

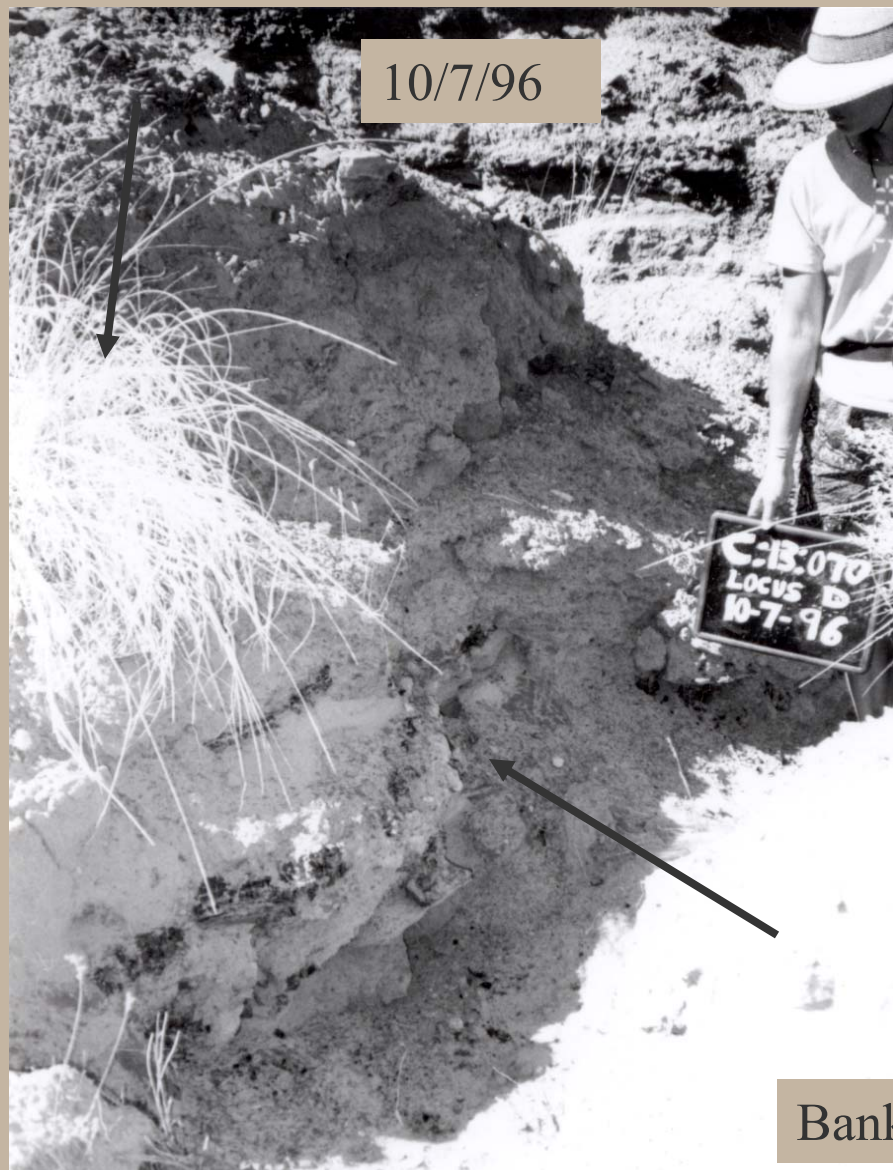
Cultural Resources Monitoring Grand Canyon National Park

TWG Presentation
Phoenix, AZ
February 27, 2003

What is Cultural Resources Monitoring?

- Monitoring is a tool to **detect change** -- the occurrence, direction, extent and intensity
- Monitoring focuses on answering specific questions related to preservation and integrity of historic properties along the river corridor. Answers to these questions **direct management decisions**

Ability to Detect Change



Ability to Detect Change



- 9,800 photographs
- 18 sites with medium format photographs
- Data analysis
- Repeat photography (Manone)

