

SUPERINTENDENT'S ANNUAL REPORT
ZION NATIONAL PARK
1983

ADMINISTRATION AND MANAGEMENT

Travel Figures for 1983's Visitation

Zion National Park recorded 1,393,258 visitors in 1983, a 2 percent increase over 1982. This represents the second highest visitation year on record at Zion, surpassed only by a record number of 1,405,205 visitors in 1981.

Campground use for 1983 totaled 201,262 campers, a 1 percent increase over last year. Backcountry camping totaled 6,896, a 7 percent decrease from 1982.

A total of 1,343 tour buses carried 41,775 visitors to the park. Tour buses delivered 27,360 visitors to the visitor center, a 13.5 percent decrease from 1982.

International visitors continue to represent almost 20 percent of total annual visitation. According to a U.S. Travel and Tourism Administration survey of departing foreign visitors, except Canadians and Mexicans, using major airlines, Zion National Park was the fifth most visited park area.

Special Visitors

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| March 26 | T. Destry Jarvis, Russell D. Butcher and Terri Martin, Washington, Southwest Regional and Utah representatives of National Parks and Conservation Association |
| April 18 | Francis Kennedy and husband Roger with Smithsonian, formerly with Ford Foundation |
| April 20-21 | Former Chief Park Naturalist Robert C. Foster of Zion and Mrs. Ruth A. Nelson, author of <u>Plants of Zion National Park</u> |
| May 22 | Secretary of Interior James G. Watt, luncheon at Zion Lodge with TWA Services representatives, local mayors and county commissioners, Regional Director Mintzmyer and Superintendents Grafe and Herr |
| June 9 | Patrick Singelin (and wife), Assistant Superintendent of the Mercantour National Park in southern France (ZNC operation) |
| June 19-20 | John Ford (and family), grandson of former NPS Director Horace M. Albright (delivered historical items for library) |
| June 23 | Elias Kligher, Israel, Recreation Planner |

- July 13 Mrs. Helen Chaunaird (and daughter Joanna), wife of Administrative Assistant to the Senate Appropriations Committee
- July 22 Charles A. Pollak and his grandnephew Peter Keim, friends of Congressman Sidney R. Yates
- August 9 Mrs. Ruth Franke Trevathan, daughter of former Superintendent Paul R. Franke of Zion, 1939, 1940-43 and 1952-59
- August 11 Elkan Allan, British journalist and editor of Video Viewer, Suffolk, England
- August 20 Governor Scott M. Matheson, presented main address at Cedar Breaks' 50th anniversary ceremony, accompanied by Regional Director Lorraine Mintzmyer
- December 2 Congressman James V. Hansen, Utah's first district representative, and Executive Assistant Howard Rigtrup

Kolob Canyons Contact Station

Zion Natural History Association's bid opening for construction of the facility was held in August. Groundbreaking ceremonies were conducted on September 9 in conjunction with a Special Events Day in which local dignitaries toured the park and discussed promotion of southern Utah tourism. The facility will be dedicated and donated to the National Park Service on July 31, 1984 during the Diamond Jubilee celebrating the founding of the park as Mukuntuweap National Monument in 1909.

Friends of the Kolob

The Zion Natural History Association organized a working committee to obtain membership in the group to assist in funding needed items to furnish the newly constructed contact facility located off I-15 in the Kolob section of the park.

Development Concept Plan

The Zion Canyon DCP was approved in February, and plans are progressing for new construction to begin at Zion Lodge in the fall of 1984. The Western cabins, lodge kitchen and snack bar are presently being totally remodeled for the 1984 season. The cabins will carry an AAA three-diamond rating.

PRIP/Jobs Bill Funding

The year saw numerous projects funded in the park that provided a safer, more enjoyable visit for the public. Three trails were rehabilitated, one of which now provides wheelchair access. Forty old cabins were rewired to code, and all park roads were restriped. Additional work was done on the tunnel monitoring system prior to a major design change planned for 1984 to more accurately monitor possible rock failure potential in the tunnel. The YCC program was reactivated for 1983, and structural fire equipment was upgraded.

Management Efficiency

Volunteerism continued to be a major emphasis for the staff. Two campground host volunteers set new individual records of 1,105 hours each of donated time, but were beaten by another volunteer who contributed 1,244 hours. The combined hours of all volunteers through October 1 showed a wage contribution of \$59,834. The Zion Natural History Association accepted a bid offer from Riley Construction Company to build the Kolob contact facility for \$117,000, which will be donated to the National Park Service in 1984. Positive results were realized in all six identified categories of the "efficiency" plan.

Resource Protection

A major emphasis was made to revise the Natural Resources Management Plan, which was completed and approved. The Land Protection Plan was drafted for in-house review and was cleared for presentation to the public for comment in early 1984. Work was started on the Fire Management Plan and a revision of the Backcountry Management Plan.

Grafton Development

Local news features and several calls to the park by consultants confirm that a \$16 to \$18 million renovation of the ghost town located near the south boundary of the park may get off the ground in 1984 as an added tourist attraction.

Personnel

Staffing of permanent employees at the close of 1983 for the three areas consisted of the following:

	<u>ZION</u>	<u>CEBR</u>	<u>PISP</u>
Total positions	42	4	4
Full-time	26	3	4
Less-than-full-time (subject-to-furlough)	8	1	0
Part-time	1	0	0
Vacancies			
(full-time)	4	0	0
(less-than-full-time)	3	0	0

Personnel Losses from Zion during 1983

One death: Roland Spendlove, Maintenance Worker	04/16/83
Two resignations: Joan A. Rood, Laborer	06/25/83
Raymond A. Zelones, Engineering Equip. Opr.	05/18/83

Six retirements:	Malcolm S. Nicholson, Chief Park Ranger	04/30/83
	Levi A. Crocker, Administrative Officer	06/11/83
	Raymond D. Pollock, Chief of Maintenance	06/25/83
	Keith M. Wilkins, B&U Foreman	06/25/83
	Earl Mansor, Engineering Equip. Opr.	10/29/83
	Ardell D. De Mille, Water Treatment Plant Opr.	12/24/83
Two reassignments/CAO:	Jon R. Dick, Park Ranger (to Glen Canyon)	04/03/83
	Mark A. Richey, Auto Mechanic (to Lake Mead)	12/11/83

Personnel Gains to Zion during 1983

Paul N. Kirkland, Park Ranger	07/24/83
Cassy Ann Black, Administrative Officer	08/07/83
James M. Brady, Assistant Superintendent	08/07/83
David F. Karaszewski, Chief of Maintenance	08/21/83
Roger A. Rudolph, Chief Park Ranger	09/04/83
Everett M. Phister, B&U Foreman	10/16/83

Personnel Gains to Pipe Spring during 1983

Jeffery A. Frank, Administrative Clerk	05/15/83
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Training

The three areas had an active involvement in training programs both at the park area as well as at other locations. Since Zion has a Nature Center building that is excellent for holding training sessions, some Regional courses were held at Zion with neighboring parks being invited to attend. Zion hosted the PAY/PERS payroll system training during October with many parks attending.

