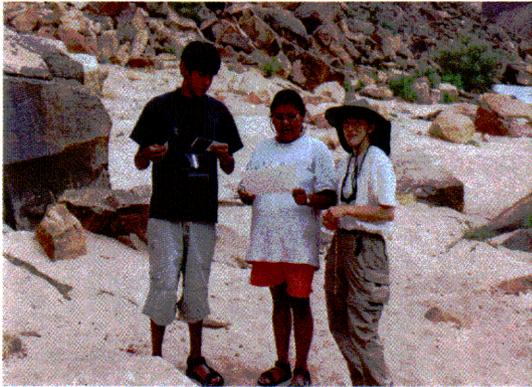


2004 Southern Paiute Consortium
Colorado River Corridor Resource Evaluation
Program Annual Report of Activities



2004 Southern Paiute Consortium
Colorado River Corridor Resource Evaluation Program
Annual Report of Activities

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Dedication

**Geneal Anderson
Paiute Indian Tribe of Utah**

and

**Gloria Bulletts Benson
Kaibab Band of Paiute Indians**



This year the Southern Paiute Consortium dedicates this report to Ms. Geneal Anderson (right) and Mrs. Gloria Bulletts Benson, two women who were responsible for the Southern Paiute Grand Canyon Monitoring and Research Program. These two remarkable women were chairpersons of the Paiute Indian Tribe of Utah and Kaibab Band of Paiute Indians, respectively, in the late 1980s and 1990s when the Environmental Impact Statement for Glen Canyon Dam was being prepared. They are responsible for the Southern Paiute involvement in the EIS and the Adaptive Mangement Program and for the establishment of the Southern Paiute Consortium. Their vision and love for their people have made it possible for Southern Paiutes to make the trip of a life time to learn about their history and their Ancestral Lands.

These two women both felt very strongly about the importance of the Southern Paiute involvement in the studies of Piapaxa 'Uipi. Though Geneal has reunited with our elders who have gone before, her courage and strength still serve to inspire the rest of us.

Introduction

The traditional lands of the Southern Paiute people are bounded by more than 600 miles of the Colorado River from the Kaiparowits Plateau in the north to Blythe, California in the south. Southern Paiute were the first inhabitants of this region and are responsible for protecting and managing this land along with the water and all that is upon and within it.

Today the Colorado River flows through Grand Canyon National Park and Glen Canyon National Recreation Area, and the Navajo, Havasupai, and the Hualapai reservations. The Bureau of Reclamation (BOR) completed the construction Glen Canyon Dam on the Colorado River in 1963 and became responsible for managing the Dam. U.S. federal law requires that Glen Canyon Dam be operated with minimal impact to the natural, recreational, and cultural resources of the *Colorado River Corridor*, the region of the Colorado River between Glen Canyon Dam and Lake Mead that is potentially impacted by flows from the dam. The National Historic Preservation Act mandates that the impacts of any federal undertaking that will negatively affect historic and traditional cultural properties be evaluated and monitored. The Grand Canyon Protection Act and the Environmental Impact Statement for the Operation of the Glen Canyon Dam (GCDEIS) establish a program of long-term research and monitoring of the effects of the dam on these resources.

In 1991, three Southern Paiute tribes – the Kaibab Band of Paiute Indians, the Paiute Indian Tribe of Utah (representing Shivwits Band of Paiute Indians), and the San Juan Southern Paiute Tribe – agreed to participate in studies to identify cultural resources impacted by Glen Canyon Dam and to recommend strategies for their protection. In 1993, the Kaibab Band of Paiute Indians and the Paiute Indian Tribe of Utah created the Southern Paiute Consortium (SPC) to ensure more effective government-to-government interactions between the tribes and the BOR. The SPC took over the cultural resource studies being conducted under the GCDEIS.

The BOR and National Park Service (NPS) developed a Programmatic Agreement (PA) on Cultural Resources for Glen Canyon Dam Operations. On February 9, 1994, the PA was signed by the Advisory Council on Historic Preservation, the Arizona State Historic Preservation Office, the BOR, the NPS and the Hopi Tribe, the Hualapai Tribe, the Navajo Nation, the Paiute Indian Tribe of Utah, the Kaibab Band of Paiute Indians, the San Juan Southern Paiute Tribe, and Zuni Pueblo.

The PA lays out a plan for agency compliance with Section 106 of the National Historic Preservation Act through the development of monitoring and management protocols for cultural resources in the *Colorado River Corridor*. It directs the BOR and NPS to develop and implement a plan for monitoring the remedial actions and to develop a Historic Preservation Plan (HPP) for long-term monitoring and management.

In 1995, the GCDEIS was completed and transition to the Adaptive Management Program called for in the Grand Canyon Protection Act was begun. At that time, the SPC expanded the research activities it began under the GCDEIS to include assessing potential environmental impacts, developing monitoring procedures, and interacting with the BOR and other PA signatories. It established the Colorado River Monitoring and Environmental Education

program. The basis for the program and the results of its initial development and implementation are fully discussed in the report, *Itus, Auv, Te'ek (Past, Present, Future): Managing Southern Paiute Resources in the Colorado River Corridor* (Stoffle, Austin, Fulfroft, Phillips, and Drye 1995). The results of each succeeding year's activities are reported in annual reports to the BOR.

The 2004 program had seven goals: (1) implementation of the SPC's monitoring program; (2) training and education of Southern Paiute monitors; (3) education of Southern Paiute tribal members and the general public; (4) discussion and evaluation of traditional cultural properties protection and management; (5) consultation among Southern Paiute tribal members to determine the future objectives of the SPC monitoring program on the Colorado River; (6) education regarding the current drought and its impacts on river flows; and (7) environmental sciences education with Southern Paiute. All of these goals were accomplished during 2004. Regular monitoring activities were conducted during a ten-day trip between Lees Ferry and Diamond Creek.

The river trip this year was problematic. One of the first obstacles we had to overcome was getting confirmation on the dates of the trip. Though the SPC office submitted the initial paperwork in January 2004, we had heard nothing by March and started calling the GCMRC for information. We made numerous attempts to contact the GCMRC office to confirm the trip dates we had submitted. Each time we called we were referred to someone else. Eventually the SPC Coordinator contacted the chairperson of the Kaibab Band of Paiute Indians for assistance; the chairperson's calls to the GCMRC were not returned either. The chairperson and the Coordinator were finally able to talk to the GCMRC Cultural Resources office on June 7, exactly two weeks before the launch date. We were told that there was insufficient funding for our planned trip, and we were asked to make changes in our itinerary and launch date. At that point, the chairperson emphasized that we were unable to change the monitoring program at such a late date. However, we did change the launch date as requested. We then contacted trip participants to inform them of the change. A few were unable to accommodate this change, so we ended up exchanging participants at the last minute. We learned that no river guides had been identified for our trip, and we were unable to meet or talk with the river guides who were selected by the GCMRC until the day of the launch.

Typically, our river trip participants have several opportunities to meet together in order to prepare themselves for the trip (see Chapter Two). In addition, the SPC Coordinator is able to contact the river guides in advance to ensure that they understand the nature of the trip and Southern Paiute perspectives of the Colorado River. This year we were unable to ensure that everyone was effectively prepared for the trip. This had significant consequences throughout the trip and for all participants. In the future, we expect that communication between the SPC and GCMRC will be open so that we might all fulfill our responsibilities for protecting and managing the resources of the Colorado River Corridor.

The report summarizes the activities of the SPC undertaken as part of its responsibilities to protect and manage the land, water, and resources within Southern Paiute traditional territory and as a PA signatory. Chapter One, "Cultural Resources Evaluation," describes the results of the SPC's annual river trip to monitor SPC cultural resources, gather information for tribal members

and leaders, and otherwise conduct activities deemed necessary for fulfilling those responsibilities. Education and training are critical facets of the SPC program to ensure that the Southern Paiutes can continue to fulfill their responsibilities into the future. Chapter Two summarizes the results of the education and training components of the SPC program. There are many groups with many interests involved in the Adaptive Management Program, and much time is spent in meetings and conferences where information is shared. Chapter Three describes the SPC's participation in those meetings and the other activities it undertakes to enhance its ability to successfully carry out its responsibilities.