Gully formation



Ability to Detect Change

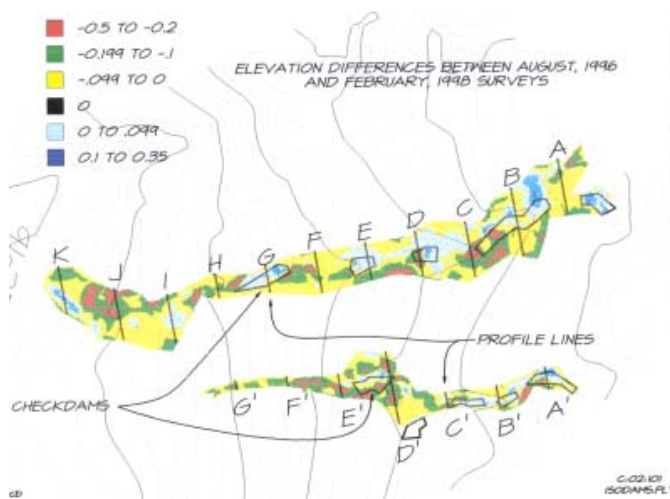
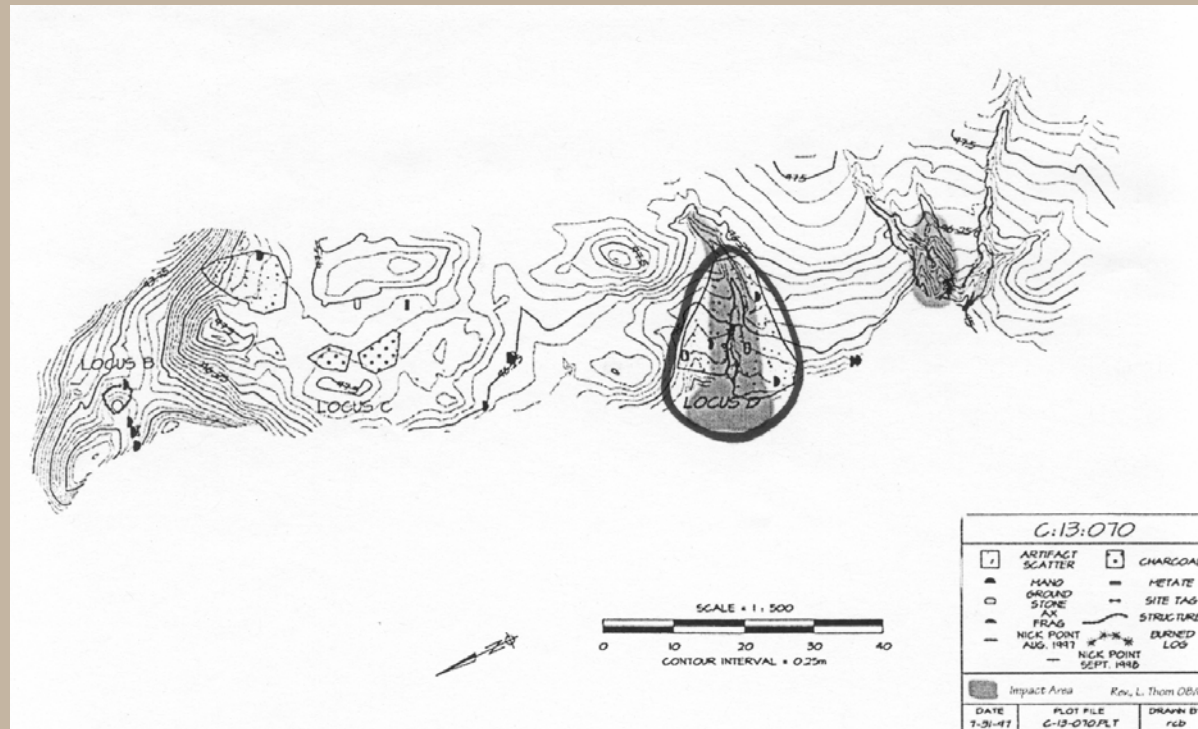
Eolian erosion



- New discoveries



Ability to Detect Change



- 78 sites with total station maps
- 128 NAU maps
- Remote sensing (Pederson)
- Alluvial terraces (Hereford)
- Geomorphic model (Thompson and Potochnik)
- Eolian transport (FIST)

Ability to Detect Change

- 10 sites with cross-sections



Where are we Monitoring?