The following is a breakdown of training hours and the number of employees trained:

	<u>Hours</u>	<u>Employees</u>	
Sessions conducted at Zion	220	239	(ZION)
Sessions conducted at Zion	10	4	(PISP)
Sessions conducted at Zion	73	20	(CEBR)
Sessions attended away from Zion	814	26	(ZION)
Sessions attended away from PISP	156	4	(PISP)
Sessions attended away from CEBR	216	5	(CEBR)

Employee Relations

There exists an active Equal Opportunity Committee within the park which promotes such activities as recruitment programs for seasonal hiring, equitable representation of minorities and women on the staff as outlined under the park's Affirmative Action Plan and an active Federal Women's Program.

Recruiting efforts during December focused on the nearby college campuses. A recruitment program was presented at Southern Utah State College; contact was made with 56 students of which approximately 18 were minorities. A follow-up session was accomplished to assist students in completing the complex applications; approximately 13 minority students attended this second session.

A recruitment program was also presented at Dixie College; approximately 26 students were contacted of which 4 were minorities.

Fred Banks, Park Technician at Pipe Spring, visited with prospective seasonal applicants during a tribal meeting with the Kaibab-Paiute Native Americans at Moccasin, Arizona.

The Federal Women's Program was very active in 1983 and hosted four lunch-time lectures and a one-day workshop to which employees from the neighboring park areas were invited.

During open season for health insurance benefits, six employees from the three areas changed plans or coverage.

Awards

Incentive awards for 1983 included:

Raymond D. Pollock - Special Achievement Award
Gary Pearlmutter - Special Achievement Award
Debra Sandstrom - Special Achievement Award
Ellen Given - Quality Increase Award

Twenty-year service awards were presented to Freida Gratz and Larry L. Hays. A 10-year service award was presented to Lawrence Bodemer.

General Personnel Matters

During the year, 304 requests for personnel actions were initiated at the park level for the three areas.

Seasonal employees hired during 1983 included the following:

Zion
Interpretation and Visitor Services - 10
Resource Management and Visitor Protection - 16
Maintenance - 19

Cedar Breaks - 6

Pipe Spring - 8

Three summer aids were hired for Zion in 1983, one in maintenance and two in administration. Nine CETA employees assisted the maintenance division.

Contracting

Eleven contracts totaling \$253,580.96 were awarded and accomplished at Zion during 1983. The majority of these contracts were for PRIP and Jobs Bill projects.

Two contracts totaling \$39,476.00 were awarded and accomplished at Pipe Spring.

Two contracts totaling \$111,724.33 were awarded and accomplished at Cedar Breaks.

Procurement

During the 1983 fiscal year, the imprest fund for Zion National Park was increased to \$3,500, and the fund for Pipe Spring National Monument and Cedar Breaks National Monument remained the same at \$750 and \$300 respectively.

<u>Area</u>	<u>Imprest Vouchers</u>	<u>Total</u>
Zion National Park	529	\$33,814.80
Cedar Breaks National Monument	91	3,453.29
Pipe Spring National Monument	224	11,257.73

<u>Area</u>	<u>Purchase Orders</u>	<u>Total</u>
Zion National Park	348	\$469,233.44
Cedar Breaks National Monument	35	22,731.85
Pipe Spring National Monument	33	33,282.03

<u>Area</u>	<u>Fedstrip Activity</u>	<u>Total</u>
Zion National Park	22	\$19,996.93
Cedar Breaks National Monument	2	1,205.01
Pipe Spring National Monument	7	6,733.48

Property Management

There were 12 Reports of Survey accomplished during the year. They consisted of such items as lost and found, mowers, typewriters, pavement breakers and assorted buildings, including the Zion Lodge concessioner cabins. Only one building was physically removed, Building No. 28 at Lava Point.

Concessions

Annual operational and maintenance agreements were completed for all three concessioners.

TWA Services, Inc.

TWA Services operated under a one-year extension of the old contract so that details of an extensive rehab/construction package could be worked out for the new contract.

Employee training was conducted by both TWA Services and the National Park Service, and all required inspections were accomplished. There were a few minor complaints and several letters of commendation, indicating that the concession operation continued to serve the public at a highly acceptable level.

The transportation system was expanded from a one-tram to two-tram system, which proved to be more reliable. Interpretive operation was audited by National Park Service personnel.

Interior painting of all Western cabins and the lodge was accomplished prior to 1983 opening, and a new furniture package was provided for the Western cabins. A new stairway from the lobby to dining room and a new fire exit for employees were completed.

For the first time, TWA Services provided snack bar service at the lodge for the Easter crowds.

Bryce-Zion Trail Rides, Inc.

All wranglers obtained first aid and CPR cards.

The West Rim Trail was closed to commercial horse use this year for safety reasons. An alternative all-day ride is being considered for the 1984 season.

All required inspections were accomplished. Only two complaints were received and one letter of commendation, indicating that the concession operated in a highly satisfactory manner.

A new mobile home was obtained by the concessioner to replace an older one, and both mobile homes were painted onsite to match. Further improvements were made to the corral area.

The concessioner performed nearly 50 workdays of labor on the Sand Bench Trail at an estimated saving to the Government of about \$3,000.

Zion Natural History Association

All required inspections were accomplished, and no complaints were received during the year. The employees of the Association performed at a highly acceptable level.

INTERPRETATION AND RESOURCE MANAGEMENT

Resume of Interpretive Operations

Regularly scheduled interpretive programs began on March 20 with one guided walk and one evening program offered each day. March visitation was 39,706, a 7 percent decrease from the previous year. Spring break at numerous educational facilities during mid-March and large crowds at Easter in early April inundated the miniscule staff. Auxiliary staffing provided through the Association and an active VIP program made it possible to take care of the crowds in a fairly respectable manner.

The opening of the Zion Nature Center on June 7 marked the beginning of the maximum program for the summer which lasted until August 6.

Because of budget constraints, the Student Conservation Association cut the normal staff of three interpretive SCA Park Assistants to two. Both SCA women assigned to the division were terminated by August 21, leaving a limited staff but many people still visiting the park. A viable interpretive program continued until November 12 with the last four weeks made possible through VIPs.