Chapter One

Cultural Resource Evaluation

The 2004 Southern Paiute Consortium (SPC) Colorado River Corridor cultural resource monitoring program operated between October 2003 and September 2004. While other SPC activities are detailed in Chapter Three, a key piece of the monitoring program is the annual SPC monitoring river trip. This year's program included one river trip between Lees Ferry and Diamond Creek, data entry and analysis, and report preparation. The purpose of the program was to continue tribal monitoring as recommended by the Glen Canyon Dam Environmental Impact Statement and Record of Decision. The monitoring program included training and was conducted at the same time as the environmental education program (see Chapter Two). This chapter summarizes the activities of the trip into the Colorado River Corridor and provides recommendations for the 2005 cultural resources monitoring program.

The SPC monitoring program was developed to evaluate the effects of Glen Canyon Dam on cultural resources that have been identified by Southern Paiute consultants within the Colorado River Corridor. Southern Paiutes have worked with the Bureau of Reclamation (BOR) to investigate cultural resource issues since 1992. In 1995, the SPC, on behalf of the Kaibab Band of Paiute Indians and the Paiute Indian Tribe of Utah (PITU), began the development and testing of a cultural resource monitoring program, and that program now operates through the Grand Canyon Monitoring and Research Center. The SPC designed the 2004 monitoring research efforts to advance the existing program.

Methodology

The modifications that were made to the SPC monitoring program in 1996 were continued in 2004 (see Austin, Osife, Fulfroost, Drye, and Rogers 1996 for details). These included the use of: (1) one composite cultural resource monitoring form; (2) site-specific monitoring checklists; (3) the SPC Monitoring Training Program; (4) an SPC plant reference guide; and (5) a monitoring program manager's handbook. In addition, the Southern Paiute River Guide was distributed to river trip participants.

The focus of the 2004 monitoring program was a river trip into the Colorado River Corridor. Prior to that trip, the SPC monitoring team worked together to coordinate monitoring program plans. The trip included Southern Paiute Consortium monitoring of sites located between Lees Ferry and Diamond Creek; it began on June 21 and ended on July 1. The monitoring was carried out by the SPC Coordinator, three SPC monitors, two Southern Paiute elders, one Southern Paiute Tribal Education Coordinator, one Tobacco Prevention Specialist, eight youth participants, one SPC consulting ethnobotanist, and three University of Arizona educational and research specialists.

Site Discussions

In this section, site-by-site discussions describe findings at each site that was monitored during the 2004 river trip into the Colorado River Corridor. The summaries of the sites include descriptions of plants, rock art, archaeology and other cultural properties, plus any recommendations for revisions to the monitoring program or for actions to be taken by management agencies regarding the site. For detailed site descriptions, please refer to Stoffle, Austin, Fulfroost, Phillips, and Drye (1995). During 2004, the SPC monitors and consultants followed the six-year plan for the twenty sites in the SPC monitoring program (see Table 1.1). No changes were made to the monitoring program this year.

Table 1. Sites Monitored During 2004

Site #	Site name	Date monitored	Features monitored	Next monitoring
4	Jackass Canyon	June 21	Plants, Beach	2005 (Plants, Beach)
5	South Canyon	June 22	Beach,Cultural	2005 (Beach)
6	Nankoweap	June 23	Plants, Archaeology	2005 (Plants, Archaeology)
9	Bedrock Canyon	June 25	Archaeology	2007
10	Deer Creek	June 26	Plants, Rock Art, Beach	2005 (Plants, Rock Art, Beach)
11	Kanab Creek	June 26	Beach	2005 (Beach)
12	Vulcan's Anvil	June 28	Plants, Cultural	2005 (Cultural)
13	Whitmore	June 29	Rock Art, Beach	2005 (Rock Art, Beach)
15	Ompi Cave	June 29	Cultural	2005 (Cultural)
16	Spring Canyon	June 30	Plants	2005 (Plants)
17	Indian Canyon	June 30	Archaeology	2007
18	Pumpkin Spring	June 30	Beach, Spring	2005 (Beach, Spring)
20	Granite Park	June 30	Tree	2005 (Tree)

Jackass Canyon Site #4

Orientation and monitor training was carried out at Jackass beach. Exercises were conducted to train river trip participants in matching photos, using the compass, and running transects. Large amounts of trash at this site caused concern about the continued use of this site for introductory activities.

South Canyon Site #5

Monitors visited the archaeology sites and the beach in 2004. At top of canyon, monitors noted surface erosion on one of the rock art boulders and bird droppings on the other.

Beach

A major flash flood in South Canyon, probably in July or August, has scoured out all of the sand deposits by the river to a depth of 2- 4'' below the old creek level. It has also moved around some large boulders and exposed many new ones. Some photo shot points along the creek are now lower than before, and some boulders used in matching photos are gone. The three new photos taken during 2003 (two downstream from middle of creek bed and one of the new trail) were matched, and a new one was taken looking up stream in the middle of the creek. A large tamarisk that was in the foreground in two old photos was knocked over by the flood and has since resprouted (new branches are 4 -5'' tall). There was some water in the lower part of the creekbed from the river at maximum current dam release (17,000 CFS). Water was low the at the time of our visit.



Figure 1.1. Changes in South Canyon beach

Recommendations

In 2004 there were no obvious new signs of trailing by hikers. Hikers continue to be a concern at this site because hikers use the same trail to get in and out of the canyon that is used to reach the cultural site.

Nankoweap—Monitoring Site #6

Ethnobotanical and archaeological monitoring was conducted at this site. The three plant transects at Nankoweap are read on a three-year rotation; Transect 3 was read this year, and plant conditions were recorded.

Plants

Transect 3 is about 100 m up Nankoweap Creek from the river, on the right-hand side of the creek looking upstream. Since the last reading in 2001, the biggest change at this site is dieback of plants due to drought. The banana yucca has lost numerous rosettes, although those that are remaining are healthy. Other plants that were along the transect in 2001 have died. This site depends only on rainfall for its moisture, so the severe drought of the past several years has had a marked impact. There were no human impacts noted at the site. There has been some additional erosion along Nankoweap Creek due to side canyon flooding, but it has not impacted or eroded the bank near the transect.

Transect 3 was read during the 2004 river trip; data are presented in Figure 1.3. This transect consists mostly of desert species; it is not subject to normal Glen Canyon Dam releases, although it is within the Old High Water Zone. It was converted from an individual plants monitoring plot to a line intercept transect in May 1997.