- Area of Potential Effect 256,000 cfs. Most sites located in the lower mesquite zone 100,000 to 125,000 cfs
- Of the 438 sites recorded in 1990-91, 165 are actively monitored



Results of Core Monitoring

Core monitoring has resulted in a 38% reduction in sites monitored allowing us to focus on the most endangered properties

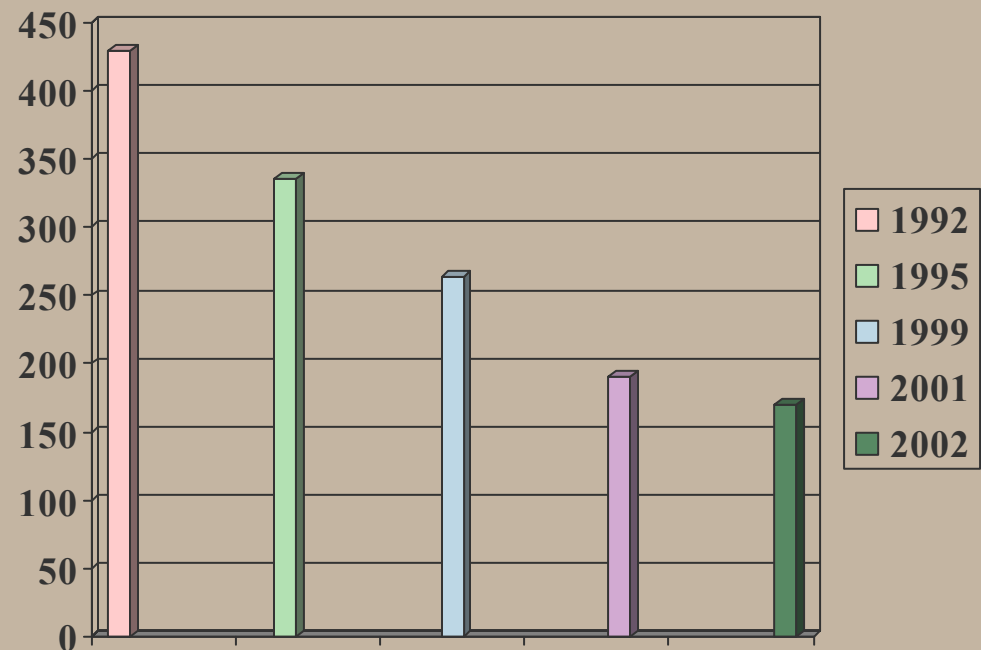
1992 -- 438 sites

1995 -- 336 sites (as identified in the FEIS)

1999 -- 264 sites

2001 -- 190 sites

2002 -- 165 sites



Types of Impacts: Nonrecreational vs. Recreational

(1994-2002)

Nonrecreational 56%

Surface erosion

Gullies

Arroyos

Bank slump

Side canyon erosion

Eolian erosion/deposition

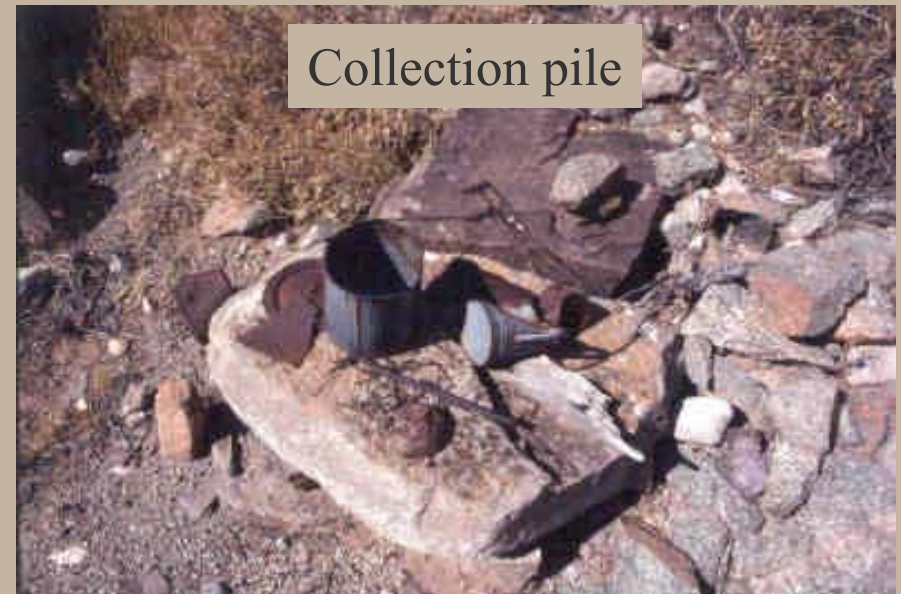
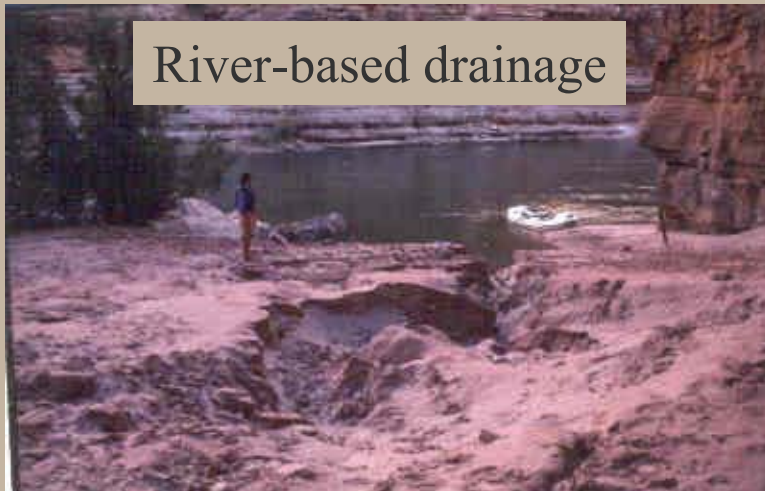
Recreational 23%