It has been found that a schedule of activities from late March to early November works quite well from both weather and visitation aspects. This year, two interpretive naturalists were brought on two weeks early to handle spring break and to work on several special projects.

The visitor center continues to be open daily all year with maximum hours from 8 a.m. to 9 p.m. in summer and minimum hours of 9 a.m. to 5 p.m. in winter. In 1983, this facility was operated 60 percent of the time by non-NPS employees.

A summary follows of participation in scheduled interpretive events:

	<u>1982</u>	<u>1983</u>	<u>% Change</u>
Roving interpretive contact	3,266	15,978	+389.2
Naturalist Choice talks	4,425	4,233	- 4.3
Conducted walks and hikes	16,738	9,968	- 40.5
Evening programs	64,025	56,326	12.0
Visitor center attendance	<u>562,984</u>	<u>567,684</u>	+ 0.8
	651,438	654,189	+ 0.4

Overall, attendance at conducted events and facilities increase slightly during 1983 with total park visitation rising 2.3 percent from 1,361,750 to 1,393,258. The number of evening programs increased slightly from 490 in 1982 to 1983's total of 500; Naturalist Choice talks decreased slightly from 1982's total of 200 to 195 during 1983; conducted walks and hikes dropped from 797 to 467 in the same period.

These changes were possibly due to a number of factors, despite an increased use of VIPs and more efficient scheduling. Usually wet weather resulted in a decrease in attendance at evening programs and guided walks. There were fewer VIPs in the spring and fall, which cut back on field activities available to park visitors. The additional loss of one interpretive SCA also affected the number of field activities offered.

The number of roving contacts skyrocketed because of a management decision to concentrate interpretive personnel along the Gateway to the Narrows Trail in the spring when that heavily utilized one-mile trail was being totally resurfaced under PRIP. This decision was made in order to accomplish three main goals: (1) protect the wet soil cement from vandalism, (2) free maintenance personnel from answering questions and thus concentrate on their work and (3) interpret PRIP and the benefits Zion and the rest of the National Park Service have received from the program. Because of the emphasis on roving contact along this trail which required six to nine hours of roving assignments daily for two and a half months, the number of guided walks and hikes were, of a necessity, cut back from previous years. Moreover, the new campground host program at the South Campground resulted in about 6,000 roving contacts.

It should be noted, however, that some of the overall successes can directly be linked to the availability of interpretive SCAs and VIPs who contributed 958 hours of desk duty, gave 51 guided walks/hikes and fulfilled 133 roving assignments. Without the SCA and VIP programs, the number of interpretive activities available to visitors would be greatly reduced.

Tour buses delivered a significant percentage of the visitors in the visitor center during the spring and fall months; many others arrived during the summer, but the overall percentage of visitation was much lower than in 1982. The visitor center recorded 846 buses with 27,360 passengers--15.3 and 13.6 percent below the 1982 totals of 999 and 31,650 respectively.

Interpretive employees issued 5,198 Golden Age Passports, 84 Golden Access Passports, 691 Narrows and 1,337 overnight camping permits in cooperation with the ranger division.

Environmental Education Program

The Zion Nature Center celebrated its tenth season of operation this year. Classes began June 7 and ended August 6 with a total attendance of 939 participants, a drop of 81 children when compared with the 1982 season. The age group of 6 through 12 was continued. Seasonal naturalists presented show and tell programs for the children each afternoon using bird study skins, rock samples and plant specimens.

The lack of park housing again made it necessary to employ teachers who could commute to work each day from the surrounding area. Two new teachers were hired along with one returning for her third year. The experienced teacher terminated on July 19 due to personal reasons, leaving the other two to complete the summer. The Zion Natural History Association donated a total

of \$5,302 for this activity. The teachers were paid \$4.17 an hour, equivalent to a GS-1/1 level. The new employees participated in five days of seasonal naturalist training and orientation prior to the opening of the Nature Center. The teachers wore the approved Association uniform while on duty.

Year-end funds were used to purchase darkening drapes for the main room at the Nature Center so audiovisual programs could be presented during class sessions. The drapes will also be useful in cutting heat gain in summer and loss in winter when the building is used for other park-related functions.

A program critique was held on August 6 with the two remaining teachers. The teachers want to keep the new schedule of Tuesday through Saturday, as it worked better than the previous Monday through Friday program of the first nine years. The teachers would like to have one of the more experienced naturalists provide them with a guided tour of the Watchman Trail, which is frequently used for the older children. Another suggestion was that activities be patterned more closely after the Junior Ranger Program that has been used in other parks, including shoulder patches, workbooks and completion certificates.

Cooperating Association Activities

General

The groundbreaking ceremony at Kolob Canyons on September 9 marked two significant events in the history of the Zion Natural History Association and the park. The first was the physical beginning of the long-planned and approved Kolob Canyons Contact Station which is being paid for by the Association. This facility provides new opportunities for the Association and the National Park Service to serve the needs of the traveling public as well as meet onsite management needs. A major dedication/donation ceremony is planned for July 31, 1984 on the 75th anniversary of the establishment of Mukuntuweap National Monument. The cost for this venture is to be in the vicinity of \$130,000 when the project is complete.

The second was private sector involvement through the establishment of the "Friends of the Kolob," a special committee of the Association initiated by Chairman Robert N. Sears. All memberships/donations are to be used to further the public facilities in the Kolob Canyons section of the park. As of December 31, 1983, there were 35 members who had donated a total of \$2,390.

Service-Related Operations

The Association provided \$65,346 in support of management and a wide variety of park programs touching every division at one point or more.

The greatest aid was provided to interpretation in the amount of \$29,737. Major portions of this were distributed to the Folklife Festival (\$6,000), Student Conservation Program (\$1,100), Volunteers-In-Parks (\$2,000), salary

for the Association typist/librarian (\$14,183) and to Pipe Spring National Monument (\$3,665) in support of its living history programs.

The Aid to Environmental Program totaled \$13,646 and paid the salaries of the three Nature Center teachers and related expenses of \$5,302. A scholarship was provided to Dixie College (\$500) for one promising student with a natural history major. This account also covered the new interpretive labels now in use at Weeping Rock (\$3,973) and the reprinting of the Canyon Overlook Trail Guide (\$3,823).

Weatherbank, Inc., of Salt Lake City provided professional weather reports for the park with emphasis on the Virgin River Narrows. This service cost \$1,960 and helped management determine when to permit hiking trips in this potentially dangerous canyon.

Law Enforcement

There were 540 case incidents in 1983 which included all classes of incidents within the reporting system. With the addition of citations and courtesy tags, the total number of incidents was 891 or approximately the same activity as in 1982.

