culture Chaco	Nomination: Chaco Culture National Historical Park		
<u>Lieu</u> : Nouveau Mexique	Location: New Mexico		
Etat partie: Etats-Unis d'Amérique	State party: United States of America		
<u>Date</u> : 31 Décembre 1984	Date: December 31, 1984		
B) RECOMMANDATION DE L'ICOMOS	B) ICOMOS RECOMMENDATION		
Que ce bien culturel soit inscrit sur la Liste du Patrimoine Mondial au titre du critère III.	That this cultural property be included on the World Heritage List on the basis of criterion III.		
C) JUSTIFICATION	C) JUSTIFICATION		
Agriculteurs sédentaires, les Anasazi ont occupé, de 300 à 1500 environ, la majeure partie du sud-ouest des Etats-Unis actuels. Au sein de cette culture (bien représentée par le site de Mesa Verde, inscrit en 1978 sur la liste du Patrimoine Mondial), les Chaco s'affirment comme un groupe autonome dont les recherches archéologiques récentes permettent de saisir la spécificité, de définir l'implantation géographique et de suivre l'évolution de 900 à 1150 environ.	The Anasazi, sedentary farmers as they were, occupied the greater part of the southwest of what is now the United States from approximately 300 to 1500. Within this culture (which is well represented by the Mesa Verde site, included on the World Heritage List in 1978) the Chacos appear as an autonomous group. Recent archaeological research has made it possible to define their specificity and their geographical extension and to follow their evolution from roughly 900 to 1150.		
Cette société intégra un grand nombre de communautés agricoles sur une vaste zone de 67.000 km² environ au nord-ouest du Nouveau-Mexique. Elle se caractérise par un système très élaboré d'occupation du sol comprenant une constellation d'agglomérations entourées de villages satellites et reliées par un réseau de routes.	This society consists of a great many agricultural communities spread over a vast area of some 67,000 square kilometers at the northwest portion of New Mexico. It is characterized by a very elaborate ground occupation system which includes a constellation of towns surrounded by satellite villages and linked by a road network.		
Le cañon du Chaco, où le service des	Chaco Canyon, where the National Park		

Parcs Nationaux gère 14.000 hectares environ, offre la plus forte concentration de sites archéologiques de la zone. Les premiers "pueblos" ne diffèrent pas des habitats contemporains Anasazi du nord mais, dès 900-1020 environ, les traits caractéristiques de la culture Chaco apparaissent dans le canon occupé sur toute sa longueur (16 km) et relié aux agglomérations du sud par un système routier.

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Après étude du dossier, l'ICOMOS constate que seeks to replace a cultural property la proposition des Etats-Unis tend à substituer un bien juridiquement défini (le Parc National et les annexes de Kin Bineola, Kin Ya'a et Pueblo Pintado) à un bien culturel (les vestiges de la civilisation Chaco). L'ICOMOS note, par exemple, que les ruines célèbres du Pueblo Aztec, bien qu'illustrées dans la proposition, en sont exclues, étant situées à 85 km au nord du Parc national.

Service controls some 14,000 hectares, is the area with the highest concentration of archaeological sites of the entire zone. The first pueblos were identical to the contemporary dwellings of the northern Anasazis. But, from roughly 900 to 1020, the characteristic features of Chaco culture began to appear in the canyon which was occupied along its entire length (16 kilometers) and linked to the southern towns by a road network.

The zenith was from ca. 1020 to ca. 1110. The highly organized reconstruction of old dwelling places, such as Pueblo Bonito and Peñasco Blanco demonstrates their skill in the use of building techniques in a difficult environment (water for the mortar could not be found locally; the sandstone itself taken from nearby quarries was difficult to convert and transport). At the same time it illustrates the increasing complexity of the Chaco social structure (circular kivas having an essentially religious role appeared on a regular basis in the middle of an increasingly differenciated unitary dwelling). At the same time, more and more roads were built and the signs of extensive trading became more manifest (imports of ceramics, lithic materials, including turquoise). This phase, which was the one of the group's sharpest population growth and the highest human concentration in the valley was followed by a period of rapid decadence about 1110. From 1140 to 1200 the Chaco population died out and the pueblos (where the dwellings were subdivided by partitions apparently to accommodate surrounding populations in precarious conditions) were abandoned. The region remained practically uninhabited until the 17th century when it was taken over by Navajo Indians.

After having reviewed the file, ICOMOS notes that the United States proposal (the vestiges of the Chaco civilization) with a legally defined property ( the National Park and the additions of Kin Bineola, Kin Ya'a and Pueblo Pintado). ICOMOS has noted, for instance, that the famous Pueblo Aztec ruins, though illustrated in the proposal are excluded from it as they are located 85 kilometers to the north of the National Park.

D'autre part, le système de routes, si caractéristique de la culture Chaco à son apogée, se trouve évidemment exclu dans sa quasi totalité, avec la route du nord (du cañon à Twin Angels et Salmon Ruins) et les deux routes du sud (vers Ruddy Water et vers San Mateo).

