Visitor Services Project Report 3
Mapping Interpretive Services: A Follow-up Study at Yellowstone National Park and Mt. Rushmore National Memorial

CPSU/UI S-84-3

by

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This project was supported by the Division of Interpretation and Visitor Services, National Park Service, WASO, the Division of Interpretation, Rocky Mountain Region, the Arizona Memorial Historical Association, and the University of Idaho Cooperative Park Studies Unit, National Park Service, Pacific Northwest Region.

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Summary

- This report is third in a series of reports on the Visitor Services Project. It describes research at Yellowstone National Park and Mt. Rushmore National Memorial during the summer of 1983. The purpose was to refine a technique for mapping interpretive services provided by the public and private sectors in National Park Service areas.

- The technique was tested for reliability. In the tests, agreement between observers of interpretive programs was 90-100 percent, and between episodes of the same interpretive service, 79-100 percent, depending upon the variables tested.

- 335 interpretive services were identified at Yellowstone, and 29 at Mt. Rushmore. Data were collected on 63 percent of the services at Yellowstone and 100 percent at Mt. Rushmore.

- At both sites, the NPS provided 75 percent of the interpretive services, concessioners 17 percent; cooperative ventures accounted for 8 percent at Yellowstone and 7 percent at Mt. Rushmore.

- Yellowstone's services focused primarily on general topics, geology, fauna and cultural history; at Mt. Rushmore, general topics and cultural history predominated.

- All NPS interpretive services, excluding publications, were free, as were 20 percent of the concessioners' services at Yellowstone and 3 percent at Mt. Rushmore.

- The Yellowstone results are presented on yellow pages; the Rushmore data on blue pages. Detailed tables, figures and maps are provided which show, for both areas, the sponsors, types, themes, kind of service, media used, cost, schedule and so forth. A 'menu' in the appendix lists additional data analyses that can be requested from the University of Idaho Cooperative Park Studies Unit.

- Recommendations are presented to the NPS, park staff and concessioners. Recommendations are also made for further research and improvements to the interpretive mapping technique.

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INTRODUCTION

Increasingly, park management requires the collection, analysis and interpretation of information. Annual budgets, equipment inventories, research studies and resource management plans have become necessary tools to park managers of the 1980s. Of special importance is information related to visitor services in the public and private sector. The NPS provides services such as campgrounds, law enforcement, maintenance, visitor centers and interpretive programs. Concessioners offer hotels, restaurants, shops, and interpretive programs. Other organizations such as natural history associations, provide additional services. The scale and diversity of these services has grown steadily since the inception of the U.S. park system (Runte 1979); the need for management information related to visitor services has also increased.

This report is part of a multi-year research program to develop a practical method of providing decision-makers with useful information on interpretive services, the kinds of audiences they serve or might serve, and the effectiveness of such efforts. The report is a follow up to an earlier effort at mapping interpretive services provided by the public and private sectors in national parks (Machlis et al. 1983).[1]

First, the *management problem* is briefly reviewed. We argue that the range and diversity of interpretive services available to the public need to be documented, and that such information has several benefits to the NPS, concessioners and the public. Second, a *project outline* describes the multi-year project, so that the reader can sense the role this effort plays

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[1]"Mapping Interpretive Services: A Pilot Study at Grand Teton National Park" by Gary E. Machlis, Sam H. Ham and Mark E. Van Every, CPSU/UI S83-3, is available from the Cooperative Park Studies Unit, University of Idaho, Moscow, Idaho 83843

in the larger project. Third, the *previous work* is reviewed. A 1982 pilot study at Grand Teton National Park (GRTE) and a survey of selected NPS employees provided information and recommendations that were incorporated into this study.

Fourth, the *methods* used in this study are detailed. Data were collected at Yellowstone National Park and Mt. Rushmore National Memorial during the summer of 1983. Fifth, the *results* of the research are then presented, with special attention to differences between services provided by the public and private sectors. The report concludes with *recommendations* regarding the mapping technique, and the use of the data at Yellowstone and Mt. Rushmore by both the NPS and concessioners. An *appendix* includes references cited, additional tables and other information.

THE MANAGEMENT PROBLEM

While all NPS areas have active interpretive programs, there is little systematic documentation as to who provides these services and where, when, and how they are offered to visitors. NPS interpretive plans often ignore private sector services, and information on concessioners' interpretive activity is often scattered among the many concessioners that may be operating in an NPS area. Previous data collection techniques, such as the Interpretive Activity Inventory (Field and Gramann 1976) and the Visitor Observation Form (Hanna and Silvy 1979) concentrate on audience characteristics and NPS services.

The result is a need to clearly describe the diversity and distribution of interpretive services being offered by both the public and private sectors. These services may be offered at different times and at different locales within a park. Oftentimes, knowledge of the entire range of interpretive services is lacking. In essence, we need to 'map' these services, and to do so an efficient, reliable, inexpensive technique must be developed, refined and implemented. The refinement of the mapping technique first tested at Grant Teton National Park in 1982 was the main purpose of this study.

Mapping interpretive services may have several applied benefits:

—It can help identify interpretive services which overlap in location, time, subject area and so forth.

—In conjunction with interpretive objectives, it can aid in evaluating current offerings and reallocating resources if necessary.

—It can suggest avenues for diversifying interpretive services by both the NPS and concessioners; and

—It permits better cooperation and coordination between NPS managers and concessioners.

To do this, the data collection technique should:

—Provide accurate information.

—Be inexpensive to use.

—Include both public and private sector services.

—Be easy to understand by managers.

—Require minimal time and effort to park staff and visitors.

—Be adoptable by the National Park Service; and

—Be appropriate for all kinds of Park Service units.

These criteria, necessary for the mapping technique to be useful, serve as research objectives for the multi-year research program, as well as objectives for this current effort. Since this study was part of a larger research project, the project is now briefly outlined.

PROJECT OUTLINE

There are three major kinds of sociological information useful to decision makers concerned with services in national parks. The first is knowledge about the kinds of services, activities, and opportunities available to the public. The second is knowledge about visitors: who they are, where they go, what they do, and so forth. The third is knowledge about the relationship *between* interpretive services and visitors, i.e. are such activities enjoyable, effective, desired and so forth. Hence, developing techniques for mapping interpretive services, mapping visitor populations, and evaluating effectiveness are key components of the project. Since the adoption and subsequent usefulness of these techniques are the measure of the project's success, developing a program for *implementation* (training materials, computer software, workshops, etc.) is also critical. Figure 1 outlines the visitor services project. This report focuses on the refinement of the technique for mapping interpretive services [A].

	Development	Refinement	Pilot Use	Service-wide Use
Mapping Interpretive Services	•	A	•	•
Mapping Visitor Populations	•	•	•	•
Evaluating the Effectiveness of Interpretive Services	•	•	•	•
Implementation	•	•	•	•

Figure 1. Outline of Visitor Services Project. (Focus of the present study is indicated by "A".)

PREVIOUS WORK

Previous work has included a pilot study at GRTE (Machlis et al. 1983). In that study, several key variables were defined as follows:

—*Interpretation* is the planned transfer of information about a park or related topics.

—An *interpretive service* includes both the information to be transferred and the characteristics of the communication channel.

—Each time an interpretive service is offered can be labeled an *interpretive episode.*

These definitions are described in more detail in the earlier report.

In addition, several specific variables related to each interpretive service were chosen for analysis:

—The sponsor (NPS, concessioner, cooperative, and other)

—The topic (main subject area).

—The theme (a message about that subject).

—General type of service (conducted or self guided).

—Specific type of service (such as a walking tour).

—The media used (oral, written or electronic).

—Cost (to the public for participating).

—Schedule (when it is offered).

—Location (where it is offered).

A list of all interpretive services offered within GRTE was compiled, and 117 of the 139 listed services were observed once by a researcher using a special form. Results were coded and analyzed, and recommendations on using the data were made to GRTE staff, GRTE concessioners, and the NPS. Recommendations were also made for making the technique an operational planning tool for the NPS.

In addition, a study was conducted to examine ways the mapping technique could be improved (Van Every 1983). A questionnaire was developed and sent to 38 NPS employees identified as opinion leaders in the planning and management of interpretive services. The questionnaire asked for the employees' opinions regarding the mapping technique, barriers to implementing its use, and recommendations for improving the method.

Both the GRTE pilot study and the survey of NPS opinion leaders resulted in numerous, specific recommendations for refining the mapping method. These included:

—Improvement of the recording form.

—Testing the assumption that a single interpretive episode will be representative of an interpretive service.

—Improvement in display of the information.

—Compatibility with data collected on visitors; and

—Conduct of pilot studies at several kinds of NPS areas.

These recommendations guided the present study.

METHODS

The research was conducted at Yellowstone National Park between June 7 and August 12, 1983 and at Mt. Rushmore National Memorial between August 15 and August 22, 1983. In both settings, the initial step was to develop complete lists of interpretive services offered to the public. Duty rosters, park newspapers, advertisements, talks with NPS and concessioner employees, and tours of the areas were used to compile the lists. Additional services were added as they were discovered. A total of 355 interpretive services were identified at Yellowstone, and 29 at Mt. Rushmore.

The general strategy was to observe one episode of each service and to record data on the interpretive mapping form. At Yellowstone, 63 percent of the services (224) were observed; at Mt. Rushmore all 29 were observed. However, some conducted activities at Yellowstone were observed more than once to determine whether a single episode of a conducted activity was representative of other episodes, and hence of the entire service.

Because of travel distances between service locations at Yellowstone, selection of which services to observe was based on factors of cost and convenience. An attempt was made at both study areas to observe as many services as possible and to ensure representation of both NPS and concessioner services, as well as locations within the parks.

Interpretive Mapping Variables

For each episode observed, information was recorded on the following variables:

1) Sponsor
2) Fee
3) Scheduled Day(s) of Week and Starting Time(s)
4) Location (section of park)
5) General Service Type
6) Specific Service Type
7) Media (primary and secondary)
8) Topic (primary and secondary)
9) Theme (primary and secondary)
10) Length of Conducted Activities

Definitions for these variables are provided in Appendix A, and a copy of the recording form is in Appendix B.

Data Analysis

Following the field work, data on each recording form were coded for computer processing using the Statistical Package for the Social Sciences (SPSSX Inc. 1983). In general, the number of services offered by each sponsor type were computed for categories of each of the above variables. To facilitate mapping, these analyses were also done for each park section.

A significant feature of the interpretive mapping method is that it allows determination of how much interpretive services overlap with respect to each variable (media topic, location, etc.). This is accomplished by computing *overlap measures* for several variables, and summing the measures to obtain an *overlap index* for each service.[2]

An overlap occurs when two services have the same value on the same variable. For example, if 25 services take place in section 2 of Yellowstone (Norris), they all overlap with respect to location. For any one of these services, the overlap measure for location would be 24, since 24 other services have the same value for that variable. If a service had overlap measures of 24 for location, 16 for specific service type, 13 for primary media, and 18 for primary subject matter, its *overlap index* would be 24 + 16 + 13 + 18 = 71. If a second service had an overlap index of only 52, it has less overlap with other services than the first one.

Reliability of the Mapping Method

Reliability of the interpretive mapping method was tested at Yellowstone in two ways. First, because three different observers collected the data, it

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[2]The variables used were location, specific service type, primary media, and primary topic. Schedule was not used since self-guided services artifically inflate the overlap indices.

was necessary to establish 'inter-observer reliability' (i.e., the likelihood that different observers would record similar information while observing the same interpretive episode). This was particularly important for the variables of primary topic and primary theme which required subjective decisions by observers. Table 1 shows the inter-observer reliability (defined as percent agreement between observations) for each major variable. For each variable, reliability was at least 90 percent, indicating a high degree of consistency between observers.