There were 26 motor vehicle accidents, a decrease over the 33 reported in 1982. Property damage was typically low in most accidents with a few exceptions helping lift the total to \$38,945. On August 14, an unusual accident occurred involving a truck loaded with 52 persons from the Orme School and Ranch Camp in Mayer, Arizona. The truck rolled onto its side while making a left turn. All passengers survived with the majority sustaining only minor injuries. Park and county officials cooperated in the investigation and multiple ambulance runs.

Part I crimes included 29 larcenies, 1 burglary and 3 assaults. Loss from larcenies was low compared with 1982 with a total loss of \$9,502. The lodge was burglarized in December and two suspects caught in the county admitted the crime as the result of our investigation. They were sentenced to five years to life on other charges.

All assaults were simple assault with one involving a ranger struck while arresting a drunk.

There were 14 drug and alcohol-related incidents; several involved arrests for driving under the influence. Drug and drinking incidents on the road are expected to decline in the future as the result of past enforcement emphasis here and stiff laws passed in Utah.

Problems with motorcycle gangs and individual bikers were virtually nonexistent in 1983. The park is now enjoying the fruits of 10 years of sustained effort in reducing the frequency of these incidents.

There were 133 violation notices written--down slightly from last year. The ratio of traffic versus nontraffic violations shifted to the majority being nontraffic. Eight were issued for hunting violations during the season.

Livestock trespass remained a problem with little measurable progress in gaining the cooperation of landowners in 1983. Continued effort in concert with the Land Protection Plan will hopefully provide more contacts with landowners in the future.

Success of the enforcement program increased overall in 1983. The hope that the state legislature would pass proposed concurrent jurisdiction legislation for National Park Service areas in Utah did not occur. Efforts will continue toward that end.

Fish and Wildlife Management

The peregrine falcons in the upper portion of Zion Canyon moved their nest location again this year. It was located and monitored during the summer. Only one young was fledged this year from this pair of birds. The peregrines in the lower part of the canyon were seen early in the year, but their nest was not located nor were any young found. It is unknown what happened to this pair of birds.

There were 11 observations of desert bighorn sheep this year. Most of these observations were of single animals. Only in one observation was more than one animal sighted. Three animals were sighted in that case near Mt. Spry. No lambs or yearlings have been seen.

The Zion Canyon deer herd seems to be stable. Numbers remain low throughout the canyon. Several animals died around the end of the year. They were found to be heavily infested with ticks.

Resource Management

Stress monitoring is continuing in the Zion-Mt. Carmel Tunnel. In August, a new shear strip was installed. It has been connected into the alarm system but has not been grouted in place. The Carlson gauges went into wild readings right after the drilling took place. Readings oscillated for over a month. The cause was not determined. Pictures were taken of the crack zone on the side of column 4, but this was discontinued as no evidence of widening was found. Plans are continuing for a more reliable monitoring system to be installed in FY'84.

The air visibility monitoring station in Zion Canyon has been operating for four years. Data are being recorded on digital tape. Readings from the telephotometer and meteorological gear have been taken manually once a day. Resource Specialists, Inc., of Fort Collins, Colorado, has installed a new handar unit at the Lava Point telephotometer station under contract with the Air Quality Office in Fort Collins. The east-facing telephotometer was removed, and only the south-facing telephotometer remains in place.

Backcountry camping impact evaluations were made again this year. This work shows impact in the vicinity of Cabin Springs on the West Rim. La Verkin Creek in the Kolob area also shows evidence of impact, particularly at the La Verkin/Hop Valley junction.

There were 691 permits issued for 2,021 visitors hiking the Virgin River Narrows (overnight and day-use). This represents a decrease of 379 permits and 1,561 visitors compared to the registered use in 1982. It was a record wet year, and the Narrows hike opened later than usual and was closed numerous times during the season. A Narrows study team was formed to prepare a statement outlining a policy providing maximum safety to the Narrows visitor with minimum closure and regulations.

There were 1,337 overnight backcountry permits issued for 3,507 visitors hiking in other areas of Zion's backcountry. This represents a drop of nearly 200 permits compared to the level seen the last three years. This drop could be attributed to the fact that the snow season in 1983 extended into April and May. The mean number of people per permit increased by one-third of a person, so figures such as visitor use nights did not drop drastically.

Trail register tabulations totaled 185,363 hikers, a 5 percent decrease from 1982. Most of this drop can be attributed to the fact that the Hidden Canyon Trail was closed from May through November for major trail repairs. All of the above figures are considered conservative because of the large percentage of trail users that fail to register.

There have been no significant developments during the year affecting the status of Zion's wilderness recommendations.

A draft Fire Management Plan has been prepared and is being reviewed. Initial steps have been taken to obtain state air quality guidelines or a memorandum of understanding relative to conducting a fire management program. A fire prescription was written for research burns in both of the campgrounds. The plan was approved by Region. Approval was also obtained from the State of Utah Air Quality Office. A wet spring created problems with proper fuel moistures, and some of the burn was not accomplished before the campgrounds were reopened.

The Natural Resources Management Plan was rewritten in June. The format was completely changed and the plan finalized late in the year. Significant resource problems were identified and submitted for additional funding.

The Garkane Dam proposal was again raised. The Garkane Power Company submitted a proposal for hydropower on the North Fork of the Virgin River. All facilities would be outside the park. Garkane has no plans to build the dam itself but would want the rights to hydrogeneration if a dam is constructed by Cedar City.

The second phase of FIREPRO was written and submitted to Region and the Boise Interagency Fire Center (BIFC). No response was received from BIFC.

The 1.5 kv solar operation at Lava Point was transferred to the Park Service from the Department of Energy. The Jet Propulsion Lab acted for the Department of Energy in the project. The system will be moved from its present location to a site near the Lava Point seasonal residence. It will be used to provide power for the residence at Lava Point.

The Land Protection Plan was drafted and submitted to Region and Washington for approval.

A special use permit was granted for Utah Power and Light to accomplish power line improvements to the system crossing the park. A right-of-way agreement with Utah Power and Light will be written when specific guidelines are received.

The water rights issue at Camp Creek was investigated. An individual purchased the property adjacent to the park boundary in the northwest portion of the park. He wanted to enter the park and divert water to storage reservoirs. The park did not question his water rights but did question his right to trespass on park lands to divert water from Camp Creek. The matter has been turned over to the Regional Solicitor's Office for review.

A team from Brigham Young University under the direction of Dr. Reed Blake, using modern technology for accurate measurements, discovered Kolob Arch to have a span of 310 feet--making it the largest known natural arch in the world. Work was accomplished on July 28.

