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IUCN REVIEW

World Heritage Nomination

1. NAME: Grand Canyon National Park (GCNP)
2. LOCATION: State of Arizona, South Western, United States
3. NOMINATED BY: Mr. David Hales
Deputy Assistant Secretary
Fish & Wildlife & Parks
US Department of Interior
4. DOCUMENTATION:
 - i) Nomination, dated February 2, 1979
 - ii) Master Plan for GCNP approved June 1976
 - iii) Topographic map 1:62:500
 - iv) Seventeen illustrations included with nomination form
5. BACKGROUND:
 - i) Grand Canyon National Park was established by an Act of Congress approved by President Woodrow Wilson, February 26, 1919. With 493,270 ha. it is the fourth largest of the US National Parks.
6. SUMMARY DESCRIPTION:

The Grand Canyon is about 1 mile (1.5 km) deep. It ranges in width from 200 metres to 30 kms. Measured along the river it is 443 kms. long. Within the walls of the canyon we have a view of geologic time that covers two billion years. The canyon is a vast biological museum stretching through five different life zones.

JUSTIFICATION:

The area has been evaluated against the operational guidelines for the implementation of the World Heritage Convention as amended at its 2nd Meeting.

Outstanding universal value

The characteristics of the Grand Canyon are so exceptional that they meet all four of the criteria (i) evolutionary history (ii) ongoing geological process (iii) exceptional natural beauty and (iv) contain rare or endangered species. Some of these features are as follows:

Criteria (i) Exposed canyon walls contain depositions from the Cenozoic, Mesozoic (limited) Paliozoic, Cambrian and pre-Cambrian (p. 10-11 nomination form).

Criteria (ii) "The Grand Canyon of the Colorado is the world's most moving geographical wonder" --- To us now it is the biggest living lesson in geological history in the world."

Geography

The Macdonald Illustrated Library

Prof. Gordon Manley, (ed.)

Criteria (iii) A 1903 statement by President Roosevelt is attested to by approximately 3,000,000 visitors per year to the national park.

"In the Grand Canyon, Arizona has a natural wonder which, as far as I know, is in kind absolutely unparalleled throughout the rest of the world."

National Geographic, July 1978

Criteria (iv) Seventeen endangered species are listed in the nomination form. Two unique species are listed, the Kaibab squirrel and the pink Grand Canyon rattlesnake.

Cultural: The nomination includes extensive references to cultural heritage which have not been evaluated in this review.

INTEGRITY:

The park has been managed by the US National Park Service as a National Park since 1919. A management plan has been prepared. (August 1976).

Conservationists argue that the wilderness character of the park is being destroyed through excessive visitor use. (National Geographic, July 1978). There is little doubt that excessive visitor use may have an impact on some of the Canyon's biological systems - they will not however effect its character as a World Heritage Site.

RECOMMENDATION:

The Grand Canyon National Park be placed on the World Heritage List.



International Union for Conservation of Nature and Natural Resources

March 1979

UNITED STATES OF AMERICA

NAME Grand Canyon National Park

MANAGEMENT CATEGORY II (National Park)
X (World Heritage Site; Criteria i, ii, iii, iv)

BIOGEOGRAPHICAL PROVINCE 1.19.12 (Rocky Mountains)

GEOGRAPHICAL LOCATION Northern portion of the State of Arizona; Coconino and Mohave counties. The park lies between the Gila and Salt rivers. 35°43'-36°45'N, 111°36'-113°56'W

DATE AND HISTORY OF ESTABLISHMENT Created a national park on 26 February 1919 by an act of Congress. First protected in 1893 as a forest reserve in which mining, lumbering and hunting continued to be allowed; upgraded to a game reserve in 1906, giving protection to the wildlife; redesignated a national monument in 1908. Accepted as a World Heritage site on 24 October 1979.

AREA 493,270ha. Enlarged from 363,389ha by an act of Congress on 3 January 1975 to include all the lands previously designated as Grand Canyon and Marble Canyon national monuments, together with portions of Lake Mead National Recreation Area, Glen Canyon National Recreation Area, Kaibab National Forest and other public and private lands. 34,000ha were simultaneously removed from the park administration and incorporated in Havasupai Indian Reservation.

LAND TENURE 491,470ha is federally owned, of which 9,833ha is administered by the United States Bureau of Indian Affairs, Navajo Indian Tribe. A further 1,795ha comprise private smallholdings.