Table 1. Inter-observer Reliability for Interpretive Mapping Variables (n=21)[a]

Variable	Percent Agreement Between Observations
Sponsor	90
Fee	100
Scheduled Starting Time	100
Location	100
General Service Type	100
Specific Service Type	95
Primary Media	95
Primary Topic	90
Primary Theme	95
Length of Activity	100[b]

[a]The number of observations. For Primary Theme, n=20.

[b]Agreement was defined to occur when two observations were within five minutes of each other.

Second was 'inter-episode reliability' (i.e., the degree to which episodes of a particular interpretive service were similar for the study variables). Inter-episode reliability was determined by observing two or more different episodes of the same conducted activity and comparing the data recorded on primary media, primary topic, and primary theme. A high degree of similarity lends support for collecting data on one episode of each service, since it could be assumed that any episode is representative of the interpretive service. Conversely, discrepancies in the data would indicate problems with this procedure.

Seventeen different interpretive services were observed, some twice and others three times, by more than one observer. Results indicated considerable continuity in interpretive services among the various episodes. Agreement between observations was 100 percent for primary media, 94 percent for primary topic, and 79 percent for primary theme. The assumption that interpretive services are fairly constant in media and content appears justified.

Study Limitations

The research has four main limitations. First, it describes only those interpretive services originating within the boundaries of Yellowstone and Mt. Rushmore during the summer of 1983. Consequently, results for each area cannot be generalized to other NPS units, adjacent areas, or other seasons.

Second, results apply only to those portions of the Yellowstone interpretive program actually observed. Limited resources made a census of interpretive services at Yellowstone impractical. Table 2 shows the distribution of observations throughout Yellowstone's eight administrative subdistricts. In general, Mammoth, Tower-Roosevelt and to a lesser extent, Grant Vallage,

seem well represented with 79 percent, 76 percent and 70 percent sampling rates, respectively. The remaining six subdistricts had sampling rates below 65 percent, indicating that the data for these areas may not be representative for certain types of comparisons. Therefore, although the sample is adequate for refinement of the interpretive mapping method, the data do not describe the Yellowstone interpretive program in entirety.

Another important consideration is how well each sponsor type is represented in the Yellowstone data. Table 2 shows that of the 292 NPS services identified in the park, 167 (57 percent) were observed. Thirty-seven of 44 concessioner services (84 percent) and all 19 cooperative services were included in the data. The sampling rate for the NPS suggests that the data may not be representative of the entire NPS interpretive program at Yellowstone.

Table 2. Number of Interpretive Services Observed by Section and Sponsor, Yellowstone.[a]

	General Sponsor Type						
	NPS		Concessioner		Cooperative		
Section	Total	Observed	Total	Observed	Total	Observed	% Observed
Mammoth	46	35	7	5	8	8	79
Norris	45	24	0	0	2	2	55
Madison	14	8	0	0	0	0	57
Old Faithful	46	19	7	6	5	5	52
Grant Village	27	17	5	5	1	1	70
Fishing Bridge	52	25	12	9	1	1	54
Canyon	39	23	7	6	2	2	64
Tower-Roosevelt	23	16	6	6	0	0	76
TOTALS	292	167	44	37	19	19	63

[a]The data (n=223) do not include the service in the "Other" General Sponsor category since it was included in all eight subdistricts.

Third, the overlap index is a somewhat crude measure for comparing interpretive services. Since the relative importance of its four components (location, media, topic and theme) is unknown, it was assumed that each was equally important, i.e. an overlap on one variable (topic) was considered equivalent to an overlap on another variable (location). Yet in practice this is a simplification, since for some visitors the location of an interpretive service may be more crucial than other variables (e.g., media or topic). Similarly, for some planning efforts, a service's location may influence its theme or media (i.e., electronic media are often restricted to developed areas).

Fourth, the mapping method assumes regular offering of interpretive services. A service offered only a few times during the summer might count as much as one offered many times in some of the analyses. This procedure may exaggerate the number of regularly scheduled interpretive services.

The impacts of these limitations on the central purpose of this project (to refine the interpretive mapping method) are minimal. Impacts to the Yellowstone data are confined primarily to Norris, Madison, Old Faithful, and Fishing Bridge where low sampling rates suggest caution in drawing conclusions from the data.

RESULTS

In this section, results from Yellowstone and Mt. Rushmore are presented. The purpose is to illustrate the kinds of information interpretive mapping can provide, and not all of the available data are presented. The Yellowstone results are presented first (yellow pages), followed by results from Mt. Rushmore (blue pages). The general approach is to show overall results for the major sponsor types. Maps are used to illustrate the distribution of interpretive services throughout both settings. In addition, overlap analyses are included.

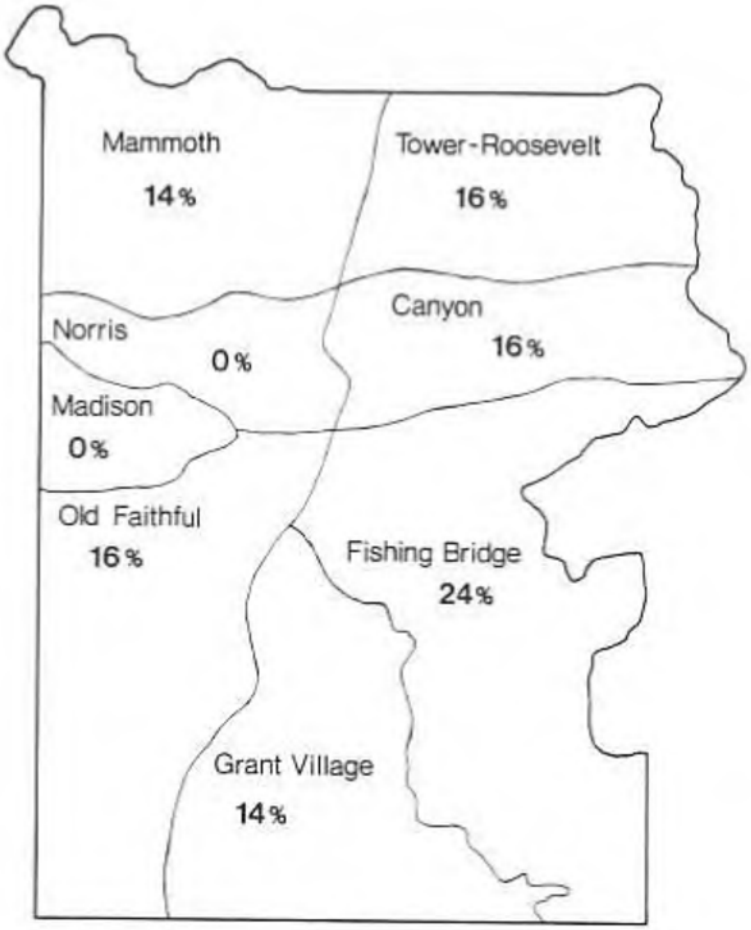
Yellowstone Results

Interpretive services at Yellowstone were primarily offered by three general sponsor types: the NPS, concessioners, and cooperative sponsors, e.g., the NPS and the Yellowstone Library and Museum Association (YLMA) or the NPS and TWA. The number of services recorded for each general sponsor type is shown in Table 3. The NPS sponsored the greatest share (75 percent), with concessioners accounting for 17 percent, and cooperative efforts 8 percent.

Table 3. Number of Interpretive Services Provided by General Sponsor Type, Yellowstone.

Sponsor Type	Number of Interpretive Services (n=224)	
	n	%
NPS	167	(75)
Concessioner	37	(17)
Cooperative	19	(8)
Other	1	(1)

Map 1 shows the distribution of concessioner-sponsored interpretive services at Yellowstone. Madison and Norris had none, and Fishing Bridge had the most (24 percent).



Map 1. Percentage of Concessioner Interpretive Services Located in each Section, Yellowstone.

The number of interpretive services provided by specific sponsors is listed in Table 4. Beyond the 75 percent provided by the NPS, TWA and Hamilton Stores accounted for roughly equal proportions of the concessioner-sponsored services (9 and 8 percent, respectively, while a

combination of sponsors accounted for the cooperative interpretive services.

Table 4. Number of Interpretive Services by Specific Sponsor, Yellowstone.

Specific Sponsor	Number of Interpretive Services (n=224)	
	n	%
NPS	167	(75)[a]
TWA	20	(9)
Hamilton Stores	17	(8)
NPS and YLMA	12	(5)
NPS and TWA	6	(3)
NPS and USGS	1	(1)
YLMA	1	(1)

[a]Because of rounding, percentages add to greater than 100.

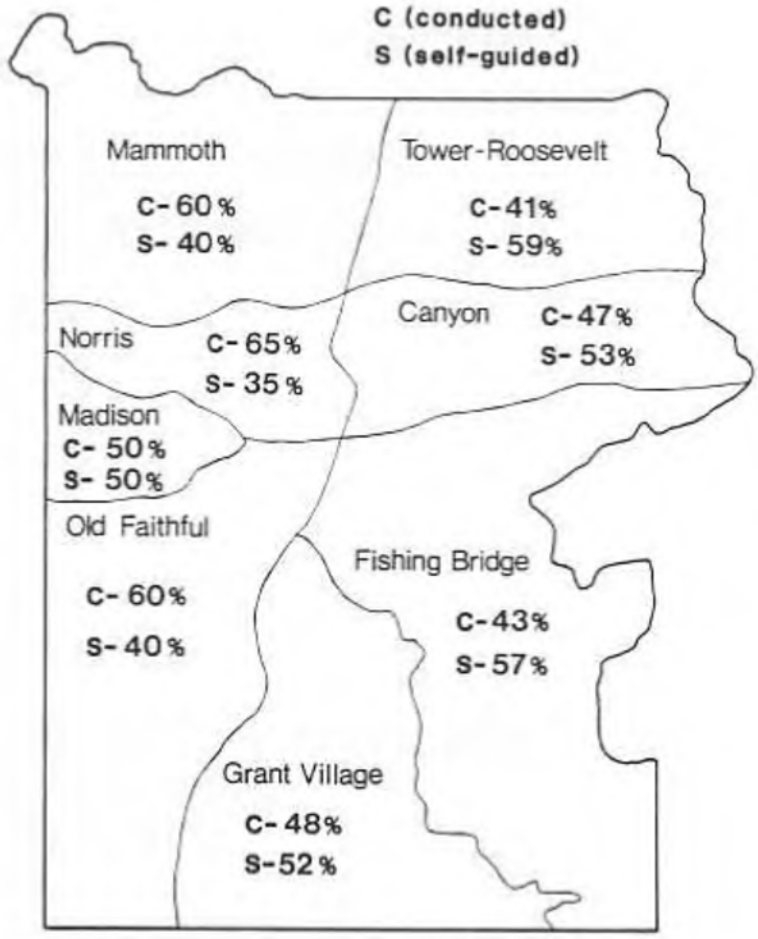
Types of Services

Interpretive services were of two types: conducted and self-guided. As Table 5 illustrates, the NPS relied more heavily on conducted services whereas both concessioners and cooperative sponsors emphasized self-guided interpretation. Overall, 51 percent of the observed services were conducted, 49 percent self-guided.

Table 5. Number of Interpretive Services by General Service Type, Yellowstone (n=224).