A major rock failure occurred in the Kolob Finger Canyons near Shuntavi Butte during July 1983. No known witnesses observed the incident.

The Resources Management Improvement Committee looked at the Emerald Pools Trail, parking and falls area in November. Several projects were lined out for resource and safety improvements in this high-use area.

Cultural Preservation

The archeological and historical sections of the Cultural Resources Management Plan were written; further List of Classified Structures studies are awaiting Regional Office input. The plan should be finished in 1984.

Two new archeological sites were found during the year and documented. Archeologists from the Midwest Archeological Center surveyed the area along the new water line at Wylie Springs and at the East Entrance. They also inspected the Oak Creek Bridge and the South Entrance area for evidence of any archeological remains.

Numerous clearance for PRIP projects were submitted during the year. Several clearances were also obtained for work in the Zion Lodge Historic District, including reroofing, rewiring, window replacement and air cooling system replacement.

Sign Program

New sign request procedures and sign request forms for Zion were developed and in place by the end of the year. Funding to replace deteriorating and nonstandard signs remained very limited. The Sign Committee is developing a backlog of signs which need to be standardized or replaced due to deterioration. Painting, post replacement and routine maintenance was completed by

the roads and trails crew and the ranger division as staffing allowed. Vandalism or accidents damaged approximately 25 signs during the year; the major damage occurred to signs along the Kolob Terrace Road.

New signs for the Zion-Mt. Carmel Tunnel were installed, improving visitor safety and traffic flow in that area.

New signs were ordered for the middle pools on the Emerald Pools Trail where several recent accidents occurred. A new interpretive/safety sign for the rockfall area on the Gateway to the Narrows Trail was received. An interpretive, scenic view sign was partially completed for the overlook at Lava Point using VIP and seasonal ranger help to construct it. "Please Close Gate" signs were ordered for gates on inholdings and along the park boundary in an effort to encourage visitors and local people to keep livestock off National Park Service land.

Numerous sign proposals, especially those regarding backcountry and trails, were in various stages of development at the year's end.

Fee Collection

Fees totaling \$473,079 were collected during the year. This represents a decrease of \$6,796 from 1982. Entrance fees amounted to \$304,620, an increase of \$2,423 over 1982. Campground fees collected amounted to \$168,459, a \$9,219 decrease from 1982. Revenue for this report represents fees collected for the 1983 calendar year. Revenues reported in the 1982 annual report erroneously included figures for the last quarter of the 1982 fiscal year which increased the 1982 calendar year figure.

In the campgrounds, a self-registration fee system was in effect during evening hours in the summer. During the winter, a self-registration system was used in both campgrounds, depending on which one was open.

The South Entrance Station was open from April 1 to November 1. The East Entrance Station was open from May 26 to September 30.

The decrease in camping fee collections were attributed, in part, to ranger personnel in 1982 counting "multiple" small tents in one site (i.e., family with three small backpacking tents) as one tent, while in 1983 the staff counted all tents. This resulted in a higher use figure. The decrease also points up the need to further evaluate "compliance check" procedures when self-registration use is implemented.

Campgrounds

The Watchman Campground was open January through November. The South Campground opened in May and remained open the remainder of the year. A self-registration system was in effect in both campgrounds when the fee kiosks were closed.

The new fiber glass site markers installed in the campgrounds last year are working out satisfactorily.

A campground host program was implemented this year. The campground hosts contributed a total of 2,110 hours and contacted over 6,000 campers in South Campground. An additional campground host team is anticipated for Watchman Campground next year.

The reservation system for the organized group area was operated from March through October. The total number of campers using the group area totaled 12,542, a 21 percent increase compared to 1982. Total use in both campgrounds, excluding the group area, totaled 201,262, a 1 percent increase over 1982.

Special Use Permits

A special use permit was issued to LeGrande Spilsbury for stock drives through La Verkin Creek in the spring and fall. A precedent occurred during the fall drive when Rangers Lineback and Kirkland accompanied the Spilsbury party. Valuable information was transferred to all concerned, and interesting insights were gained relative to dealing with this permittee in the future.

Two special use permits were issued to Utah Power and Light Company. One was for the purpose of line and pole replacement in the southern portion of the park and from the South Entrance to Zion Lodge via Birch Creek. The permit was issued as a temporary measure pending Regional and Washington finalization of a more comprehensive permit system. The second permit was issued for locating a temporary single-phase transformer in the lodge area to handle the expected electrical load at Zion Lodge.

Research

Dr. Richard W. Baumann, Brigham Young University, collected aquatic insects from the Virgin River. No report has been received on the results of this collection.

Dr. James R. Barnes, Joan Boyce and David Ng, Brigham Young University, conducted studies on reproduction and growth of the Zion snail. A new population was found during their investigation.

Dr. Jack W. Sites and Pamela Thompson, Brigham Young University, worked on the genetic structure of the Iguanid lizard.

Dr. Stephen Schroeter, University of Southern California, started a study on distribution and abundance of lichens and mosses on rocky substrates.

Dr. George H. Davis, University of Arizona, initiated field studies on fracture patterns in sandstone in the eastern portion of the park.

Dr. John F. Addicott, University of Alberta, did work on yucca moths and the yucca's reaction to larval infestations.

Dr. James A. McMahon, Utah State University, conducted research on grasshoppers in the Zion area.

The report on Ecological Relationships in the North Fork of the Virgin River was received. This report contains lists of species present on the Virgin River.

Dr. Melody Serena, Dixie College, received a permit to study the lizard (Cnemidophorus velex) but conducted no research this year.

Christopher G. Peterson, University of Nevada, Las Vegas, applied for a collecting permit to study diel periodicity in invertebrate drift but did no work this year.

Fire Prevention and Suppression

Prevention actions during 1983 included refolding all fire hose within the complex. Fire weather was taken daily at park headquarters and Lava Point for entry into the AFFIRMS terminal at Dixie National Forest.

A record precipitation year of 25.64 inches occurred in 1983 compared to 20.51 inches in 1982. The average is only 15.23 inches, giving the park two years of heavy vegetation growth and higher fire danger potential.

The structural fire crew responded to three fires during 1983, two brush fires in the community of Springdale and one dumpster fire in the Watchman Campground. All fires were minor with no structural damage or personal injury sustained. One fire consumed three acres of brush and grass before being brought under control.

A total of 31 and a half hours of structural fire suppression training was given to Zion personnel with one individual attending a three-hour course on extinguishing L.P. gas fires.

There were four manned wildfires in 1983; all occurred during July. The fires were small, only one reaching one acre in size, and all were lightning-caused.

New equipment was purchased and additional equipment mounted on the park fire truck, all of which expanded our fire fighting capabilities.