Figure 1.2. Drought affected plants at South Canyon

Percent Cover by Species - Nankoweap

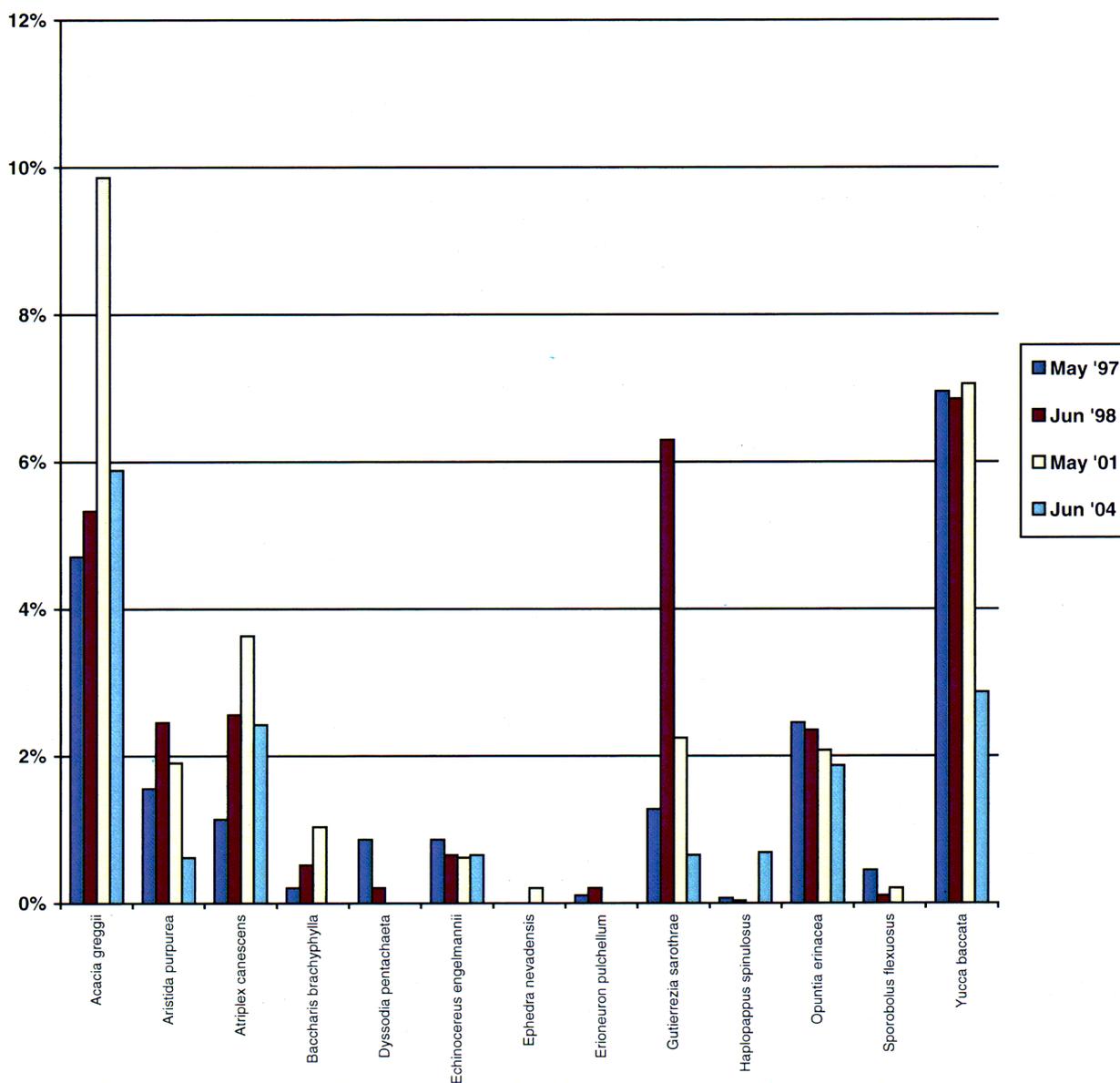


Figure 1.3. Changes in plant species at Nankoweap

There has been a decrease in percent cover of plants since 2001, due to loss of several species and decrease in size of others. The banana yucca cluster that forms a large patch in the center of the site has died back considerably and now is less than half of its previous size, which had changed little since 1997. Remaining rosettes appear healthy, however. Severe, prolonged drought conditions during the past several years are the cause of the stress noted in the plants at this site. Five of 13 plant species have been lost from the site, and all except Engelmann's hedgehog, a cactus, have decreased in size.

Archaeology

No new impacts were observed at the archaeological sites on the bench. However, destruction caused by visitors at the granary remain a concern. Monitors noted visitors sitting on the ledges of the grainery and took pictures of incident. Monitors were displeased by negative comments about Native Americans made by visitors along the trail to the granary.

Recommendations

The transects at Nankoweap should continue to be read on a three-year rotation schedule, with one transect read each year. Transects 1 and 2 are near the river and reflect the effects of dam operations at the site more closely than Transect 3.

Bedrock - Site # 9

This site includes plant and archaeological monitoring and was monitored in 2004. The sand dune on the way up to the roasting pit is unstable and shows evidence of frequent sand movement. It is difficult to walk around the site without causing erosion. Some roasting rocks are eroding out of the sand. Some cacti were growing new pods. One cluster was dead in the center. There was little flowering on the cacti this year, evidence of drought stress. It does not appear that anyone has been at this site since our last visit in 2001.

Deer Creek Site # 10

Rock art, plants, and visitors were monitored at this site in 2004. SPC monitors were present at this site from early morning until late afternoon. Visitors were monitored at several different points along the trail. Some visitors stopped at the bottom of the creek and others hiked up to the panels and up to the water source.

Plants

The plant plot generally looks good, and has essentially recovered from the fire. Some plants show signs of stress from the prolonged regional drought, such as death of individual stems on the willows and Acacia. Growth of the willows and the Acacia has slowed as the plants have reached maturity (see Figure 1.4). The locoweed continues to be healthy, its robust condition continuing from last year. The cottonwoods look healthy, and one tree increased about 1.5 m in height during the past year. The trees' heights are now extrapolated from photos as they have grown too tall to measure directly. Datura has now been absent from the plot for three years; it had been unhealthy for several years prior to that. Its demise is the natural result of habitat stabilization and crowding by the other plants in the plot; this is no longer suitable habitat for Datura.

The *Agave phillipsiana* flowered during the summer of 2002, and the rosette which produced the inflorescence is now dead. The stalk remains in place, now completely brown. There were 14 rosettes present this year, three of which were tiny. There was no sign of recent packrat activity. This rarest of Grand Canyon plants, of particular interest to the SPC because of its likely cultural origin by Paiute people many centuries ago, appears to be healthy and in very good condition.

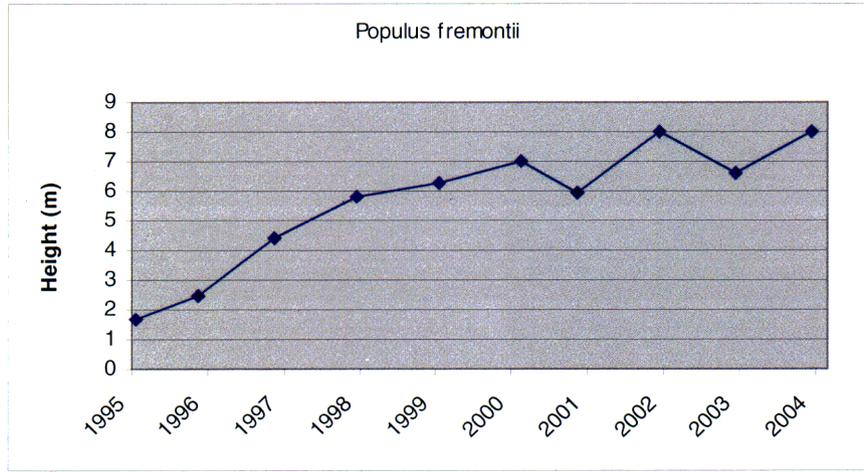
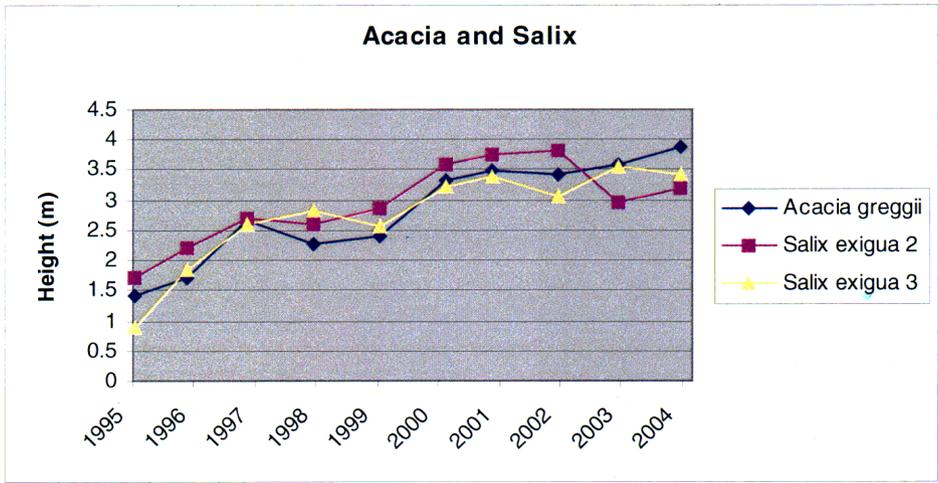
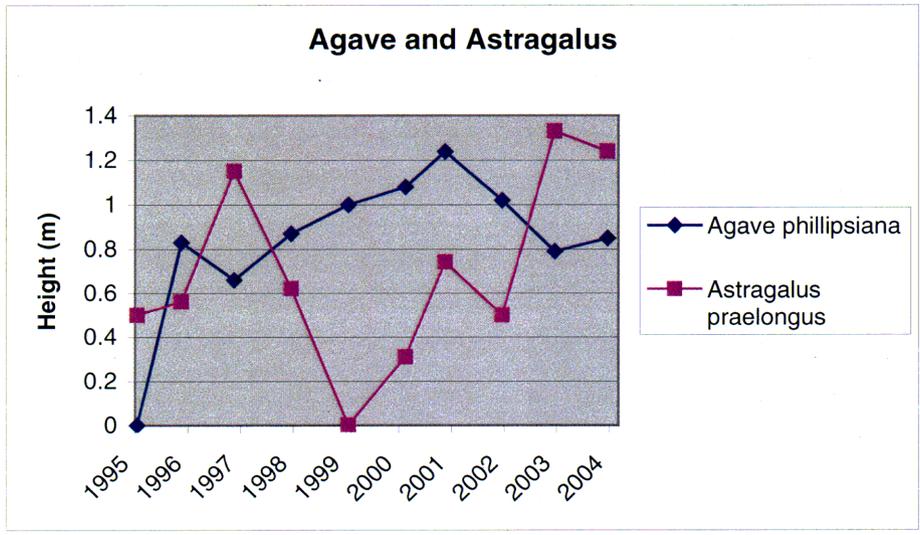


Figure 1.4. Growth of plants in the Deer Creek plot

The vegetation in the plot is getting dense and it is difficult to take the photos. There was some trailing from main trail to the Agave plot, which monitors covered with brush upon departure. The heavily-used main trail past the site is well defined, and hiker usage appears to be confined to the trail. The Agave is visible from the main trail, though most hikers do not notice it as it is behind some willows. Trees, which fell across the trail after the fire, remain in place, but the logs have settled and do not present an obstacle to hikers.