General Service Type	General Sponsor Type								Total	
	NPS		Concessioner		Cooperative		Other			
	n	%	n	%	n	%	n	%	n	%
Conducted	97	(58)	11	(30)	7	(37)	0	(0)	115	(51)
Self-guided	70	(42)	26	(70)	12	(63)	1	(100)	109	(49)

Map 2 shows the relative concentrations of conducted and self-guided services throughout the park. At Mammoth, Norris and Old Faithful, emphasis is on conducted services, whereas the reverse is true at Fishing Bridge and Tower-Roosevelt. Other subdistricts offer a fairly equal mix of conducted and self-guided services.



Map 2. Ratio of Conducted to Self-Guided Services in each Section, Yellowstone.

Figure 2 shows the relative frequency of each specific service type. Talks, guided walks, exhibits/signs and publications are the most common interpretive services. As Table 6 illustrates, they account for nearly 90 percent of the Yellowstone interpretive program. Publications comprise the largest share (68 percent) of concessioner offerings, while talks and guided walks represent 57 percent of the NPS services observed.

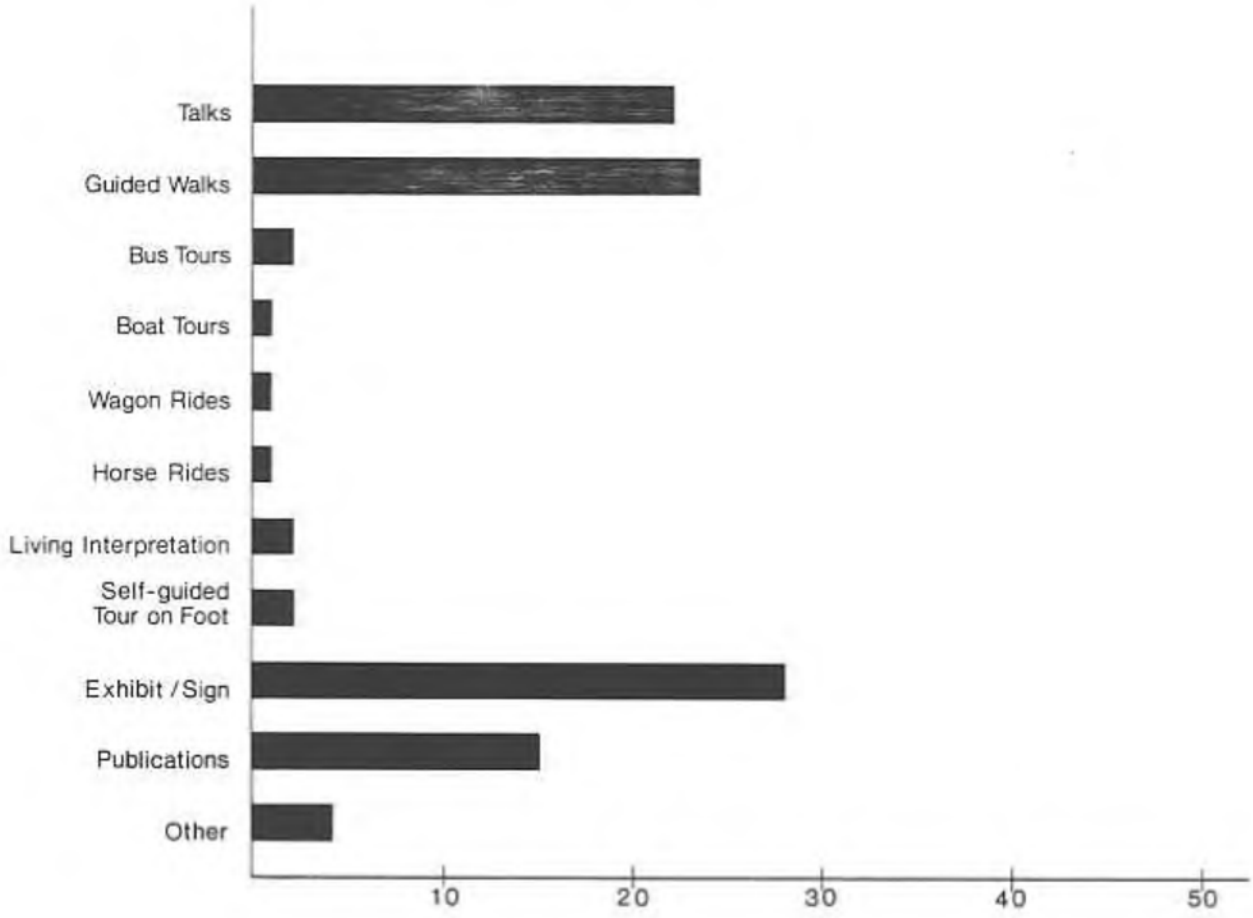


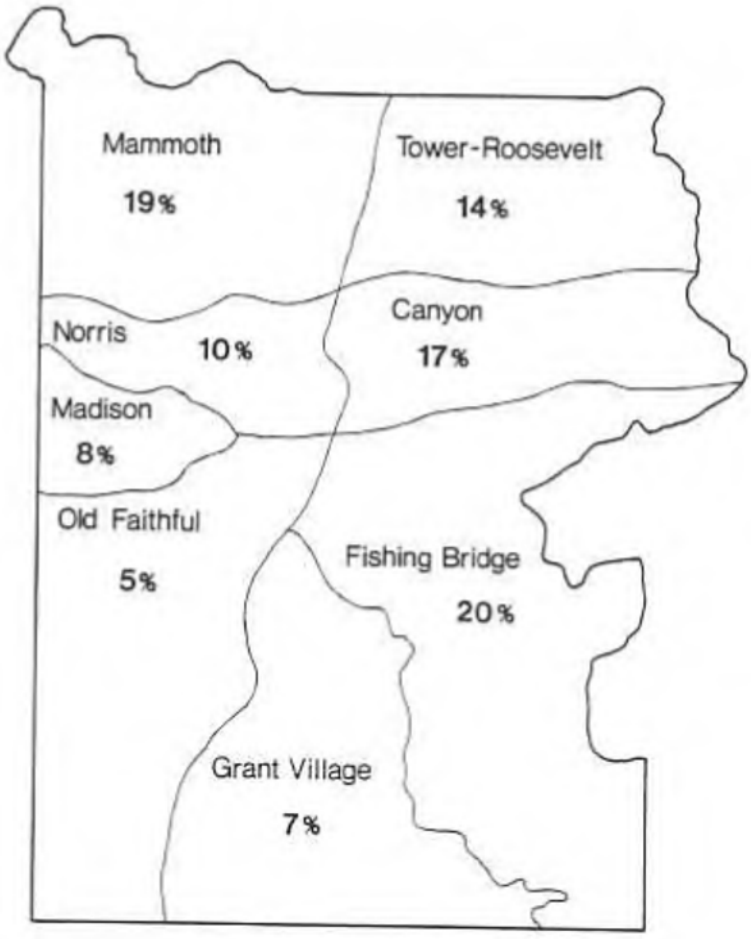
Figure 2. Percentage of Interpretive Services in each Specific Service Type, Yellowstone.

Table 6. Number of Interpretive Services by Specific Service Type, Yellowstone (n=224).

Specific	General Sponsor Type: NPS n	NPS %	Concessioner n	Concessioner %	Cooperative n	Cooperative %	Other n	Other %	Total n	Total %
Conducted										
Talks	45	(27)[a]	0	(0)	5	(26)	0	(0)	50	(22)
Guided Walks	50	(30)	0	(0)	2	(10)	0	(0)	52	(23)
Bus Tours	0	(0)	6	(16)	0	(0)	0	(0)	6	(2)
Boat Tours	0	(0)	1	(3)	0	(0)	0	(0)	1	(1)
Wagon Rides	0	(0)	1	(3)	0	(0)	0	(0)	1	(1)
Horse Rides	0	(0)	3	(8)	0	(0)	0	(0)	3	(1)
Living Interpretation	2	(1)	0	(0)	2	(10)	0	(0)	4	(2)
Self-Guided										
Foot Tour	2	(1)	0	(0)	2	(10)	0	(0)	4	(2)
Exhibits/Signs	59	(35)	1	(3)	2	(10)	0	(0)	62	(28)
Publications	1	(1)	25	(68)	7	(36)	1	(100)	34	(15)
Other	8	(5)	0	(0)	0	(0)	0	(0)	8	(4)

[a]Because of rounding, column percentages may add to greater than 100.

The geographical distribution of NPS exhibits/signs is shown in Map 3. Although each park section offers some exhibits/signs, heaviest emphasis is at Fishing Bridge, Mammoth and Canyon.



Map 3. Percentage of NPS Exhibits/Signs Located in each Section, Yellowstone.

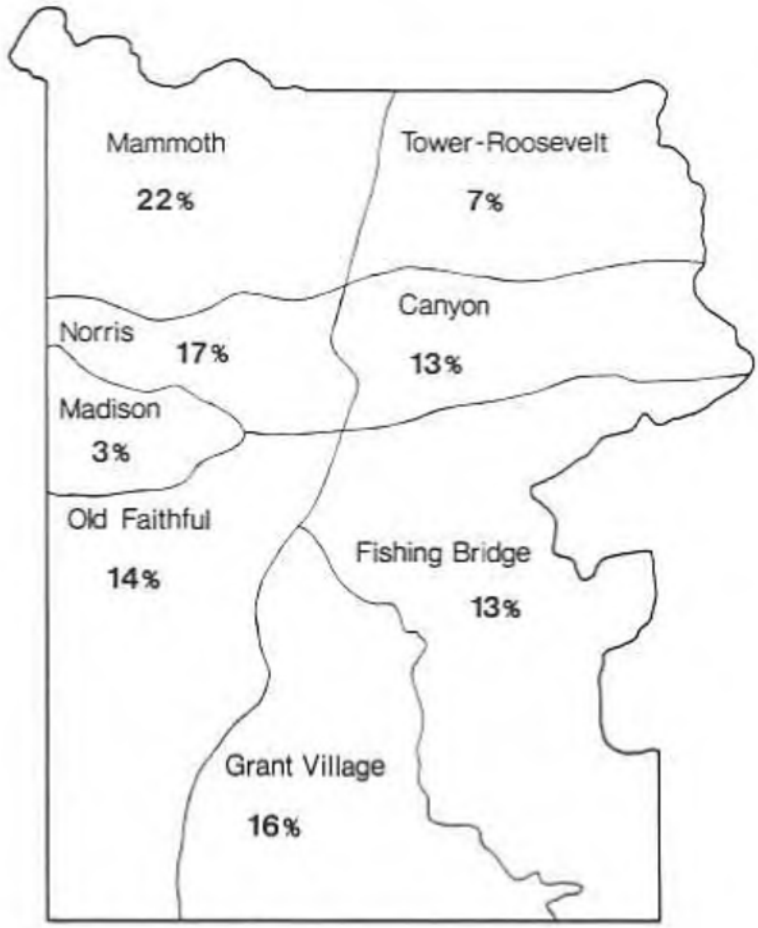
Interpretive Media

The primary media of Yellowstone interpretive services were divided between oral (52 percent) and written (45 percent), with 3 percent of the services using electronic media (see Table 7). The NPS most frequently used oral media; concessioner and cooperative services tended toward written media.

Table 7. Number of Interpretive Services Using Each Primary Medium, Yellowstone (n=224).

Primary Medium	Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Other n	%	Total n	%
Oral	99	(59)	11	(30)	7	(37)	0	(0)	115	(52)
Written	62	(37)	26	(70)	12	(63)	1	(100)	101	(45)
Electronic	6	(4)	0	(0)	0	(0)	0	(0)	6	(3)

Map 4 shows the distribution of oral NPS services throughout the park. Compared to the other sections, Madison and Tower-Roosevelt account for small proportions of these services, collectively comprising 10 percent of the total.