The Wildland Fire Mobilization Plan was updated, and copies of the Fire Management Plan were submitted to division heads for review.

Search and Rescue

Searches

One minor and two major searches were conducted during the year. The three searches were conducted in June, July and October.

On July 13, 1983, a female member of a handicapped travel group had been missing for several hours and had reportedly threatened to take her own life on several previous occasions. She was located on the upper Emerald Pool

Trail by a YCC worker, given first aid for minor, self-inflicted wounds and returned to her group three and three-quarter hours after her disappearance.

On October 8, 1983, a father and two sons were reported overdue on a hike through the Virgin River Narrows. The father, who has a history of heart problems, and his sons, aged 11 and 12, were not experienced hikers. They had not taken proper clothing and food and had not received a permit prior to departure. They spent a cold night with a group of boy scouts, arriving at the trailhead at 1609 hours on October 9, 1983.

Rescues

One minor and six major rescues were conducted during the year. The six major rescues were conducted in June, August and October.

On June 6, 1983, a report was received concerning an unattended raft and life jacket in the Virgin River one mile downstream from the Sand Bench Trail. A search conducted along the river located the victim on a rock in the middle of the river. A rescue operation was initiated and the woman was pulled to shore 45 minutes after being located.

On June 18, 1983, a man sustained neck and back injuries when attempting a shallow dive into three and a half feet of water from ten feet above at the upper Emerald Pool. The victim was stabilized, carried to the trailhead and transported to the nearest medical facility.

On June 29, 1983, park staff assisted Cedar Breaks National Monument personnel, using various rope work and litter raising techniques, in the rescue of a woman who had gone over the edge of the amphitheater near the visitor center.

On August 14, 1983, park staff responded to a report that a man had fallen after leaving the trail and sustained severe head injuries at the lower Emerald Pools. He was carried to the trailhead and transported to the nearest medical facility by the newly assigned Springdale ambulance.

On August 14, 1983, a Bryce-Zion Trail Rides employee reported that a horse rider on the Sand Bench Trail had suffered a possible heart attack. Park staff responded, stabilized the woman, carried her via stretcher to the trailhead and transported her to the nearest medical facility.

On October 16, 1983, park staff responded to a report that a young man had fallen from the middle to the lower pools area at Emerald Pools. The victim was observed by several friends and park visitors to be off the established trail and scrambling along an exposed ledge directly above a 90-foot vertical face. He lost his footing when he slipped on wet slickrock and fell to his death on the rocks below. A physician (park visitor) assisted park staff in resuscitation efforts, but to no avail.

Training exercises, emphasizing search and rescue and technical rock rescue, were held during the year. Individuals from Zion National Park, Cedar Breaks National Monument, Bryce Canyon National Park and local agencies attended various sessions.

Climbing

During 1983, there were 142 technical climbers who registered for 61 climbing permits, a slight increase over 1982. The ranger staff observed 246 climbers on 108 climbs that did not have climbing permits. Thus, approximately 65 percent of known climbers did not take time to obtain permits. A decision was made to discontinue the climbing registration system at the year's end. The rangers will continue to provide a voluntary check-in system for those climbers requesting it. A climbing information sheet will be developed by the ranger staff as a visitor center handout to persons interested in this subject.

A rainy spring delayed the start of the 1983 climbing season. May was the busiest month for climbing, but June through October showed steady activity. The Great White Throne continues to be closed to climbing during the period of peregrine falcon nesting (April through July).

There were approximately 15 major "wall climbs" in 1983 and several "first ascents." Some of these were written up by the climbers involved, and the route descriptions were added to the park's climbing accounts book which is retained in the park dispatch office. An identical copy is kept at the visitor center information desk for climbers to review.

There were no known climbing accidents or injuries in Zion during 1983.

MAINTENANCE

Park Restoration and Improvement Program (PRIP) projects dominated Zion maintenance operations during 1983. The large number of projects funded required maintenance personnel to serve as project supervisors for many of the PRIP projects. Consequently, much of the scheduled preventive maintenance was deferred. A catch-up program during the winter of 1983/84 is in progress, but it has been hindered by vacancies in six permanent positions. Efforts are being made to fill these positions and to seek additional project supervision assistance for upcoming PRIP and special projects.

OMB Circular A-76 (Contracting Services) development began occupying 80 percent of the key maintenance staff members' time toward the end of CY'83 and will be continuing in 1984. Many others are and will be involved.

Package 201 (upgrade Zion Lodge utilities) was modified to include undergrounding of power and telephone lines from the South Entrance to Zion Lodge. Cooperative efforts of Rocky Mountain Regional Office, Denver Service Center, Utah Power and Light, Mountain Bell and Zion staff members have made this most desirable addition a near reality; approval is expected in early 1984.

Buildings

The use of wood stoves in utility buildings using scrap wood from construction projects continues to save energy/money annually. Most residents in the park continue to supplement or entirely depend on wood stoves to heat their homes.

Preventive buildings maintenance was limited to providing safe visitor/employee access and use due to extensive PRIP projects.

ONPS Funded Projects

1. A quarters unit (trailer) found to be unsafe and cost prohibitive to repair was demolished and removed.
2. Remodeling of the Lava Point Ranger Station was begun, including replacement of roof and roof trusses. It was suspected that the structure would otherwise not survive the winter snows. Work will be completed in early 1984.
3. Five quarters received considerable rehabilitation due to transfer/retirement of several employees.
4. Safety corrections of wood stove installations were started in late 1983.
5. Several quarters were better insulated with energy retrofit funds along with other facilities receiving benefits of the retrofit program. Setback thermometers, energy efficient evaporative coolers, weather stripping and additional solar water heaters are examples of items acquired.

Non-ONPS Funded Projects

1. A new well house was constructed to house disinfection and controls equipment for the East Entrance water system.
2. Plumbing fixtures in South Campground comfort stations were replaced, including floor and wall tiles.
3. Built-up roofs of 12 Mission 66 employee quarters were replaced. Extensive rafter decomposition was found and corrected.
4. The automotive shop and employee dorm were reroofed to restore the historic fabric.
5. The lodge dining room stairway was remodeled and a fire escape constructed for the lodge employee dining room.
6. The Western (deluxe) cabins at the lodge are being reroofed as well as rewired to code. These projects should be completed in early 1984.
7. Painting of 21 quarters is under way and is funded under the Jobs Bill.

Utilities

Utilities systems operation was not disrupted. Water quality was within limits during 1983.

The major project was reconstructing the East Entrance water disinfection/distribution system, including replacement of underground power lines.

Numerous field trips with Rocky Mountain Regional Office and Denver Service Center personnel regarding Package 201 and Kolob Canyons development were effective in pulling these projects together.