En dépit de ces réserves, l'ICOMOS donnerait un avis favorable à la proposition au titre du critère III, dans la mesure où le Comité estime souhaitable que chaque faciès d'une culture préhistorique ou protohistorique soit évoqué par un exemple sur la liste du Patrimoine Mondial. Moreover, the road network which is so characteristic of Chaco culture at its peak is almost entirely excluded from the proposal. This is the case with the northern road (from the canyon to Twin Angels and Salmon Ruins) and the two southern roads (to Ruddy Water and to San Mateo).

In spite of these reservations, ICOMOS will adopt a favorable position with respect to the proposal on the basis of criterion III in so far as the Committee considers it desirable that each and every aspect of a prehistoric or protohistoric culture be represented by an example on the World Heritage List.

ICOMOS, Juillet / July 1985.

# **ICOMOS**

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS МЕЖЛУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ LISTE DU PATRIMOINE MONDIAL N° 353 Rev.

#### A) IDENTIFICATION

Bien proposé: Parc national historique de la culture Chaco

Lieu: Nouveau Mexique

Etat partie : Etats Unis d'Amérique

Date: 16 Avril 1987

#### B) RECOMMANDATION DE L'ICOMOS

Que le bien culturel proposé soit inscrit sur la Liste du Patrimoine mondial au titre du critère III.

#### C) JUSTIFICATION

En 1985, l'ICOMOS avait formulé un avis favorable à l'inscription de ce bien sur la Liste du Patrimoine mondial, en regrettant seulement que certains sites célèbres, comme le Pueblo Aztec, aient été exclus de la proposition ainsi que le système de routes, si caractéristique de la culture Chaco à son apogée (ca. 1020 - ca. 1110).

Le Bureau du Comité du Patrimoine mondial avait recommandé en conséquence que le gouvernement des Etats Unis étudie la possibilité d'élargir la zone à inscrire pour avoir une représentation plus large d'éléments archéologiques de la culture préhistorique Chaco.

La nouvelle proposition reçue le 16 Avril 1987 répond parfaitement à ces souhaits en incluant Pierre's Site, Halfway House, Twin Angels et Pueblo Aztec, quatre sites jalonnant la grande route sud-nord au départ de Chaco, ainsi que Kin Nizhoni et Casamero, deux sites dépendant du réseau routier sud.

Ainsi formulée, la proposition d'inscription illustre mieux la spécificité de la culture Chaco et l'ICOMOS recommande l'inscription de ce bien culturel sur la Liste du Patrimoine mondial au titre du critère III.

ICOMOS, Mai 1987

# ICOMOS

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES CONSEIO INTERNACIONAL DE MONUMENTOS Y SITIOS МЕЖДУНАРОЛНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ

#### LISTE DU PATRIMOINE MONDIAL

WORLD HERITAGE LIST N° 353

A) IDENTIFICATION	A) IDENTIFICATION		
Bien proposé: Parc national historique de la culture Chaco	Nomination: Chaco Culture National Historical Park		
<u>Lieu</u> : Nouveau Mexique	Location: New Mexico		
Etat partie: Etats-Unis d'Amérique	State party: United States of America		
Date: 31 Décembre 1984	<u>Date</u> : December 31, 1984		
B) RECOMMANDATION DE L'ICOMOS	B) ICOMOS RECOMMENDATION		
Que ce bien culturel soit inscrit sur la Liste du Patrimoine Mondial au titre du critère III.	That this cultural property be included on the World Heritage List on the basis of criterion III.		
C) JUSTIFICATION	C) JUSTIFICATION		
Agriculteurs sédentaires, les Anasazi ont occupé, de 300 à 1500 environ, la majeure partie du sud-ouest des Etats-Unis actuels. Au sein de cette culture (bien représentée par le site de Mesa Verde, inscrit en 1978 sur la liste du Patrimoine Mondial), les Chaco s'affirment comme un groupe autonome dont les recherches archéologiques récentes permettent de saisir la spécificité, de définir l'implantation géographique et de suivre l'évolution de 900 à 1150 environ.	The Anasazi, sedentary farmers as they were, occupied the greater part of the southwest of what is now the United States from approximately 300 to 1500. Within this culture (which is well represented by the Mesa Verde site, included on the World Heritage List in 1978) the Chacos appear as an autonomous group. Recent archaeological research has made it possible to define their specificity and their geographical extension and to follow their evolution from roughly 900 to 1150.		
Cette société intégra un grand nombre de communautés agricoles sur une vaste zone de 67.000 km² environ au nord-ouest du Nouveau-Mexique. Elle se caractérise par un système très élaboré d'occupation du sol comprenant une constellation d'agglomérations entourées de villages satellites et reliées par un réseau de routes.	This society consists of a great many agricultural communities spread over a vast area of some 67,000 square kilometers at the northwest portion of New Mexico. It is characterized by a very elaborate ground occupation system which includes a constellation of towns surrounded by satellite villages and linked by a road network.		
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