Map 4. Percentage of NPS Oral Interpretive Services in each Section, Yellowstone.

Table 8 shows that most interpretive services (80 percent) had no secondary medium of communication. Those that did primarily utilized electronic equipment or written text to supplement other media.

Table 8. Number of Interpretive Services using each Secondary Medium, Yellowstone (n=224).

Secondary Medium	Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Total n	%
Oral	1	(1)	0	(0)	0	(0)	1	(1)
Written	11	(7)	0	(0)	0	(0)	11	(5)
Electronic	26	(16)	0	(0)	7	(37)	33	(15)
None	129	(77)	37	(100)	12	(63)	179	(80)

Interpretive Subject Matter

The emphasis placed on each primary topic is shown in Figure 3. Twenty-eight percent of the services were general in nature, emphasizing two or more topics (e.g., a web-of-life program emphasizing plants, animals and geologic processes). Geology was the most common primary topic (27 percent) followed by fauna (17 percent) and cultural history (15 percent). As Table 9 shows, NPS interpretation tended to stress geology, fauna and cultural history. Concessioner services were predominantly general and cooperative sponsors emphasized geology and general topics. Services focusing on plant life and recreation opportunities comprised 11 percent of the total.

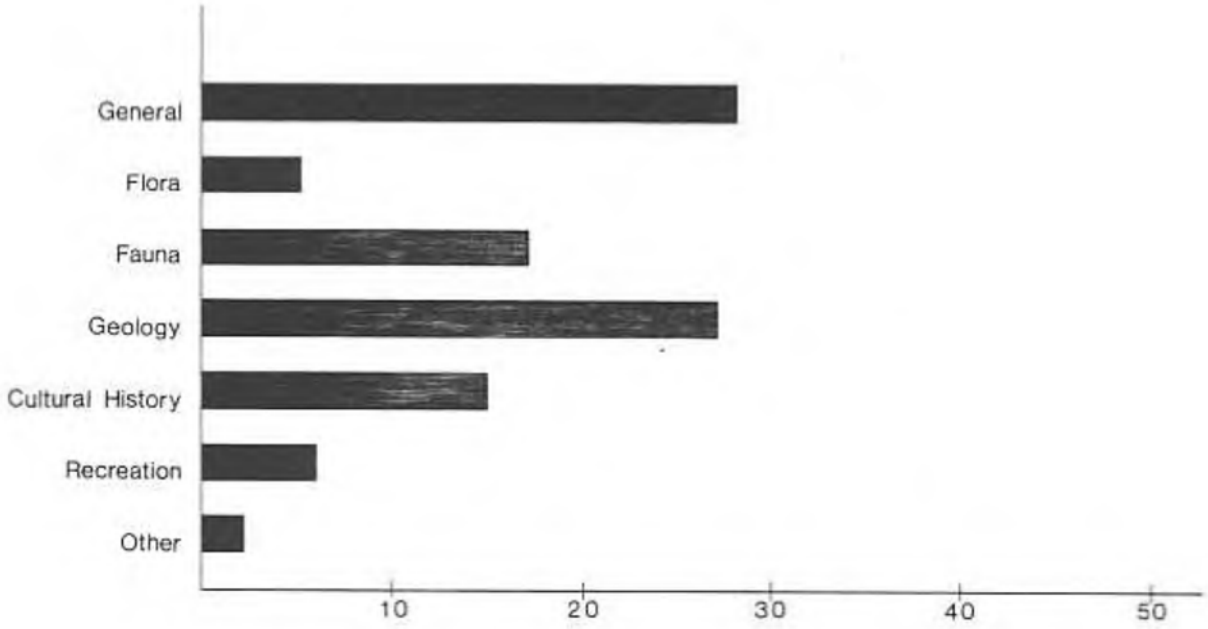


Figure 3. Percentage of Interpretive Services using each Primary Topic, Yellowstone.

Table 9. Number of Interpretive Services Using Each Primary Topic by Sponsor Type, Yellowstone (n=224).

Primary Topic	Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Other n	%	Total n	%
General	28	(17)[a]	29	(78)	6	(32)	0	(0)	63	(28)
Flora	11	(7)	0	(0)	0	(0)	0	(0)	11	(5)
Fauna	34	(20)	3	(8)	0	(0)	0	(0)	37	(17)
Geology	51	(31)	1	(3)	9	(47)	0	(0)	61	(27)
Cultural History	26	(16)	4	(11)	3	(16)	0	(0)	33	(15)
Recreation	12	(7)	0	(0)	1	(5)	1	(100)	13	(6)
Other	5	(3)	0	(0)	0	(0)	0	(0)	5	(2)

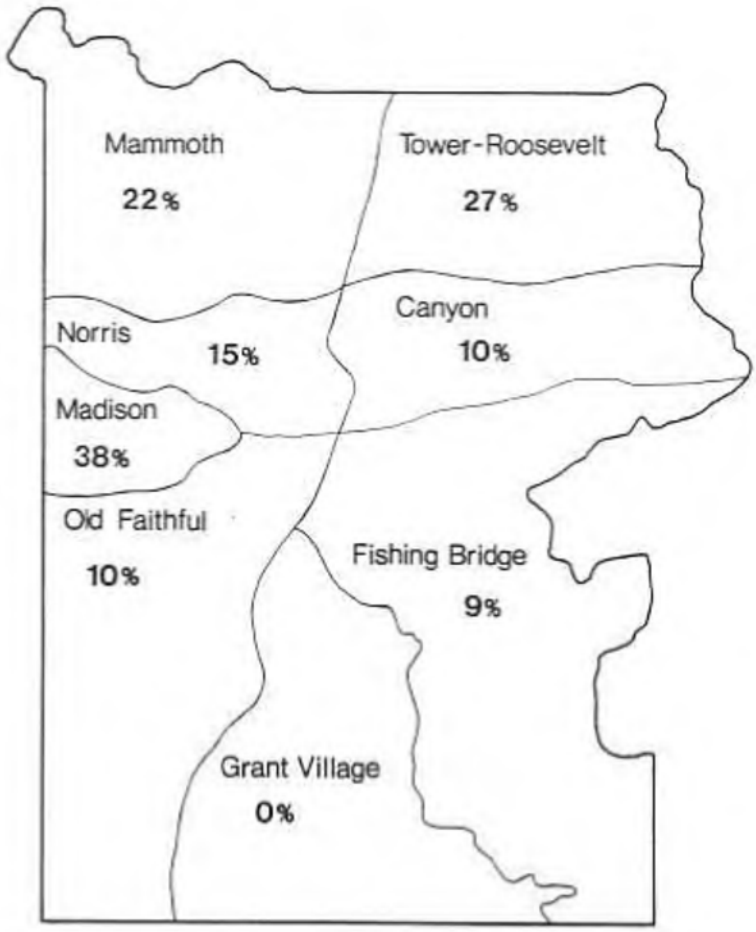
[a]Because of rounding, column percentages may add to greater than 100.

Table 10 shows the relative emphasis given each primary topic in each section. Geology is emphasized throughout the park, whereas the treatment of flora and recreation topics is unevenly distributed. Data on a specific primary topic can also be shown for each section. For example, Map 5 shows that Mammoth, Madison and Tower-Roosevelt have higher percentages of cultural history services than the other sections.

Table 10. Number of Interpretive Services Focusing on each Primary Topic in each Section, Yellowstone (n=224).

Primary Topic	Section of Park								Total
	Mammoth	Norris	Madison	Old Faithful	Grant	Fishing Bridge	Canyon	Tower-Roosevelt	
	n %	N %	n %	n %	n %	n %	n %	n %	n %
General	9 (18)	6 (23)	2 (25)	8 (27)	15 (65)	12 (34)	6 (21)	5 (23)	63 (28)[a]
Flora	2 (4)	4 (15)	0 (0)	0 (0)	1 (4)	1 (3)	2 (7)	1 (5)	11 (5)
Fauna	11 (22)	4 (15)	1 (13)	0 (0)	2 (9)	11 (31)	5 (17)	3 (14)	37 (17)
Geology	11 (22)	7 (27)	2 (25)	12 (40)	5 (22)	6 (17)	12 (41)	6 (27)	61 (27)
Cultural History	11 (22)	4 (15)	3 (38)	3 (10)	0 (0)	2 (9)	3 (10)	6 (27)	33 (15)
Recreation	5 (10)	0 (0)	0 (0)	5 (17)	0 (0)	2 (6)	0 (0)	1 (5)	14 (6)
Other	1 (2)	1 (4)	0 (0)	2 (7)	0 (0)	0 (0)	1 (3)	0 (0)	5 (2)

[a]Because of rounding, column percentages may not add to 100.



Map 5. Percentage of Interpretive Services in each Section that focuses on Cultural History, Yellowstone.

Most Yellowstone interpretive services did not have a secondary topic (see Table 11). Those that did most often included fauna or general topics.

Table 11. Number of Interpretive Services on Each Secondary Topic by Sponsor, Yellowstone (n=224).

Secondary Topic	Sponsor Type: NPS n	NPS %	Concessioner n	Concessioner %	Cooperative n	Cooperative %	Other n	Other %	Total n	Total %
None	100	(60)[a]	31	(89)	10	(53)	1	(100)	142	(64)
General	11	(7)	2	(6)	3	(16)	0	(0)	16	(7)
Flora	12	(7)	0	(0)	0	(0)	0	(0)	12	(5)
Fauna	20	(12)	0	(0)	3	(16)	0	(0)	23	(10)
Geology	6	(4)	2	(6)	0	(0)	0	(0)	8	(4)
Cultural History	7	(4)	0	(0)	1	(5)	0	(0)	8	(4)
Recreation	8	(5)	0	(0)	2	(11)	0	(0)	10	(5)
Other	3	(2)	0	(0)	0	(0)	0	(0)	3	(1)

[a]Because of rounding, column percentages may add to greater than 100.

Interpretive Themes

Of the 224 services observed, 162 (72 percent) had primary themes and 62 (28 percent) had no discernible theme. Most services had no secondary theme. Appendix C lists the themes by each primary topic.

Schedules

Schedules of interpretive services were recorded only for conducted activities (n=117) since self-guided services could be available any time, any day. Results (Figures 4 and 5) indicate two main patterns in the schedules of observed activities. First, the heaviest schedule of conducted services occurred during mid-week (Tuesday through Thursday), while Saturday and Sunday offered the lightest schedules. As Figure 4 illustrates, this was mainly due to a decline in NPS conducted activities during weekends; concessioner offerings remained constant throughout the week.

Second, as Figure 5 shows, most services were scheduled to begin during the morning, afternoon or evening rather than during sunrise or dusk (mealtime). The highest concentration of NPS services occurs during the evening, while concessioners' peak schedules occur during the morning and afternoon.