Grounds

Approximately 100 picnic tables and all of the amphitheater benches were repainted.

Irrigation, turf and tree care continues. Much of the work was done by volunteers.

Reconstruction of an irrigation intake dam was accomplished under PRIP funding.

Roads and Trails

Emergency repair and hazard removal on all roads were accomplished on a 24-hour, 7-day per week basis.

ONPS Funded Projects

1. Two major areas of storm damage along Route 2 in Zion Canyon were repaired, requiring approximately 500 tons of material.
2. Extensive repairs to road shoulders and drainages were accomplished along Route 1. The poison ivy drainage on the switchbacks appears to still be a problem.
3. Fifty campsites in the Watchman were releveled; more work still remains to be done.
4. The maintenance area and automotive shop are undergoing reorganization and disposition of excess/surveyed property. This is ongoing and may take a few months of 1984 to complete.
5. The front-end loader underwent major overhaul and now sports a renewed engine and transmission.

Non-ONPS Funded Projects

1. Campgrounds and utility roads were chip sealed with assistance from the Utah Department of Transportation.

2. All park roads and parking areas were striped.
3. Canyon Overlook Trail was repaired and handrails/guardrails replaced.
4. Gateway to the Narrows Trail was resurfaced, and extensive rock wall work was accomplished in several hazardous and unstable areas.
5. Hidden Canyon Trail was rehabilitated with new tread, rock walls and safety rails installed.
6. A new Emerald Pools Bridge was fabricated (100 feet long) and will be installed in February of 1984.
7. Kolob Canyons Road slump was totally excavated, a drainage system installed and the roadway reconstructed.

OTHER

Special Events

The Superintendent attended a Utah Travel Council meeting in April and spoke to a group of travel agency representatives during a luncheon.

Maintenance Appreciation Day and general park grooming for Memorial Day weekend was held on May 20.

The new sound/light show, produced by Bonneville International and KSL-TV for Dixie College, began the season on May 27 with showings six nights weekly through September at the O. C. Tanner Amphitheater in Springdale.

Weber State Singers presented a public concert at South Campground Amphitheater in May, as did the Ogden Boys' Choir in June.

The first Federal Interagency Land Managers' Meeting (BLM, USFS, NPS of northern Arizona and southern Utah) was hosted in June at Zion by the Superintendent.

Clovis High School Golden Cougar Band performed a public concert on Zion Lodge lawn in June, including a surprise number dedicated to DeVar Pollock and Keith Wilkins, who both retired the next day.

A special performance of the newly composed "Wilderness Suite" by Richard Adler was presented at the Utah Symphony Pops Concert in the O. C. Tanner Amphitheater in Springdale on July 13.

Wind Ensemble/Jazz Band of Glastonbury, Connecticut, presented a Boston Pops Concert in the South Campground Amphitheater in July, as did the New Life Singers, Ascension Lutheran Church of Rancho Palos Verdes, California.

The 50th anniversary of Cedar Breaks National Monument was celebrated on August 20; Utah's Governor Scott M. Matheson was the keynote speaker.

The seventh annual Southern Utah Folklife Festival was held September 8, 9 and 10 in the park and nearby Springdale under the direction of Festival Director Dallas Mangum. Approximately 8,000 people were in attendance. The Association contributed \$6,000 toward the event.

A Special Events Day was held in Zion on September 9 which was highlighted by a short groundbreaking ceremony at Kolob Canyons for the new contact station to be constructed and donated by the Zion Natural History Association. A "show me" trip of Zion Canyon for local county and city officials was conducted in the afternoon followed by a lawn party at Superintendent Grafe's for the group to meet the Assistant Superintendent and the three division chiefs (Administrative Officer, Chief Park Ranger and Chief of Maintenance), who had all arrived to take over their new assignments within the last 30 days.

The annual Christmas Bird Count, coordinated by the Assistant Chief Naturalist, took place on December 27. A record 87 species were spotted among a total of 3,342 birds.

Media Relations and Public Affairs

Contacts with the local media and civic organizations were maintained throughout the year. Several days of national news coverage activity brought about by Secretary Watt's visit and a "banner" displayed on a rock face in Zion Canyon kept the park staff busy.

The Brigham Young University team that measured Kolob Arch in July released news to the media that the arch (measured at 310 feet) was the largest natural arch known in the world today. It has been suggested that the same team, using the same technique, measure Landscape Arch in Arches National Park before making such a claim.

Several television filming crews were in Zion to obtain short segments to promote tourism in Utah, especially in the southern portion of the state. Carol Mikita of KSL-TV in Salt Lake City did a segment on tourism for Prime Time Access. Several other commercial filming permits were issued for television commercials and short scenes for movies.

The park continued to provide news releases on a regular basis to keep the local communities informed on park visitation and other ongoing activities.

The Zion Natural History Association donated \$5,000 for the sound/light show in Springdale, and in return, the park staff and Association were provided prominent credits for assisting in the production--which hopefully will promote good public relations in the area.

In the weekly interpretive schedules, the park announced the need for assistance and received some contributions from visitors. The Chief Naturalist was designated as Gifts Coordinator and is working with Region on a Utah Gifts Catalog.

Volunteers-In-Parks Program

The Volunteers-In-Parks program continues to add significantly to meeting Zion's needs. It has grown consistently over the last few years: In 1980, 12 VIPs participated in this program, contributing a total of 1,373 hours; 28 VIPs in 1981 volunteered 3,112 hours; 25 VIPs donated 4,311 hours in 1982; and in 1983, 29 volunteers added another 7,244 hours! Many VIPs served in the interpretive division performing such duties as operating the information desk, conducting guided walks and hikes, presenting evening programs, assisting the park librarian, working with the park herbarium and generally assisting the naturalist staff.

A successful campground host program was implemented this year for the South Campground, with the husband/wife team donating 2,210 hours and contacting about 6,000 visitors.

Former Assistant Chief Naturalist J. L. Crawford continued to donate his darkroom skills to update the park's historic photographic files and provided valuable information concerning people, buildings and other landmarks identified in the photographs.

Other VIPs worked with the Resource Management Specialist and in the ranger division on projects concerning the peregrine falcon and bighorn sheep populations, backcountry use patterns, petroglyph/pictograph inventories, trail patrol, upkeep and maintenance of equipment and facilities, interpretation of telephotometer data, research of legal issues involving trail access across private property, dispatch operation, boundary fence survey and repairs, structural fire (preplanning) inventory of park structures and other projects.

In addition, both the administrative (450 hours) and maintenance (1,868 hours) divisions were recipients of valued VIP assistance.