ALTITUDE 518m-2,793m

PHYSICAL FEATURES The park is dominated by the spectacular Grand Canyon; a twisting, 1.5km deep and 445.8km long gorge, formed during some six million years of geological activity and erosion by the Colorado River on the pained earth's crust (2.5km above sea level). It divides the park into the North Rim and South Rim which overlook the 200m-30km wide canyon; the buttes, spires, mesas and temples in the canyon are in fact mountains looked down upon from the rims. On-going erosion by the seasonal and permanent rivers produces impressive waterfalls and rapids of washed-down boulders along the length of the canyon and its tributaries. In all there are some 40 major rapids and a further 400 lesser rapids and riffles. Exposed horizontal geological strata in the canyon span some 2,000 million years of geological history, providing evidence of the four major geological eras, early and late Precambrian (the oldest at some 2,000 million years), Paleozoic, Mesozoic and Cenozoic. The early Precambrian strata, known as the Vishnu Schist formation, are devoid of fossils. The first fossil evidence appears in the late Precambrian Bass Limestone with remains of early plant forms. Subsequent strata dating from the Paleozoic

Infobase produced by WCMC, January 1992

era catalogue the sequence of local history, with both marine and terrestrial fossils demonstrating the periods in the distant past when the whole region was alternately submerged and raised. The Mesozoic era is less well illustrated within the park, but tracks made by early reptiles are found to the east in the Navajo Indian reservation. There are a few fossil remains of mammals from the early Cenozoic.

CLIMATE Altitudinal range provides a variety of climates and habitats, ranging from desert to mountain conditions.

VEGETATION Five vegetation zones have been described: Hudsonian on the North Rim plateau with Colorado blue spruce Picea pungens and Rocky Mountain maple Acer glabrum; Canadian near the North Rim, with aspen Populus tremuloides and Ponderosa Pinus ponderosa and forests of Douglas fir Pseudotsuga menziesii, white fir Abies concolor and aspen Populus tremulus at 2,500m; high altitude Transition (Ponderosa) forests of Pinus ponderosa and gambel oak Quercus gambelii; upper Sonoran on and below the South Rim with Utah juniper Juniperus osteosperma, pinon pine Pinus edulis and sagebrush Artemisia spp.; and the Lower Sonoran down the Canyon and at the bottom (desert cacti, rabbitbrush, mesquite, Mormon tea and Manzanita). Over 1,000 plant species have so far been identified from the park, comprising representatives of five out of the seven life zones defined for North America by Dr C. Hart Merriam in the late 19th century. Eleven plant species listed as threatened in the United States' statutes are found in the park; Palmer amsonia Amsonia palmeri, goldenweed Haplopappus salicinus, Draba asprella var. kaibensis, plains cactus Pediocactus bradyi, scouler catchfly Silene rectiramea, phacelia Phacelia filiformis, wild buckwheats Eriogonum darrovii, E. thompsonae var. atwoodi and E. zionis var. coccineum, primrose Primula hunnewellii and clute penstemon Penstemon clutei. In addition, there are 15 plant species recommended for consideration as threatened species under the Endangered Species Act. Sentry milkvetch Astragalus cremnophylax var. cremnophylax, previously listed as threatened, has been proposed for listing as an endangered species under US statutes.

FAUNA 76 mammals, 299 birds and 41 reptiles and amphibians have been identified from the park and some 16 fish species inhabit the Colorado River and its tributaries. Kaibab squirrel Sciurus kaibabensis is an endemic species, found only on the North Rim, and a sub-species of rattlesnake Crotalus viridis abyssus occurs only in the Grand Canyon. Large mammals include coyote Canis latrans, mountain lion Felis concolor, bobcat F. rufus, mule deer Odocoileus hemionus, elk Alces alces, prong-horn antelope Antilocapra americana, and desert bighorn sheep Ovis canadensis. Rare or threatened birds listed under the United States Endangered Species Act of 1973 include California brown pelican Pelecanus occidentalis, bald eagle Haliaeetus leucocephalus and peregrine falcon Falco peregrinus anatum (V). A 1988-89 study of 25% of the park revealed the presence of at least 58 adult pairs of peregrine falcon, the largest population in any land management area in the lower states. Threatened fish include humpback chub Gila cypha and razorback sucker Xyrauchen texanus.