Figure 1.5. Art Phillips teaching trip participants about Deer Creek plant plot

Rock Art

We observed no new impacts to the rock art panels at Deer Creek in 2004.

Visitor Monitoring

Three separate groups conducted visitor monitoring for two hours along the trail up to and through the gorge. Seventeen boats of rafters stopped and visited Deer Creek while SPC monitors were present. Monitors noted that many visitors were curious and excited, some asked questions about the relevance of Deer Creek to Southern Paiutes. Monitors observed a rope attached to a rock and extending to the bottom of the chasm. They also noted that several individuals from the National Park Service Grand Canyon Youth Program were at the bottom playing in the water.

Recommendations

Because of the importance of this place to Paiute people, SPC would prefer visitors to stay out of the gorge itself. To this end, visitors should be introduced to the sensitivity of the site and of the rock art panels through the river guides and National Park Service. However, some information should not be shared with wider audiences. During 2004 SPC representatives made a presentation about Deer Creek and other issues of cultural sensitivity at the Annual Meeting of the Grand Canyon River Guides. This practice should continue in the future.

The plants at this site should continue to be monitored each year. The rapid changes noted in the first few years after the 1994 fire have slowed, but the development of mature vegetation at the site is still worth checking on an annual basis.

Kanab Creek Site # 11

The beach was monitored at this site in 2004. While plants were not monitored through transects this year, overall changes to plant cover and composition were noted and recorded. Minimal visitor impacts were observed.

Beach

Monitors noted an increase in willow in the mouth of Kanab Creek and a decrease in vegetation on the hillside.

Recommendations

Reading of the transect should continue once every three years to monitor impacts from changing water levels and tourist activity.

Vulcan's Anvil Site # 12

The SPC participants monitored the Vulcan's Anvil, which is sacred to the Southern Paiute people. This year, we monitored plants and the Anvil.

Archaeology

The Anvil continues to be used as indicated by trinkets left there. Southern Paiute monitors removed the trinkets.

Plants

There are three plant transects at Vulcan's Anvil, located on river right on the shore directly opposite the Anvil. The first was installed in 1995, and the other two were installed in 1997. Transect 1 was last read in July 1999 and Transects 2 and 3 were last read in August 2000. All three were read in 2004. Monitors noted considerable loss of plants on the upper beach since the last readings, apparently due to sustained drought conditions. Grasses, herbaceous perennials, and small shrubs were most severely affected. Low water releases with small variation in daily release have allowed a sand bar with a newly-vegetated beach to develop beyond the old bank at Transect 2, at the upstream end of the beach. This has been invaded by plants and is becoming vegetated by Bermuda grass, tamarisk, and rabbit-foot grass (*Polypogon monspeliensis*) and it has extended the vegetated reach of the transect by about 9 m.

There appears to be occasional use of the site by river runners; a lightly-used trail passes across the upper part of the beach. This is probably due to a somewhat easier landing place on the upstream part of the beach. There is no sign that trips are camping here.

Interpretation of Transect Data

There were several themes evident from this year's transect data (see Figure 1.7). First, decrease in cover caused by loss or decrease in size of upper beach species has decreased overall

cover significantly in that part of the site. Second, the mesquites present at the site continue to grow, expanding their diameter, as is the case at many places in the lower canyon, where they have invaded after the 1983 and 1996 floods on lower beaches and are now growing vigorously. Third, low water releases from Glen Canyon Dam coupled with moderate diurnal variation has allowed dry marsh vegetation in the old shore area to increase and thrive, and has allowed the emergence of new habitat and invasion of these exposed sand bars by vegetation. The increase and vigorous growth of dry marsh vegetation is also a theme that has been noted widely in the lower Canyon during the past two years.

Recommendations

The transects at Vulcan's Anvil should be read once every three years, with all transects run at each visit. The site is fairly sensitive environmentally, and this will minimize disturbance. This site is important because it is to a certain extent a control site where most changes are caused by operation of the dam and rainfall, rather than by human impacts from river camping and hiking.