The money saved through VIP services continues to be quite impressive: Based upon a GS-4/WG-3 salary, the 7,244 hours of donated time equals approximately \$55,026, which would have been needed had National Park Service employees done the work.

Although contributions by all VIPs are important, particular note is made of the following individuals: Charles and Jean Ritter (Campground Hosts), 1,105 hours each; Christopher Robb (Maintenance VIP) 794 hours; Steven Huber (Interpretive and Administrative, but mostly Maintenance VIP), 1,244 hours, the current Zion record for a VIP in a single season!

Student Conservation Association Program

The Student Conservation Association provided the park with three Park Assistants, two less than the five authorized and funded in 1982. Two women worked with the interpretive division performing various naturalist duties, and one man was assigned to the Resource Management Specialist. As in past years, the Zion Natural History Association provided funds for the housing needs of all Park Assistants.

The women assigned to interpretation were selected from SCA applicants showing the greatest potential for subsequent employment as seasonal naturalists the following year. This has been part of an active EO program with excellent results: four of five seasonal women naturalists in 1980 and two of five seasonal women naturalists in both 1981 and 1982 previously worked in Zion as SCAs. There were only three new hires in the interpretive division in 1983, and one of these, Kevin Holladay, had worked as an SCA in both Canyonlands and Mount Rainier National Parks. Three of the four SCAs from 1981 returned as seasonal fee collectors for 1982 and 1983 and performed extremely well.

Several onsite naturalist talks on the history, natural resources and policies of Zion National Park and the National Park Service were provided the High School Wilderness SCA group camped along the West Rim Trail near Little Siberia (just below Cabin Springs). They spent four weeks rehabilitating several sections of this heavily used trail.

YCC Program

The YCC program at Zion resumed this year after an absence in 1982 with a nonresidential camp that began June 13 and extended through August 5. The program provided employment for one work leader and 20 enrollees. The enrollees were selected from the local communities of Hurricane, La Verkin, Toquerville, Pintura, Springdale and Virgin, Utah.

The safety record for the program was excellent, as no accidents were reported.

Fourteen projects were completed during the program. The location of three of the major projects was along the newly resurfaced Gateway to the Narrows Trail. These projects included building retaining walls, revegetating disturbed areas along the trail and fine-grading the trail. This year the Environmental Awareness program was an integral part of the work experience. The 14 projects were completed for a total appraised value of \$35,686. The program was budgeted at \$26,000.

Cooperation With Other Agencies

The resource management staff continued its cooperative efforts with the State of Utah Department of Natural Resources. A meeting was held with Gary McKell, Utah Conservation Officer, on October 21 to discuss cooperative efforts on mutual hunting concerns. Assistance was also given on the bald eagle census.

The cooperative fire agreement with the towns of Springdale and Rockville was updated to reflect the response capability of the newly established Fire Protection District for that area. The district now has the capability to provide initial response to fires in these neighboring communities, which will lessen immediacy of park responses.

Additionally, the Hurricane Ambulance Service transferred its older ambulance to Springdale to provide emergency medical response capabilities in the community. This state-approved ambulance service went on line in August and has alleviated the strain on park resources for onsite care as well as lengthy transport of the sick and injured visitor.

Cooperative fire agreements have been maintained with the U.S. Forest Service, Bureau of Land Management and the State of Utah Forestry Department for mutual wildfire protection. The BLM Office in St. George continued to provide helicopter services for fires in the park.

The FBI conducted two firearms training sessions and presented classroom instruction for updating park personnel in several required law enforcement subjects.

Close cooperation was afforded the Zion staff from the Washington County Sheriff's Department during a visit by the Secretary of the Interior on May 22, 1983.

Periodic meetings were held with area managers of BLM in St. George, Cedar City and Kanab relative to land protection issues of mutual interest. The naturalist division coordinated a seminar held at Zion in which BLM officials presented a program on agency activities.

A meeting was held in November with officials from the Five County Association of Governments and representatives of State of Utah Departments of Health and Agriculture regarding input for the draft of Zion's Natural Resources Management Plan. They expressed concern that National Park Service policy did not extend its authority beyond the park's jurisdictional boundary.

The park staff again assisted the Regional Office by doing the yearly check on the Joshua Tree Natural Area, which is on the National Register and located on BLM land west of St. George.

The Superintendent represented the National Park Service at the groundbreaking ceremony for the Quail Creek Reservoir on November 10.

A new air quality exhibit was displayed in the Zion Canyon Visitor Center beginning in April in cooperation with the U.S. Environmental Protection Agency.

The Chief Naturalist, as a voting member of the Southern Utah Folklife Festival Advisory Board, works closely with other entities involved in the annual Folklife Festival hosted at Zion.

Safety

The maintenance division held weekly tailgate sessions, and monthly safety meetings were conducted for all employees. Subject matter covered during the year included the following:

- Protection of backs
- Survival
- Wood stove safety
- Heat exhaustion
- Winter driving
- Safety belts
- Electrical hazards
- Hunter safety
- Burnout lecture by Dixie Medical Center
- Alaska wilderness film by Dennis Knuckles
- Defensive driving course (eight-hour)
- Orientation to current job hazards

The Safety Committee inspected the lodge before the season opening, which resulted in a number of improvements.

A total of \$79,000 in PRIP funds was spent on fire equipment, the tunnel warning system and general communications reflecting a broad range of safety considerations.

The official position of Safety Officer was established as a function of the Staff Park Ranger through a position redescription as required by new safety guidelines. This employee also attended a course on safety for collateral duty Safety Officers.

Weatherbank, Inc., was retained again by the Zion Natural History Association to provide Narrows rainfall forecasts for the canyon safety program.

There were two employee lost-time accidents out of a total of seven, which was a substantial reduction from the year before. One additional accident involved a contractor's employee. An NPS employee rolled a prime mover on a trail; the accident was potentially life-threatening. Another NPS employee suffered a minor but permanent disabling injury when he cut a finger.

There were 103 personal injuries documented among visitors. Of this number, 37 were the result of a one-vehicle accident involving 52 persons. A wide variety of falls was the most common incident--25 cases in 1983. One person from Ogden, Utah, died in a fall at the lower Emerald Pools, and another suffered brain damage in a separate incident in the same general area. There were four additional falls resulting in broken bones. The 1984 Documented Safety Program is being prepared; falls will be included for special emphasis. The overall safety record improved over 1982's.

Jeffery E. Ballard, Motor Vehicle Operator, received a letter of commendation from the Superintendent on a lifesaving act performed on the Angels Landing Trail in early spring. Mr. Ballard was successful in grabbing the arm of a small boy before the child would have slipped over the edge of the cliff.