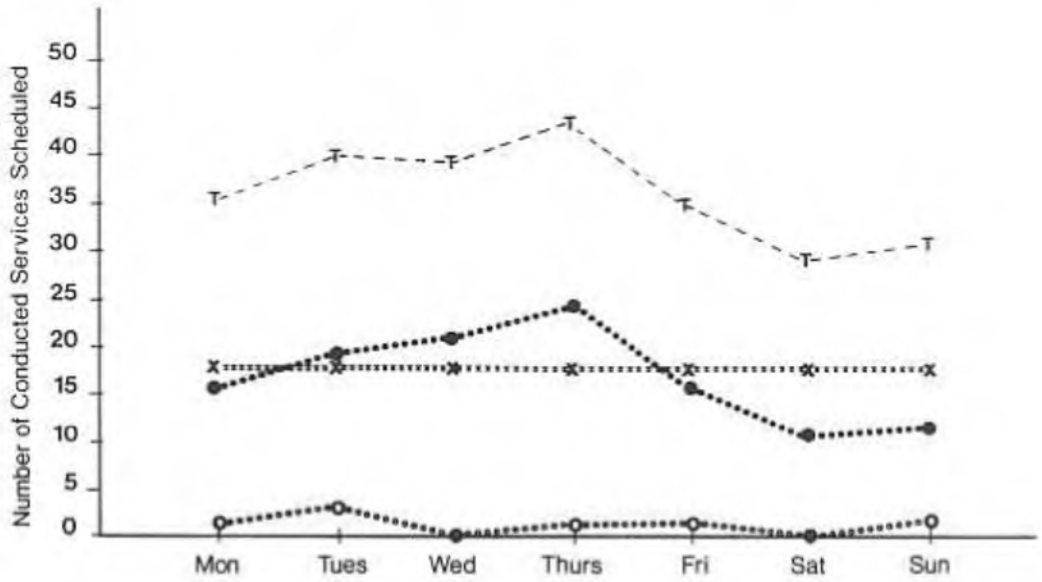


Figure 4. Number of Conducted Services Scheduled each day of the Week, Yellowstone.

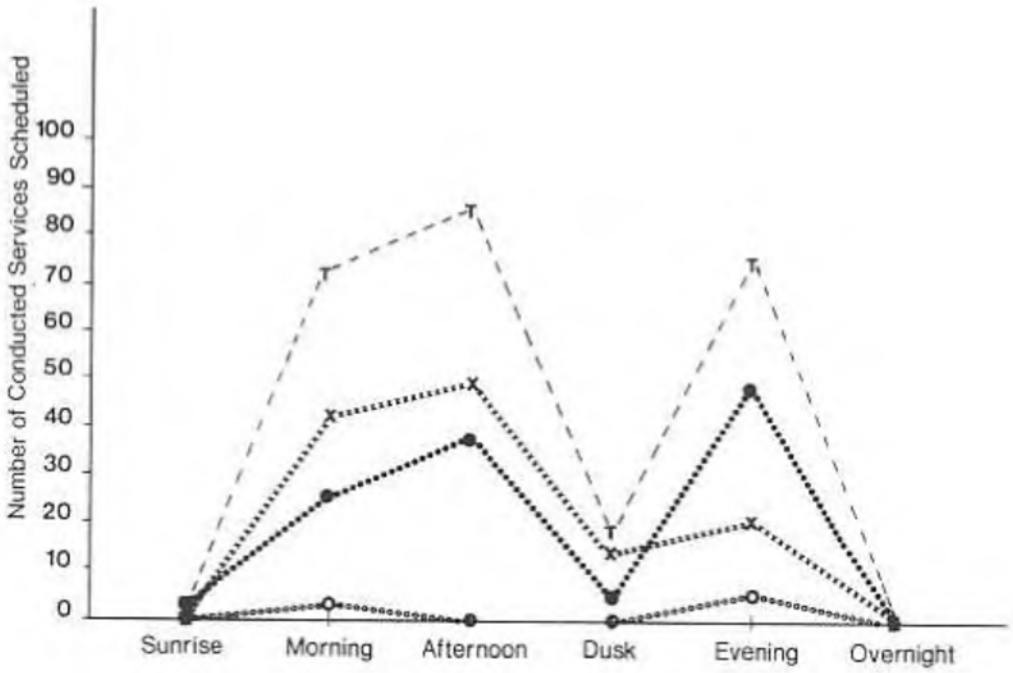


Figure 5. Number of Conducted Services Scheduled for each Time Period, Yellowstone.

Length of Conducted Services

Lengths of conducted services were assigned to four categories: less than 30 minutes, 30 minutes to 1 hour, 1 to 2 hours, and over 2 hours. Table 12 shows the most frequent duration was between 30 minutes and 1 hour, with services longer than 2 hours the second most frequent. Less frequent were services 1 to 2 hours in length, and no services lasted less than 30 minutes. Whereas the NPS emphasized 30-minute to 1-hour conducted services, concessioners' services were all at least 1 hour in length, with the majority lasting more than 2 hours.

Table 12. Number of Conducted Activities by Length of Activity, Yellowstone (n=117).

Length of Activity	General Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Total n	%
Less than 30 min.	0	(0)	0	(0)	0	(0)	0	(0)[a]
30 min.-1 hr.	50	(52)	0	(0)	5	(71)	55	(48)
1-2 hrs.	15	(15)	2	(18)	2	(29)	19	(17)
Over 2 hrs.	32	(33)	9	(82)	0	(0)	41	(36)

[a]Because of rounding, column percentages may add to greater than 100.

Cost to Visitors

The costs of interpretive services were assigned to seven categories (see Table 13). Over 90 percent were free with the remainder spread over the other cost categories. All of the NPS and cooperative services were free, as were 20 percent of the concessioners' offerings. Examples of free concessioner services include a TWA brochure about Yellowstone Lake and a Hamilton Store's exhibit on Yellowstone's stagecoach era. Forty percent

of the concessioners' services cost between $10.00 and $20.00. Not included in Table 13 are 22 concessioner and 5 cooperative publication sales areas. Costs of publications ranged from $0.20 and $29.00.

Table 13. Cost of Interpretive Services by Sponsor Type, Yellowstone (n=193)[a]

	Sponsor Type								Total	
	NPS		Concessioner		Cooperative		Other			
	n	%	n	%	n	%	n	%	n	%
Free	164	(100)	3	(20)	13	(100)	1	(100)	181	(93)[b]
$0.00-$5.00	0	(0)	4	(27)	0	(0)	0	(0)	4	(3)
$5.01=$10.00	0	(0)	1	(7)	0	(0)	0	(0)	1	(1)
$10.01-$15.00	0	(0)	1	(7)	0	(0)	0	(0)	1	(1)
$15.01-$20.00	0	(0)	5	(33)	0	(0)	0	(0)	5	(3)
Over $20.00	0	(0)	1	(7)	0	(0)	0	(0)	1	(1)

[a]Data are not included for the 27 publication sales areas which offered a range of costs between $0.20 and $29.00. In addition, cost was not recorded for four other services. Hence, n=193 rather than 224.

[b]Because of rounding, column percentages add to greater than 100.

Analysis of Overlap

For each interpretive service, measures of overlap were determined for four variables (location, specific service type, primary media, and primary topic) and summed to compute an overlap index (see Methods section of this report). An overlap measure for schedule was determined for conducted services only and hence was not included in the overlap index. The results are presented in Table 14. In this table, an interpretive service number and title are followed by the sponsor type, specific service type, individual overlap measures, and the overlap index. A high number indicates much overlap with other services; a low number indicates less overlap.

Table 14. Overlap Measures and Overlap Indices of Yellowstone Interpretive Services (n=224).

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
1	Apollinaris Springs	NPS	Exhibit/Sign	47	61	100	32	--	240[a]
2	Apollinaris Springs Warning	NPS	Exhibit/Sign	47	61	100	60	--	268
3	Obsidian Cliff	NPS	Exhibit/Sign	47	61	100	60	--	268
4	Obsidian and Indians	NPS	Exhibit/Sign	47	61	100	32	--	240
5	Moose of Yellowstone	NPS	Exhibit/Sign	47	61	100	36	--	244
6	Sheep Eaters	NPS	Exhibit/Sign	47	61	100	32	--	240
7	Winter Range	NPS	Exhibit/Sign	47	61	100	36	--	244
8	Roosevelt Arch	NPS	Exhibit/Sign	47	61	100	13	--	221
9	The Gallatin Range	NPS	Exhibit/Sign	47	61	100	60	--	268
10	Golden Gate	NPS	Exhibit/Sign	47	61	100	60	--	268
11	Hamilton Stores Publications (Mammoth)	Conc.	Publications	47	32	100	62	--	241
12	Mammoth Hotel Gift Shop Publications	Conc.	Publications	47	33	100	62	--	242
13	Hamilton Photo Shop Publications (Mammoth)	Conc.	Publications	47	33	100	62	--	242
14	Mammoth 2-hr. Horseback Ride	Conc.	Horse Ride	47	2	114	62	155	225
15	Twilight Bus Tour	Conc.	Bus Tour	47	5	114	36	80	202
16	Explore Yellowstone	Other	Publication	223	33	100	13	--	369
17	Yellowstone: A Sanctuary for Man	Conc.	Publication	223	33	100	62	--	418
18	AM Radio Welcome (North Entrance)	NAS	Other	47	7	5	13	--	72
19	Mammoth Hotsprings Area	Coop.	Publication	47	33	100	60	--	240
20	Yesterday's Fort Yellowstone	NPS	Combination	47	7	114	32	22	200

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
21	Older Children's Walk	NPS	Conducted Tour	47	51	114	13	5	125
22	A Gnight with the Gnomes	NPS	Conducted Tour	47	51	114	36	8	138
23	Especially for the Kids (Mammoth-Wed.)	NPS	Conducted Tour	47	51	114	36	9	138
24	From the Top of Terrace Mountain	NPS	Conducted Tour	47	51	114	60	10	161
25	Mammoth Back Country Office	Coop.	Combination	47	7	100	13	--	163
26	Albright Visitor Center Exhibits	NPS	Exhibit/Sign	47	61	100	32	--	240
27	The Challenge of Yellowstone	NPS	Other	47	7	5	32	--	91
28	Albright V.C. Publications	Coop.	Publications	47	33	100	62	--	242
29	In Touch with Nature	NPS	Conducted Tour	47	51	114	13	11	225
30	Perfect Perceptions	NPS	Conducted Tour	47	51	114	62	13	274
31	The Sensory Approach	NPS	Conducted Tour	47	51	114	60	12	272
32	Old and New Ways	NPS	Conducted Tour	47	51	114	32	10	244
33	From Cradle to Coffin	NPS	Conducted Tour	47	51	114	32	12	244
34	The Web of Life	NPS	Talk	47	49	114	62	7	272
35	Waters of the Yellowstone	Coop.	Talk	47	49	114	60	24	270
36	The 1959 Earthquake	Coop.	Talk	47	49	114	60	24	270
37	The Story Behind the Scenery	Coop.	Talk	47	49	114	32	15	242
38	This Restless Earth	Coop.	Talk	47	49	114	60	8	270
39	Bear Management in Yellowstone NP	Coop.	Talk	47	49	114	36	8	246
40	The Raptors of Yellowstone NP	NPS	Talk	47	49	114	36	11	246

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
41	The Hidden World	NPS	Other	47	7	5	36	7	95
42	On My Back Nothing I lack	NPS	Talk	47	49	114	13	7	223
43	In the Interest of Indians	NPS	Talk	47	49	114	32	8	242
44	Campfire Stories	NPS	Talk	47	49	114	62	15	272
45	Believing in Bison	NPS	Talk	47	49	114	36	8	246
46	The Beaver, the Bison and the Bear	NPS	Talk	47	49	114	32	7	242
47	Only the Females Bite	NPS	Talk	25	49	114	36	7	224
48	Norris Museum: Geo-Exhibit	NPS	Exhibit/Sign	25	61	100	60	--	246
49	Norris Museum: Bio-Exhibit	NPS	Exhibit/Sign	25	61	100	36	--	222
50	Beryl Spring	NPS	Exhibit/Sign	25	61	100	60	--	246
51	Earth Forces and the Fumaroles	NPS	Exhibit/Sign	25	61	100	60	--	246
52	Norris Museum Publications Rack	Coop.	Publications	25	33	100	62	--	220
53	Lose Your Mind and Come to Your Senses	NPS	Conducted Tour	25	51	114	62	12	252
54	Wildlife Walkabout	NPS	Conducted Tour	25	51	114	10	13	200
55	Paint Pot Surprise	NPS	Conducted Tour	25	51	114	10	12	200
56	Wilderness Wander	NPS	Conducted Tour	25	51	114	10	9	200
57	Evening Geyser Basin Walk (Thursday)	NPS	Conducted Tour	25	51	114	60	15	250
58	Indian Love	NPS	Talk	25	49	114	32	8	220
59	The Story of Chief Joseph	NPS	Talk	25	49	114	32	8	220
60	Let It Be	NPS	Talk	25	49	114	4	11	198