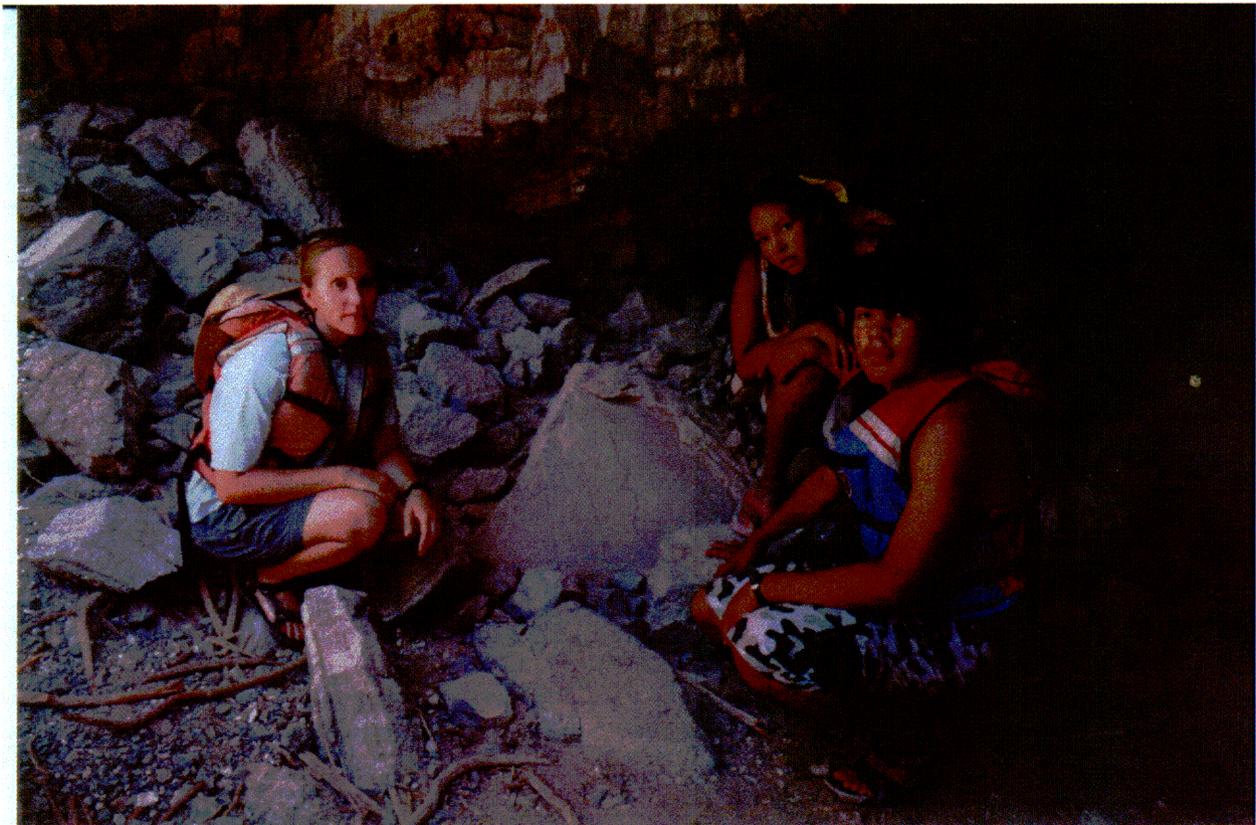
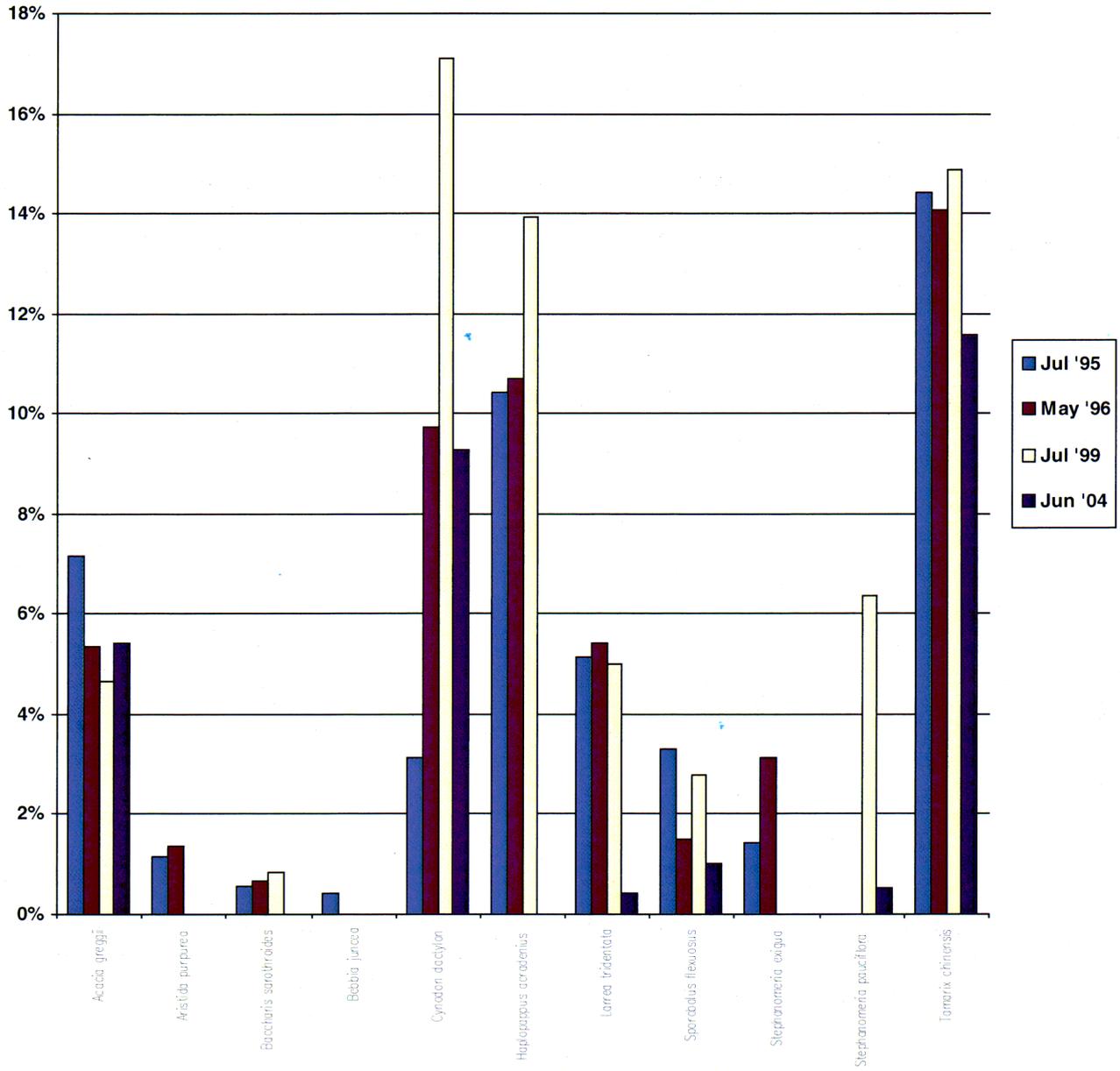


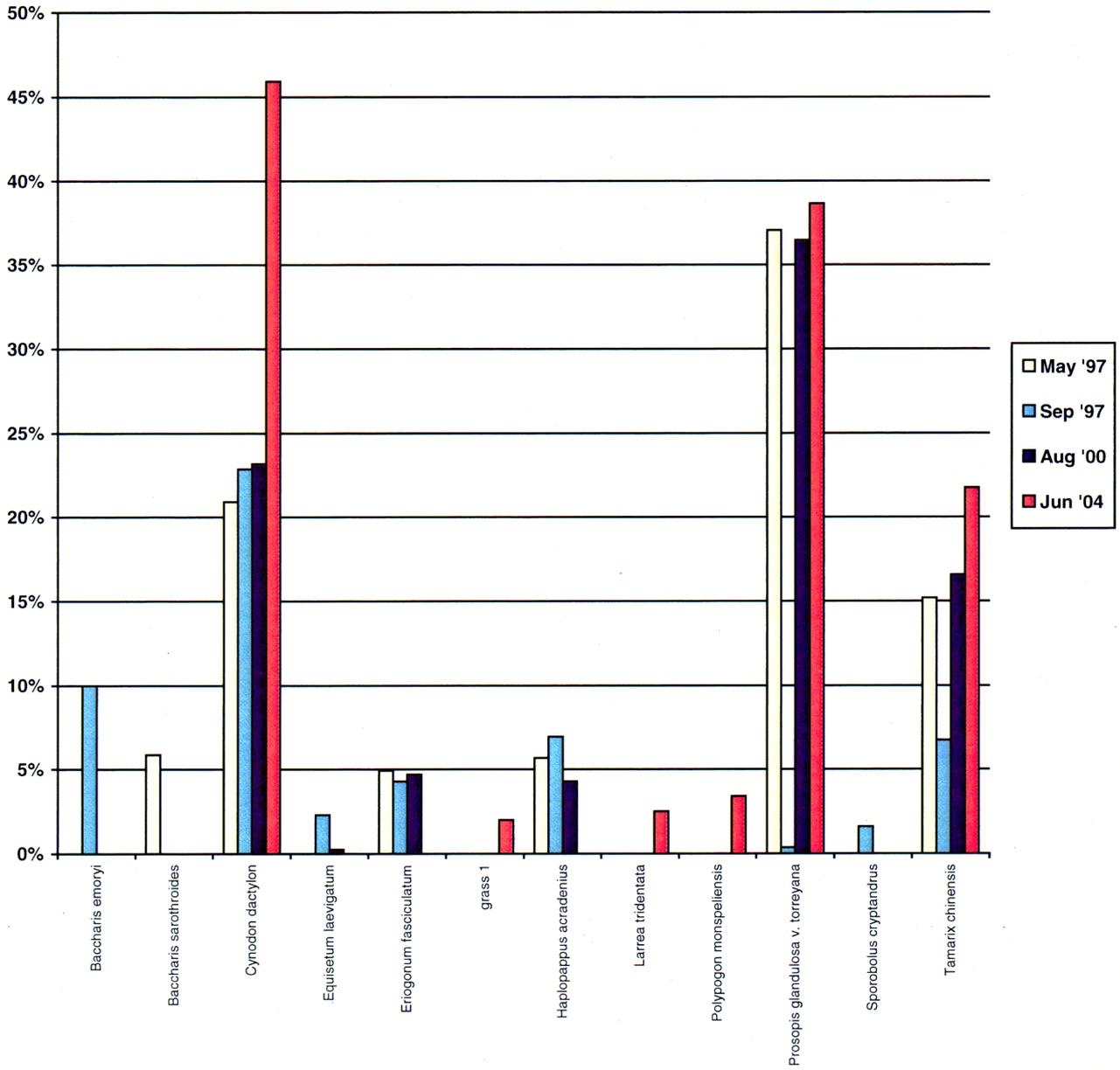
Figure 1.6. Monitors examine site for impacts