CULTURAL HERITAGE The park contains more than 2,600 documented prehistoric

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ruins, including evidence of Archaic cultures (the earliest known inhabitants), Cohonina Indians along the South Rim, and Anasazi Indians on both the South rim, North Rim, and within the Inner Canyon. Sometime after AD 1200, the canyon was abandoned, with reoccupation occurring after AD 1300. Hualapai and Havasupai Indians moved into the canyons at this time, where they remained undisturbed until the Anglo-Americans arrived in 1860. Archaeological remains show the adaptation of human societies to severe climate and physiographic environment.

The early 20th century built environment is an outstanding example of development in a major natural attraction by both private enterprise and the National Park Service. Early development provided a railway service, a major destination lodge in the El Tovar Hotel, as well as less luxurious accommodation. A development plan was compiled for the South Rim Development areas in 1924 and implemented throughout the 1930s as the built environment expanded to meet visitor expectations. Buildings were designed to blend with the surrounding environment. Roads were developed according to the flow of contours and the various user zones, including accommodation, industrial, commercial and residential. The Grand Canyon Lodge Complex was the most prominent feature and is now itself a National Historic Landmark. Many buildings and structures constructed during the 1930s have been placed on the National Register of Historic Places. This collection totals 397 buildings situated on the South rim, North Rim, and within the Inner Canyon. (J H Davis, pers. comm., 1989).

LOCAL HUMAN POPULATION The small village of Grand Canyon (809ha) lies within the park and contains the administrative, maintenance and visitor centres.

VISITORS AND VISITOR FACILITIES Services include lodging, campgrounds, mule rides, horse rides and bus tours. Hiking is popular and there are 38 trails (580km) running through the backcountry. Access to the park is via Highways 64, 67 or the Grand Canyon National Park Airport, which is located just outside the southern boundary. As of 1989, the park receives some four million visitors per year.

SCIENTIFIC RESEARCH AND FACILITIES Major studies have concerned geology, archaeology, fire management, sociology, ecological impacts and flora and fauna of the area. There is a resource study collection of flora, fauna and human artifacts at the park headquarters/visitor centre on the South Rim.

CONSERVATION MANAGEMENT A management plan was prepared for the park in 1977. The document is not a static one and additional amendments will be made when determined necessary. In accordance with the National Environmental Policy Act of 1969, the public is offered the opportunity to provide input into major management programmes for the park, plans and related reports consequently reflecting sound public proposals. These plans are updated when needed and are basic documents for park management. Recent examples include the Backcountry Management Plan and the Colorado River Management Plan. The 1985 Statement for Management is developed from

the 1977 Master Plan. County, regional, and state planning by agencies or other organisations for the northern portion of Arizona primarily focuses on promoting tourism. Present tourism is manageable. However, an increase may necessitate limiting the number of visitors that can enter the park at a given time and implementing a reservation system. The park is divided into the following approximate land-use zones, 64% natural zone, 0.2% developed zone and 23.8% special use zone (including Havasupai Umland and Sanup Plateau grazing allotments). Of the remaining 12%, an area of 121ha is defined as an historic zone and there are six designated natural areas for research and two environmental study areas. The park is buffered by publically owned (although not legally protected) lands where land-use can be controlled. The relative abundance of peregrine falcon has substantial implications for the recovery of the species in Arizona and the Southwest.

MANAGEMENT PROBLEMS Glen Canyon dam to the north of the park has noticeably reduced the rate of water flow down the Colorado River course, and changed the seasonal pattern of sediment aggradation degradation. The resultant reduction in silt and sediment carried in the river has slowed the rate of sedimentation. This affects not only the plants and animals which live along the river corridor, but also impacts the beach terrain used for camping by river-runners. Other threats include commercial interests, hydroelectric developments, mining, livestock grazing, aircraft overflights, motor vehicles and exotic, non-native flora and fauna which compete with and sometimes exclude native species. The air quality is affected by coal-powered plants in the region and aluminium smelters at Los Angeles, copper smelters in Northern Mexico, and regional haze. Visitation increased dramatically in the late 1980s causing traffic congestion and crowding at popular daytime attractions within the park (J H Davis, pers. comm., 1989).

STAFF 174 permanent staff members and 172 seasonal (1989)

BUDGET US\$8.0 million plus special funding was authorised for fiscal year 1988.

LOCAL ADMINISTRATION Superintendent, Grand Canyon National Park, PO Box 129, Grand Canyon, Arizona 86023

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DATE 1982, updated May 1990

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