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
61	Norris Soldier Station #1	NPS	Exhibit/Sign	25	61	100	32	--	218
62	Norris Soldier Station #2	NPS	Exhibit/Sign	25	61	100	32	--	200
63	Yellowstone's Water Falls	NPS	Exhibit/Sign	25	61	100	60	--	228
64	Especially for Kids—Norris	NPS	Conducted Tour	25	51	114	10	7	200
65	Norris Ranger Station Publication Rack	Coop.	Publications	25	33	100	62	--	220
66	Rhyolite Landscape	NPS	Exhibit/Sign	7	61	100	60	--	228
67	Madison Elk Herd	NPS	Exhibit/Sign	7	61	100	36	--	204
68	Trailside (Explorer's) Museum	NPS	Exhibit/Sign	7	61	100	32	--	200
69	The Geysers of Yellowstone	NPS	Talk	7	49	114	60	15	230
70	The First National Park	NPS	Exhibit/Sign	7	61	100	32	--	200
71	Stephen Tyng Mather	NPS	Exhibit/Sign	7	61	100	32	--	200
72	Man and Wilderness: Conflict and Cooperation	NPS	Conducted Tour	29	51	114	13	13	207
73	Old Faithful to Mammoth Bus Tour	Conc.	Conducted Tour	29	5	114	62	90	210
74	Upper Geyser Basin Bus Tour	Conc.	Conducted Tour	29	5	114	60	134	208
75	Old Faithful Lower Loop Bus Tour	Conc.	Conducted Tour	29	5	114	62	77	210
76	Backpacking into Wilderness (Couger Creek)	NPS	Conducted Tour	29	51	114	13	11	207
77	Old Faithful Lodge Gift Shop Pub. Rack	Conc.	Publication	29	33	100	62	--	224
78	Yellowstone: A Living Sculpture	NPS	Other	29	7	5	60	--	101
79	Water: Where it Flows	NPS	Exhibit/Sign	29	61	100	60	--	250
80	The Nez Perce Campaign of 1877	NPS	Exhibit/Sign	29	61	100	32	--	222

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
81	Hamilton General Stores Publication Rack (Old Faithful)	Conc.	Publications	29	33	100	62	--	224
82	Hamilton Photo Shop Publication Rack (Old Faithful)	Conc.	Publications	29	33	100	62	--	224
83	Hamilton Curio Store Publication Rack (Old Faithful)	Conc.	Publications	29	33	100	62	--	224
84	The Diversity of Yellowstone	NPS	Talk	29	49	114	62	8	254
85	NPS Chamber Maid Tour (Friday)	Coop.	Conducted Tour	29	51	114	32	12	226
86	The Rainbows of Yellowstone	NPS	Talk	29	49	114	62	15	254
87	Mountains Without Handrails	NPS	Talk	29	49	114	4	12	196
88	Twilight on Geyser Hill #1	NPS	Conducted Tour	29	51	114	60	11	254
89	Yellowstone By Map and Compass	NPS	Talk	29	49	114	13	21	205
90	Steam Scene #1	NPS	Conducted Tour	29	51	114	60	19	254
91	Fire, Ice and Hot Water	NPS	Conducted Tour	29	51	114	60	9	254
92	Mud Pot Special #1	NPS	Conducted Tour	29	51	114	60	12	254
93	Geyser Gazing #1	NPS	Conducted Tour	29	51	114	60	10	254
94	Photo Finish	NPS	Combination	29	7	114	13	12	163
95	NPS Chamber Maid Tour (Monday)	Coop.	Living Interpretation	29	3	114	32	10	178
96	On Top of Geyser Hill	NPS	Conducted Tour	29	51	114	60	12	254
97	Three Senses Nature Trail	NPS	Self-Guided Tour	29	3	100	13	--	145
98	Guide to the Upper Geyser Basin	NPS	Self-Guided Tour	29	3	100	60	--	192
99	Current Weather at Old Faithful	NPS	Exhibit/Sign	29	61	100	4	--	194
100	Seismograph—Old Faithful V.C.	Coop.	Exhibit/Sign	29	61	100	62	--	252

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
101	Old Faithful V.C. Publication Rack	Coop.	Publications	29	33	100	62	--	224
102	Grant Village V.C. Exhibits	NPS	Exhibit/Sign	22	61	100	62	--	245
103	Grant Village V.C. Listening Chairs	NPS	Other	22	7	5	62	--	96
104	Grant Village V.C. Publication Rack	Coop.	Publications	22	33	100	62	--	217
105	Hamilton General Store Publication Rack (Basin Parking Lot)	Conc.	Publications	22	33	100	62	--	217
106	Hamilton General Store Publication Rack (Gas Station)	Conc.	Publications	22	33	100	62	--	217
107	Mini-General Store Publication Rack (West Thumb)	Conc.	Publications	22	33	100	62	--	217
108	Marina Gift Shop Publication Rack (Grant)	Conc.	Publications	22	33	100	62	--	217
109	The Wilderness Forests of Yellowstone	NPS	Other	22	7	5	10	--	44
110	West Thumb Thermal Basin Self-Guiding Trail	NPS	Exhibit/Sign	22	61	100	62	--	245
111	The Bear Facts	NPS	Talk	22	49	114	36	3	221
112	Lake Overlook Hike	NPS	Conducted Tour	22	51	114	62	11	249
113	Jackson Lower Loop Bus Tour	Conc.	Conducted Tour	22	5	114	62	57	203
114	West Thumb Thermal Basin Walk #1	NPS	Conducted Tour	22	51	114	60	27	247
115	West Thumb Thermal Basin Walk #2	NPS	Conducted Tour	22	51	114	60	23	247
116	Hamilton Photo Store Publication Rack (Fishing Bridge)	Conc.	Publications	34	33	100	62	--	229
117	Hamilton General Store Publication Rack (Fishing Bridge)	Conc.	Publications	34	33	100	62	--	229
118	Dragon's Mouth Spring	NPS	Exhibit/Sign	34	61	100	60	--	255

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
119	Yellowstone Wilderness	NPS	Exhibit/Sign	34	61	100	60	--	255
120	Bridge Bay General Store Pub. Rack	Conc.	Publications	34	33	100	62	--	229
121	Fishing Clinic	NPS	Talk	34	49	114	13	12	210
122	Scenic Cruiser Mini-Voyage	Conc.	Conducted Tour	34	0	114	36	241	184
123	The Wilderness of Yellowstone	NPS	Talk	34	49	114	62	15	259
124	Time Traveler	NPS	Talk	34	49	114	32	11	229
125	Wilderness Detective	NPS	Talk	34	49	114	36	12	233
126	Flow of Energy in Yellowstone	NPS	Talk	34	49	114	62	12	259
127	Pots and Ponds Walk (#1)	NPS	Conducted Tour	34	51	114	36	13	235
128	Avalanche Peak Hike #1	NPS	Conducted Tour	34	51	114	13	10	212
129	Pelican Creek Walk #1	NPS	Conducted Tour	34	51	114	62	12	261
130	Storm Point Walk #1	NPS	Conducted Tour	34	51	114	62	9	261
131	Fishing Bridge	NPS	Exhibit/Sign	34	61	100	36	--	231
132	Sylvan Pass	NPS	Exhibit/Sign	34	61	100	60	--	255
133	Mud Volcano Trail	Coop.	Self-Guided Tour	34	3	100	60	--	197
134	Especially For Kids—Fishing Bridge (Thursday)	NPS	Conducted Tour	34	51	114	36	13	235
135	Fishing Bridge V.C. Publication Rack	Coop.	Publications	34	33	100	62	--	229
136	Fishing Bridge V.C. Exhibits	NPS	Exhibit/Sign	34	61	100	36	--	231
137	Coyote Calls a Meeting	NPS	Talk	34	49	114	32	11	229
138	Haydan Valley	NPS	Exhibit/Sign	34	61	100	60	--	255
139	Wildlife	NPS	Exhibit/Sign	34	61	100	36	--	231

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
140	Contrasting Forests	NPS	Exhibit/Sign	34	61	100	10	--	205
141	Welcome to Lake Yellowstone	Conc.	Publication	34	33	100	32	--	199
142	Fishing Bridge R.V. Park Pub. Rack	Conc.	Publication	34	33	100	62	--	229
143	Buffalo Demonstration	NPS	Talk	34	49	114	36	15	233
144	Lake Ranger Station Wildlife Exhibit	NPS	Exhibit/Sign	34	61	100	36	--	231
145	Hamilton General Store Publication Rack—Lake	Conc.	Publications	34	33	100	62	--	229
146	Lake Lodge Gifts-Curios Publication Rack	Conc.	Publications	34	33	100	62	--	229
147	Lake Hotel Publication Rack	Conc.	Publications	34	33	100	62	--	229
148	Ranger Station Exhibit—Bridge Bay	NPS	Exhibit/Sign	34	61	100	36	--	231
149	Black Dragon's Cauldron	NPS	Exhibit/Sign	34	61	100	60	--	255
150	Mud Volcano	NPS	Exhibit/Sign	34	61	100	60	--	255
151	Canyon V.C. Fauna—Exhibit	NPS	Exhibit/Sign	30	61	100	36	--	227
152	Canyon V.C. Geological Exhibit	NPS	Exhibit/Sign	30	61	100	60	--	251
153	Canyon V.C. Publication Rack	Coop.	Publications	30	33	100	62	--	225
154	Hamilton General Store Publication Rack (Canyon)	Conc.	Publications	30	33	100	62	--	225
155	Hamilton Photo Store Publication Rack (Canyon)	Conc.	Publications	30	33	100	62	--	225
156	Canyon Village Gift Shop Publication Rack	Conc.	Publications	30	33	100	62	--	225
157	Guide to the Canyon Area	Coop.	Publications	30	33	100	13	--	176
158	Birds Along the River	NPS	Exhibit/Sign	30	61	100	36	--	227

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
159	Yellowstone Canyon	NPS	Exhibit/Sign	30	61	100	60	--	251
160	Grand Canyon of the Yellowstone #1	NPS	Exhibit/Sign	30	61	100	60	--	251
161	Grand Canyon of the Yellowstone #2	NPS	Exhibit/Sign	30	61	100	60	--	251
162	Forest Fires	NPS	Exhibit/Sign	30	61	100	10	--	201
163	Washburn Hot Springs	NPS	Exhibit/Sign	30	61	100	60	--	251
164	Grizzly	NPS	Exhibit/Sign	30	61	100	36	--	227
165	Natural Fires in Yellowstone NP	NPS	Exhibit/Sign	30	61	100	10	--	201
166	The View from Mt. Washburn	NPS	Exhibit/Sign	30	61	100	60	--	251
167	The Yellowstone River	NPS	Other	30	7	5	60	--	102
168	Yellowstone—Geological Masterpiece	NPS	Talk	30	49	114	60	8	253
169	Our Sacred Lands	NPS	Talk	30	49	114	32	15	225
170	Grizzly Country	NPS	Talk	30	49	114	36	12	229
171	Upper Loop Adventure Bus Tour	Conc.	Conducted Tour	30	5	114	62	162	211
172	Two-Hour Horseback Ride	Conc.	Conducted Tour	30	2	---	--	89	---[b]
173	Mt. Washburn Hike #1	NPS	Conducted Tour	30	51	114	60	12	255
174	Birds & Beasts of Hayden Valley Hike	NPS	Conducted Tour	30	51	114	36	0	231
175	Brink of Three Falls Adventure Walk	NPS	Conducted Tour	30	51	114	62	13	257
176	Wildlife Wonders Walk #1	NPS	Conducted Tour	30	51	114	36	19	231
177	Clear Lake Walk #1	NPS	Conducted Tour	30	51	114	62	19	257
178	Canyon Rim Walk #1	NPS	Conducted Tour	30	51	114	60	46	255
179	Canyon Rim Walk #2	NPS	Conducted Tour	30	51	114	60	39	255