Percent Cover by Species - Vulcan's Anvil



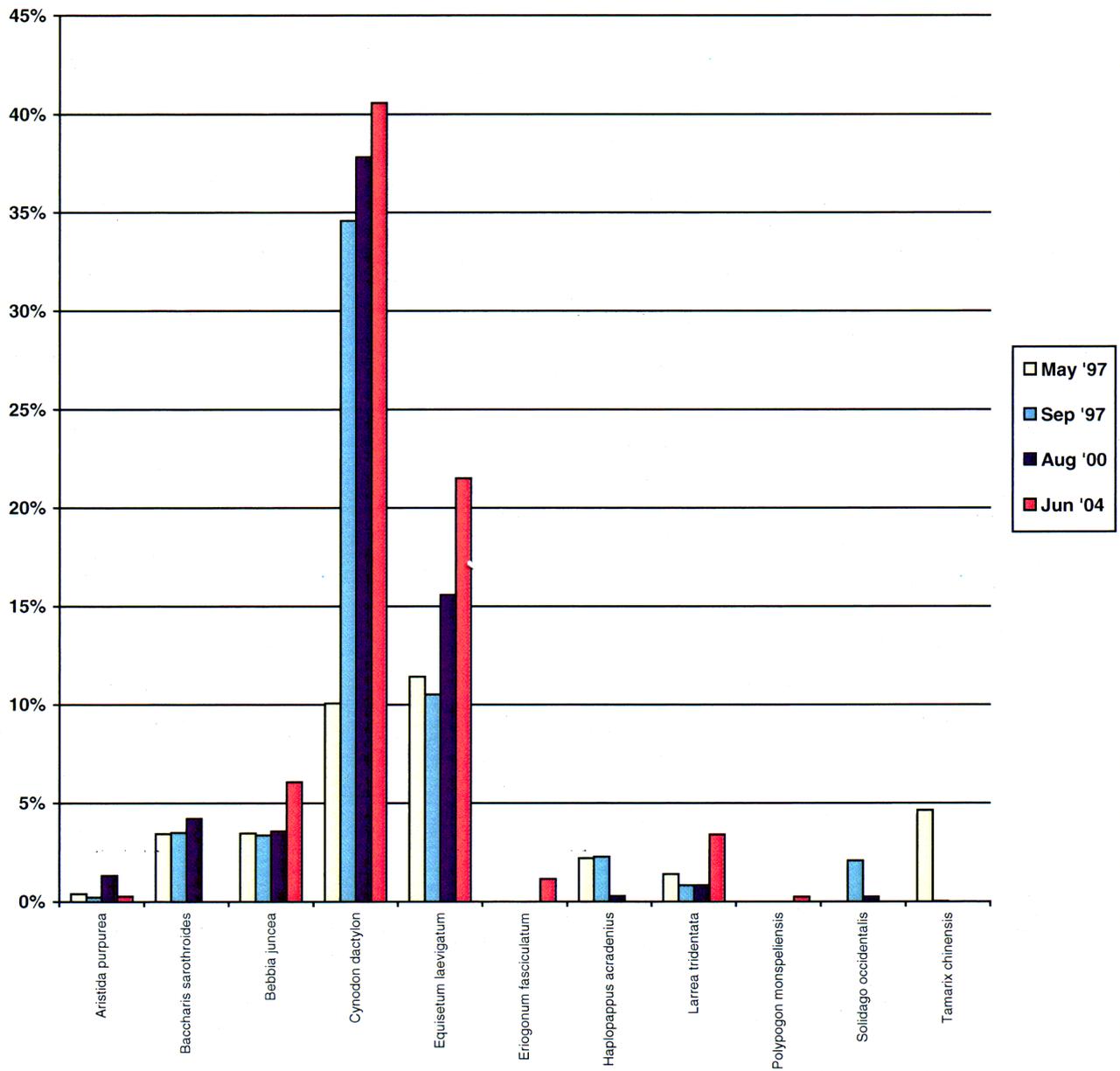
Transect 1

Percent Cover by Species - Vulcan's Anvil



Transect 2

Percent Cover by Species - Vulcan's Anvil



Transect 3

Figure 1.7. Changes in plant species at Vulcan's Anvil

Whitmore Wash—Monitoring Site #13

Rock Art and Archaeology

Monitors continue to look for and document graffiti scratchings along the rock art panel at Whitmore. No new graffiti was noted. Erosion along the trail and in the rock shelter site is present, but this did not appear to have increased from last year.

Beach

The upper part of the beach was burned sometime last winter. It appears that the fire was mostly a ground fire fed by dry bermuda grass. The old stems of arrowweed were killed but not burned. Some branches of mesquite were also killed. Both have resprouted this season, and some new branches of arrowweed are 3-4 feet tall. The once bare sand bar in front of the beach is now densely vegetated, mainly with horsetail but also with a good variety of other species.

The old bank has become quite stabilized behind the sand bar, mostly by bermuda grass.

Recommendations:

The SPC should continue to observe the burned area on the upper part the bench at Whitmore.

Ompi Cave- Monitoring Site #15

This site was visited for spiritual and ceremonial reasons. Monitoring involved only visual inspection.

Spring Canyon – Monitoring Site # 16

Monitoring of plants, rock art and archaeology was completed this year.

Plants

Vegetation continues to increase in density along Spring Canyon, although the rate of change has slowed. Seepwillow is especially vigorous in the lower part, and has become very dense and tall. Monitors found only a few tobacco plants this year; many have apparently been eliminated due to shading. The channel has become increasingly entrenched upstream and small "falls" previously observed are not there. Entrenchment as much as 2m deep in places near the outcrop has exposed some boulders not seen for several years, and has caused drying along the edges of the creek. This has resulted in the death of some plants, notably a redbud. There is now a lightly-used trail up the creek, in the creek bed in some places and alongside it in others, which makes access easier.

It is quite difficult to relocate some photopoints due to dense vegetation; reference points on the walls are difficult to see. Spring Canyon vegetation has increased more rapidly than we had predicted, and the matching photo monitoring method has proved effective in documenting the progression. The greatest change occurring during the past several years is a rapid increase in density of seepwillow in the lower part of the canyon. There have been no flash floods in the canyon of sufficient size to adversely affect vegetation since the matched photo method of

monitoring was initiated. Riparian vegetation in some places is becoming senescent, and change will probably slow until the next flood scours the canyon.

Rock Art

The mesquite tree is no longer brushing against the panel. However, the new trail in front of the rock art panel remains. The trail is down-cutting the bank to the site. The old trail to the site appears to be stable.



Figure 1.8. SPC Tobacco Prevention Specialist with native tobacco at Spring Canyon

Recommendations:

Spring Canyon photo matching should continue on an annual basis. Although changes are now minor, a flood could occur at any time, scouring vegetation and starting the revegetation process anew.

Indian Canyon Monitoring Site #17

This site encompasses an archaeology site with three roasting pits to the north of the site and one large roasting pit located in the center of the site. This site also includes a rock shelter with several historical mason jars: underneath the rock shelter ledges there are various Ompi figures. In 2004, the site was in good condition.

Rock Art

The bluish figure on one of the rock shelters was no longer present. No new impacts were observed.

Archaeology

Photographic documentation was completed. New monitoring photos were taken. Trailing appears to be mostly restricted to constructed trails.

Recommendations

The SPC should continue to monitor this site and provide NPS feedback on trail reconstruction at the site.

Pumpkin Spring—Monitoring Site #18

In 2004 the beach, spring, and surrounding vegetation were monitored. Monitors noted the spring had been recently stirred up by people from other trips getting into it, so there was a lot of algae floating on top.

Recommendations

Visitor impact to the site needs to be evaluated closely for recommendations due to the condition of the spring.

Granite Park—Monitoring Site #20

During 2004 we were able to visit the the historic Goodding Willow at Granite Park. Overall the willow appears to be surviving. Monitors noted some destruction to the willow due to the beavers at the park, but the tree has recovered

Recommendations:

NPS should remind boatmen of the historic and cultural significance of the Goodding willow and discourage them from tying their rafts to the tree. The tree does need stabilization and erosion protection work around the base.

Chapter Two Education and Training

The 2004 Southern Paiute Consortium Colorado River Corridor Education and Training Program was specifically designed to provide education about the annual research monitoring and education program to tribal members and youth from the tribes of the Southern Paiute Consortium: the Kaibab Band of Paiute Indians and the Paiute Indian Tribe of Utah (PITU). This aspect of the program is necessary to inform and educate future tribal leaders and train tribal monitors (see Austin, Fulfrost, Osife, Drye, and Rogers 1996). The educational component of the program continues to be supported within the University of Arizona (UofA) and is expected to remain an important element of the overall program. The Shivwits Band of the Paiute Indians continues to support this program through use of band funds.

A second purpose of the program is to provide education and outreach to non-tribal members about the Southern Paiutes, their history in and perspectives of the Colorado River Corridor, and the importance of the broader cultural landscape stretching from rim to rim. This is achieved through outreach programs to schools and universities, civic organizations, and others. It is also achieved through the annual presence of Southern Paiutes along the Colorado River during the SPC monitoring and education program.