Social trails

Collection piles

Criminal vandalism

On-site camping



Protection and Preservation Actions

•Potential Remedial Actions

- *redirect or remove existing trails
develop for public interpretation
- *close site to public
take no action based on traditional cultural value
- *construct checkdams
- *vegetate or revegetate areas
- *stabilize banks with rock armor or similar technique
stabilize structures
- *collect artifacts
- *conduct subsurface testing and/or partial data recovery
conduct complete data recovery

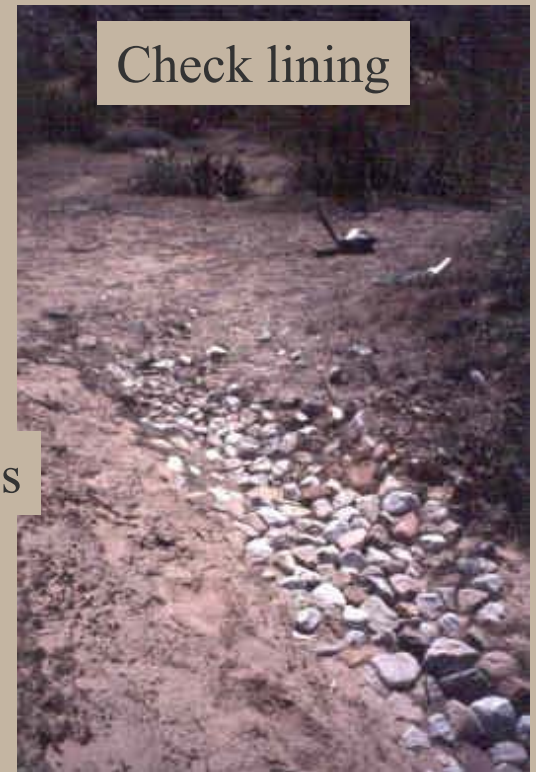
•Consultation Process

Management Actions



Checkdam

29 sites



Check lining



Trailwork

50 sites



Data recovery

34 sites

Legal Responsibilities

- *National Historic Preservation Act of 1966, as amended 1992*
- *National Environmental Policy Act of 1969*
- *Grand Canyon Protection Act of 1992*

Grand Canyon Protection Act of 1992

Sec. 1802. (a) The Secretary shall operate Glen Canyon Dam... in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and **cultural resources** and visitor use.

Grand Canyon Protection Act of 1992 continued

Sec. 1805. (a)

IN GENERAL. -- The Secretary shall **establish and implement long-term monitoring programs and activities** that will ensure that Glen Canyon Dam is operated in a manner consistent with that of section 1802.

RESEARCH. -- Long-term monitoring of Glen Canyon Dam shall include any necessary research and studies to determine the effect of the Secretary's actions under section 1804 on the natural, recreational, and **cultural resources** of Grand Canyon National Park and Glen Canyon National Recreation Area.

- *Final Environmental Impact Statement for the Operation of Glen Canyon Dam, 1995*
- *Record of Decision (Environmental Commitments) of 1996*

Record of Decision

2. Monitoring and Protection of Cultural Resources:

...Reclamation and the National Park Service, in consultation with Native American Tribes, will develop and implement a long-term monitoring program for these sites. Any necessary mitigation will be carried out according to a programmatic agreement written in compliance with the National Historic Preservation Act.