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
180	Window on the World	NPS	Conducted Tour	21	51	114	62	10	248
181	River Junction	NPS	Conducted Tour	21	51	114	32	12	218
182	Lost Lake	NPS	Conducted Tour	21	51	114	10	22	196
183	Bison Tales	NPS	Talk	21	49	114	36	7	220
184	Indians, Trappers & Miners	NPS	Talk	21	49	114	32	12	216
185	If Rocks Could Talk	NPS	Talk	21	49	114	60	15	244
186	Redwood Tree	NPS	Exhibit/Sign	21	61	100	60	--	242
187	Forest Insects	NPS	Exhibit/Sign	21	61	100	36	--	218
188	Roosevelt Lodge	NPS	Exhibit/Sign	21	61	100	32	--	214
189	Soda Butte	NPS	Exhibit/Sign	21	61	100	60	--	242
190	Mountain Bison	NPS	Exhibit/Sign	21	61	100	36	--	218
191	Fossil Forests	NPS	Exhibit/Sign	21	61	100	60	--	242
192	Glaciers	NPS	Exhibit/Sign	21	61	100	60	--	242
193	Columnar Basalt	NPS	Exhibit/Sign	21	61	100	60	--	242
194	Stagecoach Era	Coop.	Exhibit/Sign	21	61	100	32	--	214
195	Tower Junction Backcountry Office Publication Rack	NPS	Publications	21	33	100	13	--	167
196	Hamilton Tower Falls Publication Rack	Conc.	Publications	21	33	100	62	--	216
197	Old West Cookout by Wagon	Conc.	Combination	21	7	114	32	11	174
198	Old West Cookout by Horse	Conc.	Conducted Tour	21	51	114	32	89	218
199	Roosevelt Lodge Publication Rack	Conc.	Publications	21	33	100	62	--	216

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
200	Hamilton Store Pub. Rack—Roosevelt	Conc.	Publications	21	33	100	62	--	216
201	Climb Through Time Walk #1	NPS	Conducted Tour	21	51	114	62	19	248
202	Freeze, Or I'll Make Buzzard Feed of Your Meat	NPS	Living Interpretation	30	3	114	32	7	179
203	Traveler's Tales	NPS	Living Interpretation	30	3	114	32	7	179
204	Norris Geyser Basin Walk #1	NPS	Conducted Tour	25	51	114	60	107	250
205	Norris Geyser Basin Walk #2	NPS	Conducted Tour	25	51	114	60	86	250
206	Who is Eating Whom?	NPS	Talk	25	49	114	36	11	224
207	Bearanoia	NPS	Talk	25	49	114	36	15	224
208	Rap with a Ranger (Mammoth)	NPS	Talk	47	51	114	62	0	274
209	Yellowstone Lake	NPS	Exhibit/Sign	22	61	100	60	--	243
210	Creatures of the Lake	NPS	Exhibit/Sign	22	61	100	36	--	219
211	Lakeside Message Repeater (Grant)	NPS	Other	22	7	5	62	--	96
212	Lewis Lake Campfire Prog.—Wednesday (no title)	NPS	Talk	22	49	114	62	11	247
213	Reflections on Water	NPS	Talk	22	49	114	62	15	247
214	How Do We Keep the Wilderness Wild?	NPS	Talk	22	49	114	62	8	247
215	A Day in the Lodgepole Forest	NPS	Talk	22	49	114	62	7	247
216	In Search of Yellowstone	NPS	Talk	22	49	114	60	11	245
217	Yellowstone's Flowing Waters	NPS	Talk	22	49	114	60	12	245
218	Fountain Point Pot Nature Trail	NPS	Self-Guided Tour	29	3	100	60	--	192
219	Hot Spring Hideaway	NPS	Conducted Tour	25	51	114	62	13	252

Table 14—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
220	Algae in Wonderland	NPS	Talk	25	49	114	10	10	198
221	Yellowstone Country	NPS	Talk	7	49	114	62	8	232
222	Yellowstone After Dark	NPS	Talk	7	49	114	62	11	232
223	Bison Trails	NPS	Talk	34	49	114	36	15	233
224	Animal Signs	NPS	Conducted Tour	25	51	114	62	12	252

[a]The overlap index does not include the schedule overlap measures.

[b]Overlap index cannot be computed due to missing data on media and topic.

Interpretive services with the lowest overlap indexes are listed in Table 15. These are the 'most unique' services as measured by the index. Generally, they include electronic interpretive services such as slide/tape programs, audio messages, and a campfire program which utilized shadow puppetry and prerecorded music. Services that had the highest overlap indexes are shown in Table 16. The two highest scores (418 and 369) were two brochures disseminated in all park locations. The rest are Mammoth area walks and talks focusing either on geology or general topics. The NPS-TWA cooperatively sponsored services were evening programs by NPS personnel in the Mammoth Hotel map room.

Table 15. Overlap Measures and Index for Interpretive Services with Lowest Scores, Yellowstone.

Service Number	Interpretive Service	Sponsor	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Overlap Index
109	The Wilderness Forests of Yellowstone	NPS	22	7	5	10	44
18	AM Radio Welcome (N. Entrance)	NPS	47	7	5	13	72
27	The Challenge of Yellowstone	NPS	47	7	5	32	91
41	The Hidden World	NPS	47	7	5	36	95
103	Grant Village V.C. Listening Chairs	NPS	22	7	5	62	96
211	Lakeside Message Repeater (Grant)	NPS	22	7	5	62	96
78	Yellowstone: A Living Sculpture	NPS	29	7	5	60	101
167	The Yellowstone River	NPS	30	7	5	60	102

Table 16. Overlap Measures and Index for Interpretive Services with Highest Scores, Yellowstone.

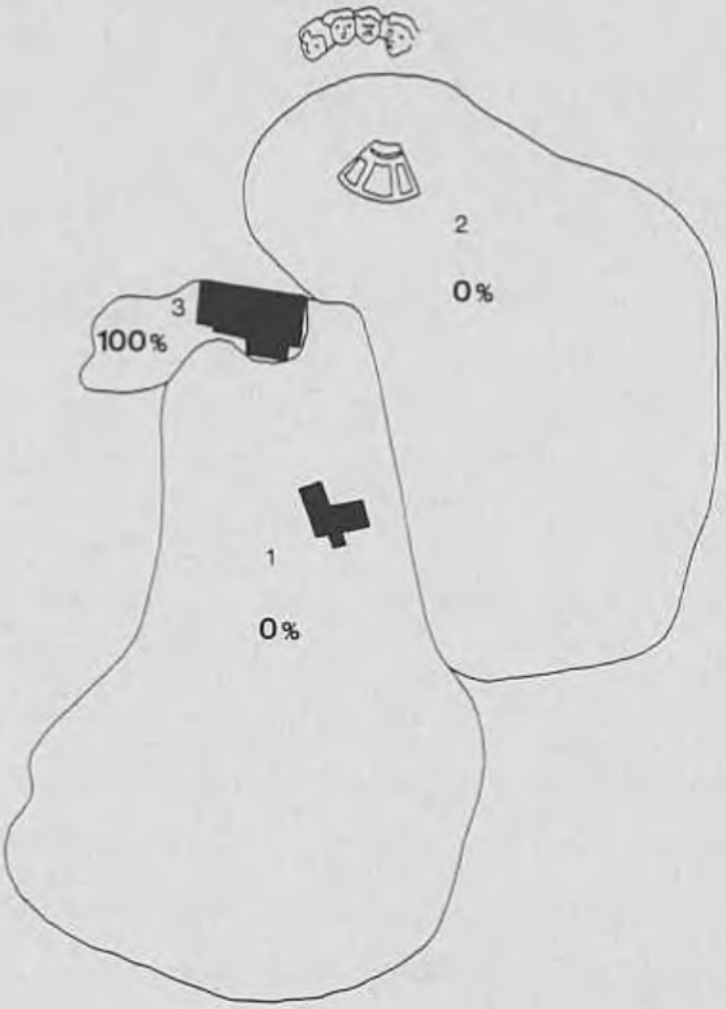
Service Number	Interpretive Service	Sponsor	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Overlap Index
17	Yellowstone: A Sanctuary for Man	TWA	223	33	100	62	418
16	Explore Yellowstone	YLMA	223	33	100	13	369
30	Perfect Perceptions	NPS	47	51	114	62	274
31	The Sensory Approach	NPS	47	51	114	60	272
34	The Web of Life	NPS	47	49	114	62	272
44	Campfire Stories	NPS	47	49	114	62	272
35	Waters of the Yellowstone	NPS/TWA	47	49	114	60	270
36	The 1959 Earthquake	NPS/TWA	47	49	114	60	270
38	This Restless Earth	NPS/TWA	47	49	114	60	270

Mt. Rushmore Results

Interpretive services were offered at Mt. Rushmore by three general sponsor types: the NPS, concessioners, and cooperative sponsors, e.g., the NPS and Christian Ministry in Parks. The number of services sponsored by each is shown in Table 17. The NPS sponsored the greatest share (76 percent), with concessioners accounting for 17 percent and cooperative efforts 7 percent. Map 6 shows the distribution of concessioner-sponsored services at Mt. Rushmore. No concessioner services were offered outside of Section 3.

Table 17. Number of Interpretive Services Provided by General Sponsor Type, Mt. Rushmore (n=29).

Sponsor Type	Number of Interpretive Services	
	n	%
NPS	22	(76)
Concessioner	5	(17)
Cooperative	2	(7)



Map 6. Percentage of Concessioner Interpretive Services Located in each Section, Mt. Rushmore.

Table 18 shows the number of interpretive services provided by specific sponsor type. Beyond the 76 percent provided by the NPS, the Mountain Company accounted for 17 percent, while the two cooperative services accounted for 3 percent each.

Table 18. Number of Interpretive Services Provided by Specific Sponsor Type, Mt. Rushmore (n=29).

Specific Sponsor Type	Number of Interpretive Services	
	n	%
NPS	22	(76)[a]
Mountain Company	5	(17)
NPS and Christian Ministry in Parks	1	(3)
NPS and Dept. of Energy	1	(3)

[a]Because of rounding, column percentages may not add to 100.