Program Activity Discussion

Meetings and River Trip Participants

Each year, the SPC prepares information about the annual monitoring trip and shares this information with the participating tribes. The tribes then select trip participants. Participation alternates between adults and youth. The 2004 trip was a youth trip and included six adult participants. The Tribal and Band Council of the Kaibab Tribe and the Shivwits Band were informed about the trip at their respective council meetings in early spring 2004. The Tribal Councils submitted names of trip participants to the SPC Director and Outreach Coordinator, and these individuals were contacted by the SPC and sent information about the upcoming trip. A few individuals joined the trip within a week of the launch date and received minimal orientation (see Introduction).

Summary of Activities

The SPC held meetings with the trip participants on their reservations. At these meetings, the SPC Director and Outreach Coordinator went over the plans for the trip, the exact dates, and the gear list, and provided information about the Grand Canyon and the SPC cultural resources program.

Additional meetings were held with participants from both the Kaibab and Shivwits bands. During these meetings, participants were provided with information about the cultural significance of the Grand Canyon and reminded of culturally appropriate behavior at that sacred place. Additionally, participants received training and instruction in the use of camping and rafting gear.

Recommendations

River trip preparation is a key component of the education and training program. Going into the Colorado River Corridor, Southern Paiutes are entering a place rich with spiritual and cultural meaning. Although there is no way to fully prepare for the experience, through stories and discussions trip participants can gain the information they need to make themselves ready for the trip and get the most out of the experience. In the past, pre-river camping trips have been used in addition to organizational meetings to prepare participants for their time in the Grand Canyon. If time allows, these camping trips should be used again in the future.

Additional activities that can help prepare participants, especially youth, for the river trip include a pre-trip questionnaire, home visits, and individual projects that are done prior to the trip to be shared with all participants during the trip.

Plant Reference Guide

Southern Paiutes have a special relationship to plants, and the monitoring program reflects the stewardship role of the Paiute people. To assist tribal monitors and other trip participants in carrying out the monitoring activities and to facilitate learning about the plants that are culturally significant to Southern Paiutes, a plant reference guide was developed in 1997. The guide includes over 125 pages of plants with photos; Paiute, scientific, and common plant names; and information about the significance of the plants in Southern Paiute culture. It was created using presentation software so each page can be accessed individually for editing and updating information.

Southern Paiute River Guide

Based on recommendations from 1997, the SPC began development of the *Southern Paiute River Guide* for use by monitors and trip participants. The guide includes overview maps of Southern Paiute territory and has a location finder on each page that shows the reader where s/he is along the river and within the larger territory. This feature was included because of the difficulty of relating one's location along the river with the traditional territory and known places on the north rim. The guide also has space for note taking so participants can record information they wish to remember about places and events that occur along the river. The guide was used during the 2004 downriver trip. Interest in the guide by boatmen, and by scientists and researchers on other monitoring trips in the Grand Canyon, has generated discussion about producing a public version of the *Southern Paiute River Guide*. At this time there are no resources for such a project.

The Multimedia and GIS Learning Project

The Southern Paiute Consortium continued to take responsibility for much of the development and updating of the multimedia database and archive. The SPC office on the Kaibab reservation is the location at which most of the scanning and archiving of multimedia materials takes place. The UofA continues to be integral to the overall multimedia and GIS

program, and SPC representatives come to the university to compile the information and produce the annual report. As in the past, this year's participants wrote stories about their experiences on the river, and these and photos from the trip are included in the database for past and future participants to see.

The Downriver Trip

Summary of Activities

The downriver trip took place from June 21-July 1, 2004, and the education and training component occurred in conjunction with the monitoring trip (see Chapter One). The education component of the trip included (1) specialized training in monitoring skills and techniques, (2) direct information about Paiute culture provided by elders and Southern Paiute interpreters, (3) learning through participation in Southern Paiute traditional practices and in monitoring activities, (4) information about policy and management related to the Glen Canyon Dam, (5) education about how cultural resources along the Colorado River are being protected, and what policies exist and requirements are needed for receiving protective designation of cultural resources, and (6) expert consultation about relevant political and scientific issues in the Grand Canyon.

As in past years, the tribal educators were an integral component of the education program, sharing information about past as well as present connections between Southern Paiutes and the Colorado River Corridor. The education program was fully integrated into the monitoring program, and the trip schedule and activities is provided in Table 2.1. Two tribal elders, the SPC Coordinator, three experienced SPC monitors, three tribal education specialists, the SPC consulting ethnobotanist, and three UofA education research specialists all shared their unique knowledge and perspectives with the participants on this year's river trip. The following topics were highlighted:

1. Climate, Drought Awareness, and Water Resources:

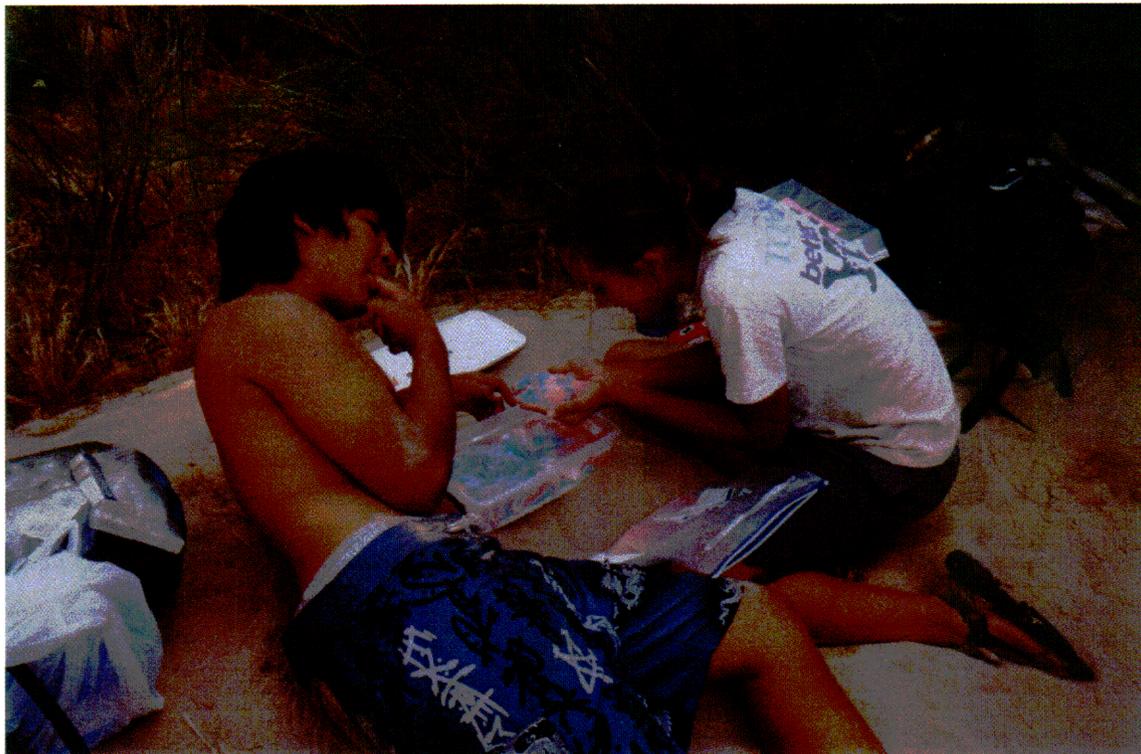
Similar to last year, because of the impacts of the drought on the dam operations and river corridor, and because of concerns about water and water rights on the Paiute reservations, the SPC staff requested information about climate and hydrologic information.

The climate and hydrology presentation occurred during one lunch stop. The presentation began with a discussion of climate patterns. One of the UofA education research specialists used materials provided by CLIMAS (Center for Climate Assessment for the Southwest). The Tree Ring Laboratory of the UofA loaned the SPC tree rings from Douglas Fir and White Fir to illustrate how historical climate data are collected. The group discussed precipitation, inputs and outputs from Glen Canyon Dam, and the relative "wetness" of the year the Colorado River Compact was signed.

In addition to the group presentation, discussions occurred as trip participants rode along on the rafts, ate, and camped. At the monitoring sites, by comparing photos from previous years, trip participants were able to examine the impacts of different flow regimes on the river ecology.

2. Environmental Education

Environmental education was an important component of the 2004 river trip. In addition to the training youth participants received in site monitoring procedures and the use of monitoring equipment, activities designed to teach general ecological knowledge and science skills were included in this year's program. Youth participants were responsible for water quality monitoring conducted throughout the trip. The Department of Hydrology and Water Resources at the UofA loaned the SPC the equipment necessary for this monitoring. Temperature and pH were assessed at regular intervals. Additionally, youth participants learned how to test for dissolved oxygen and the relationship among these variables. Regular water quality monitoring allowed all of the youth a chance to participate and become comfortable with procedures for working with chemicals, proper sampling methodology, and data recording and interpretation.



Additional environmental education activities included a mock archaeological excavation to introduce the concepts of stratigraphy and chronology and wildlife and plant illustration.

Using the model developed in 1996, participants gathered each evening in a circle to share thoughts and feelings about the day's experiences and prepare for the following day's work. Information shared during these group meetings included stories about the places and the culturally appropriate behaviors expected there. All participants discussed what they knew about the places and shared their feelings about visiting them. The SPC Coordinator and educational consultants provided additional information about other groups and historical/political events related to places, as requested. The evenings ended with time for prayer and reflection.

Table 2.1. Downriver Trip Schedule and Education Activities

Date	Site	Activities Completed
June 21	Jackass Canyon	River safety orientation and monitor training
June 22	South Canyon	Southern Paiute interpretation Assisted monitors-plants, archaeology
June 23	Nankoweap	Southern Paiute interpretation and cultural transmission Assist monitors—plants, archaeology Water quality monitoring and education
June 23	Little Colorado River	Southern Paiute interpretation Water safety instruction Water quality monitoring
June 23	Salt mines	Southern Paiute interpretation and cultural activities
June 24	Phantom Ranch	Group Activity
June 25	Blacktail Canyon	Cultural hike
June 25	Bedrock Canyon	Water quality monitoring Assist monitors- archaeology
June 26	Deer Creek	Paiute interpretation and cultural activities Assist monitors—rock art, plants Visitor behavior monitoring Cultural hike
June 27	Kanab Creek	Southern Paiute interpretation Assist monitors—beach
June 27	Havasu Creek	Cultural hike
June 28	Fern Glen Canyon	Cultural hike
June 28	Vulcan's Anvil	Assist monitors- plants, archaeology Archaeology/geology educational activity
June 29	Vulcan's Anvil	Southern Paiute interpretation, cultural transmission, and visit
June 29	Whitmore Wash	Assist monitors—rock art Southern Paiute interpretation
June 29	Ompi Cave	Paiute cultural transmission
June 30	Spring Canyon	Assist monitors—plants, archaeology Water quality monitoring
June 30	Indian Canyon	Assist monitors- archaeology Southern Paiute interpretation and cultural hike
June 30	Granite Park	Southern Paiute and botanist interpretation
June 30	Pumpkin Spring	Southern Paiute interpretation Assist monitors—spring and beach
July 1	Diamond Creek	Take out

Despite a challenging start (see Introduction), the downriver trip was a success. The critical elements of this success are: (1) active participation of tribal elders who accompany participants to culturally significant sites and share traditional knowledge with them; (2) active participation of tribal monitors who work directly with participants to complete activities and

share information about the cultural significance of the sites; (3) a training program specifically tailored to the needs of Southern Paiute monitors in training; (4) active participation of educational and environmental specialists with experience in environmental/outdoor education and knowledge of environmental policy and the cultural, social, and political history of the area; and (5) relevant and useful discussion of contemporary issues of relevance to the Paiute people and the Grand Canyon. Each of these elements enhances the entire program so program participants receive a comprehensive education about the region impacted by Glen Canyon Dam.



Recommendations

Trip participants must be carefully selected and include, if possible, two elders, at least two monitors, an individual responsible for the trip's itinerary and logistics, and additional participants who are aware of the difficulties of working on the Colorado River Corridor and have prepared for the experience through participation in pre-trip study and events.

Program participants must have sufficient opportunities to learn skills needed for the trip and to practice those skills. The skills should be introduced, practiced, and mastered prior to the river trip so critical time on the trip is not spent in basic instruction in monitoring techniques. Once on the river, each individual should have assigned tasks that involve the participant in achieving the goals and objectives of the trip. Even with adult participants, the trip requires careful coordination to ensure that the necessary tasks are accomplished and all participants perceive themselves to be important contributors to the effort. Participants who desire time for independent work and reflection can inform the trip leader when they wish to be excused from their assigned tasks.

All participants must be kept informed of the daily schedule and tasks. Each participant was provided with a trip schedule and two river guides for recording the day's events and looking ahead to the next day's activities. As soon as individuals left the boat, a group leader would describe the activities taking place at the site, expectations about who is responsible for

what tasks, and an estimated time of stay. Still, due to the uncertainty of the camp sites and the changing conditions of the river environment, the schedule changed frequently. The practice of reviewing the schedule regularly throughout the trip should continue.

Chapter Three

Meetings, Conferences, and Other Activities

Much of the work conducted under the PA during FY2004 was done in committees and meetings. This chapter summarizes the interactions between the Southern Paiute Consortium (SPC) and others with an interest in cultural resources in the Colorado River Corridor.

Meetings and Conferences

The Southern Paiute Consortium was represented at meetings of the PA Signatories, the Adaptive Management Work Group (AMWG), Technical Work Group (TWG), and the Grand Canyon Monitoring and Research Center (GCMRC). The SPC and its member tribes, the Kaibab Band of Paiute Indians and the Paiute Indian Tribe of Utah, participated in consultation with federal agencies that are PA Signatories. All of these activities are informed by the data and information that the SPC gathers during its annual Colorado River trips. The SPC Coordinator is responsible for ensuring that the information is passed between the Southern Paiutes and the federal managers responsible for operations of the Glen Canyon Dam and the resources within the Colorado River Corridor.

PA Signatories, Adaptive Management Work Group and Technical Work Group

The SPC Kaibab Paiute tribal administrator participated in AMWG and TWG meetings on behalf of the SPC. The SPC has worked with other PA Signatories to provide input in the process of developing the Historic Preservation Plan. The Southern Paiute Consortium maintains its position that the Grand Canyon is a significant cultural landscape and is vital to the physical and spiritual well being of Southern Paiute people (see Stoffle, Halmo, and Austin and 1997).

Meetings and Interaction with Federal Agencies, Tribal Leaders and Members

The SPC Coordinator met with representatives from the GCMRC, Department of Energy, Bureau of Land Management and National Park Service to discuss projects and activities that could potentially impact the Colorado River Corridor. They also prepared a presentation for the Annual Meeting of the Kaibab Band of Paiute Indians, provided reports to the Kaibab Tribal Council, and made presentations at meetings of the Shivwits Band Council.

Other Activities

The SPC has participated in activities that are beyond the scope of the PA but further the SPC's efforts to protect Southern Paiute cultural resources in the Colorado River Corridor. These include continued development of the SPC Education and Outreach Program.

Education is an important component of the SPC program on the Colorado River. Southern Paiutes who have participated in the program have learned much about their heritage, the Grand Canyon, cultural resource policy and management, and themselves. A valuable body of information now exists on the cultural significance of the Colorado River Corridor to the Southern Paiute people, including cultural uses of specific places and of native plants and minerals, and the

Colorado River monitoring and education program has served as an invaluable opportunity for Paiute heritage to be discussed, recorded, and preserved for future generations of Southern Paiute people. Though the program was not funded by the GCMRC in 2004, the SPC continues the education and outreach program begun in 1999 to reach Southern Paiutes and non-Paiutes with information about Southern Paiute culture, cultural resources in the Colorado River Corridor, and the Monitoring and Environmental Education Program. The program's objectives are:

1. Continue to increase the awareness of Paiute and non-Paiute youth and adults of the Southern Paiute use and management of the Colorado River corridor, with emphasis on plant and animal resources, by preparing educational materials, conducting workshops, and making presentations to classrooms, organizations, and professional meetings.
2. Increase the awareness of Southern Paiute youth and adults of the historical and recent Southern Paiute use and protection of the Colorado River Corridor, with emphasis on the concept of cultural affiliation and its importance in policy and management, by preparing educational materials and conducting workshops at Southern Paiute gatherings.
3. Increase the awareness of non-Paiute individuals of the long history of interactions between Southern Paiutes and the land and resources of the Colorado River Corridor, with emphasis on the concept of cultural affiliation and its importance in policy and management, by preparing educational materials and making presentations to classrooms, clubs and organizations, and professional meetings.

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