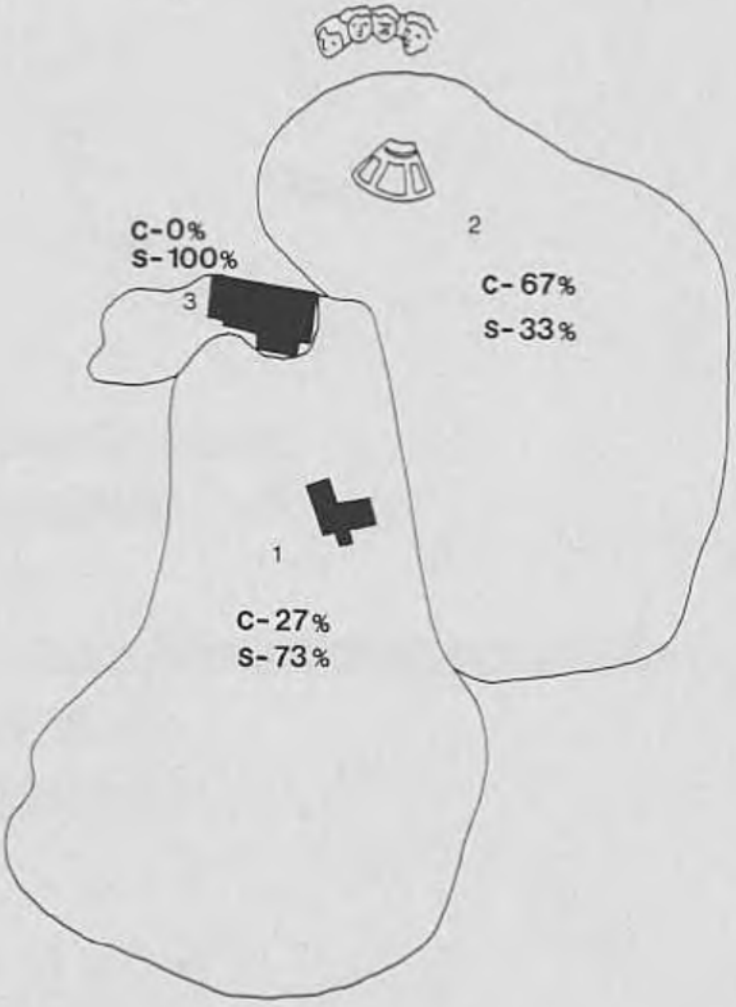
Types of Services

Interpretive services were of two types: conducted and self-guided. As Table 19 illustrates, the NPS relied on both conducted and self-guided services, whereas concessioners relied solely on self-guided. Cooperative sponsors equally emphasized conducted and self-guided services. Overall, 62 percent of the observed services were self-guided, 38 percent conducted.

Table 19. Number of Interpretive Services by General Service Type, Mt. Rushmore (n=29).

General Service Type	General Sponsor Type: NPS		Concessioner		Cooperative		Total	
	n	%	n	%	n	%	n	%
Conducted	10	(45)	9	(0)	1	(50)	11	(38)
Self-Guided	12	(55)	9	(100)	1	(50)	18	(62)

Map 7 shows the relative concentrations of conducted and self-guided services throughout the park. In Section 1, emphasis is on self-guided services, whereas the reverse is true in Section 2. Section 3 offers only self-guided services.



Map 7. Ratio of Conducted and Self-Guided Services in each Section, Mt. Rushmore.

Figure 6 shows the relative frequency of each specific service type. Exhibits/signs were the most common interpretive service (48 percent), followed by talks with 17 percent. As Table 20 illustrates, exhibits/signs comprise the largest share of both NPS and concessioner offerings (45 and 60 percent, respectively), while talks represent 18 percent of the NPS services offered. Living interpretation was offered only by the NPS.

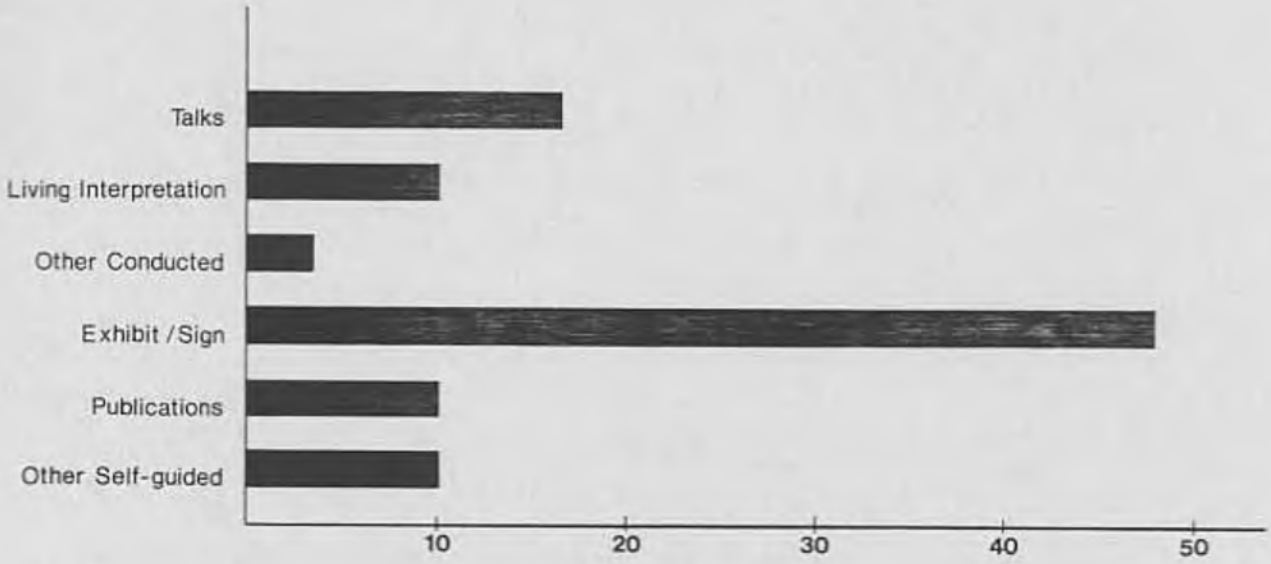


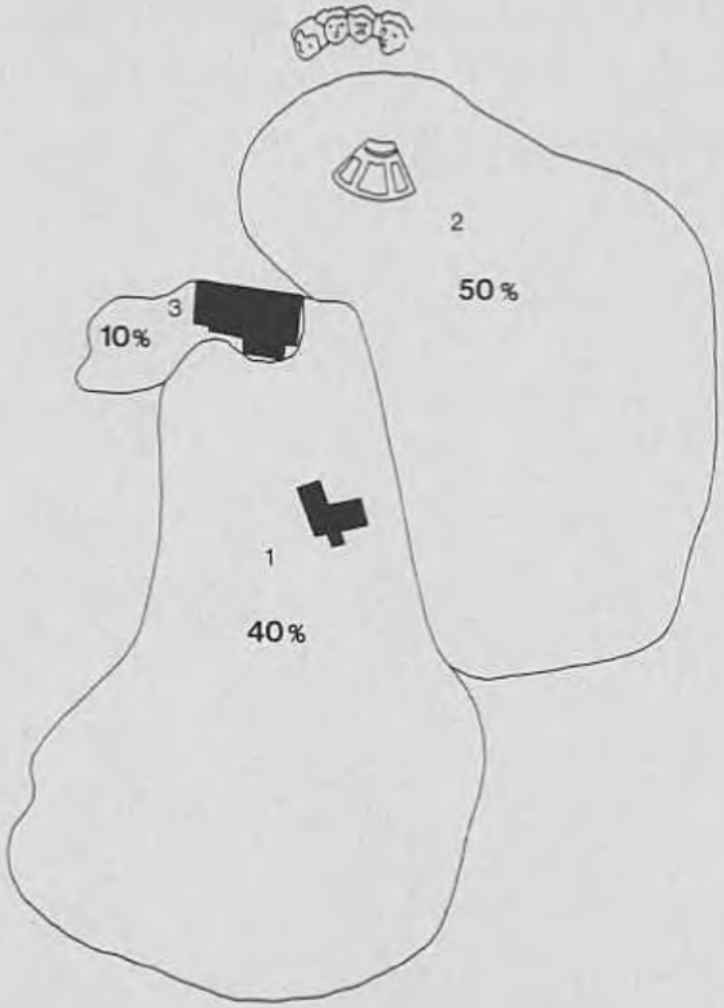
Figure 6. Percentage of Interpretive Services in each Specific Service Type, Mt. Rushmore.

Table 20. Number of Interpretive Services by Specific Service Type, Mt. Rushmore (n=29).

Specific Service Type	General Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Total n	%
Conducted								
Talk	4	(18)	0	(0)	1	(50)	5	(17)[a]
Living Interpretation	3	(14)	0	(0)	0	(0)	3	(10)
Other	1	(5)	0	(0)	0	(0)	1	(3)
Self-Guided								
Exhibit/Sign	10	(45)	3	(60)	1	(50)	14	(48)
Publications	1	(5)	2	(40)	0	(0)	3	(10)
Other	3	(14)	0	(0)	0	(0)	3	(10)

[a]Because of rounding, column percentages may not add to 100.

The geographical distribution of NPS exhibits/signs is shown in Map 8. Although Section 3 offers some exhibits/signs, heaviest emphasis is in Sections 1 and 2.



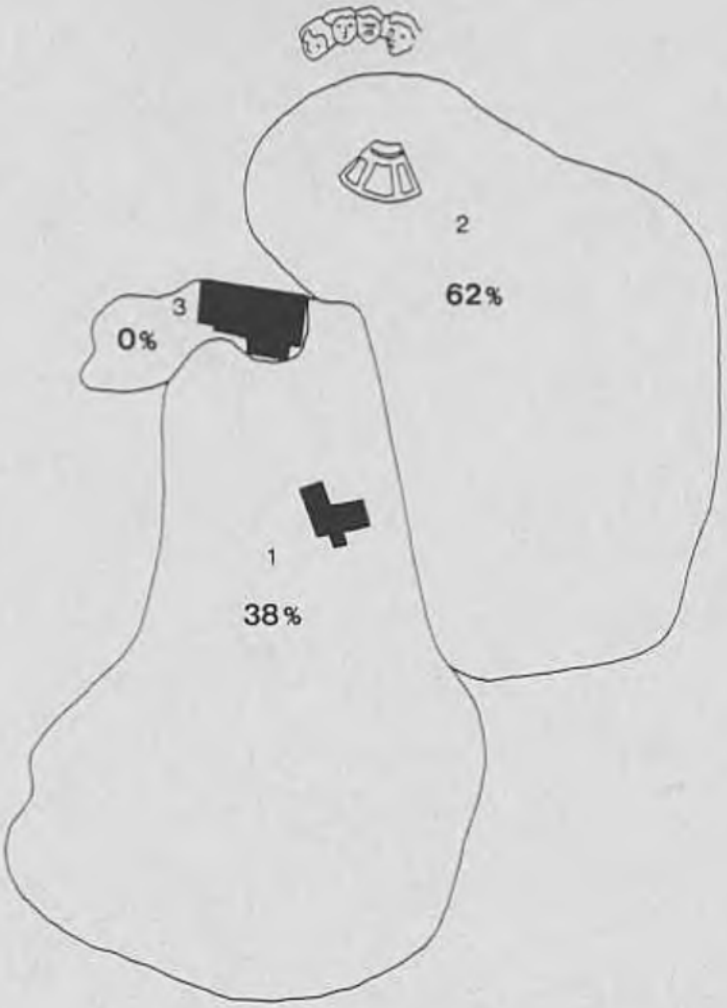
Map 8. Percentage of NPS Exhibits/Signs Located in each Section, Mt. Rushmore.

Interpretive Media

The primary media of Mt. Rushmore interpretive services are shown in Table 21. Written communication was the predominant media used (59 percent). Oral communication accounted for 31 percent of the services, while electronic media accounted for 10 percent. The NPS utilized all three media, concessioner services were entirely written, and cooperative sponsors were divided between oral and written media. Map 9 shows the distribution of oral NPS services. Although some of these services are offered in Section 1, heaviest emphasis is in Section 2. Section 3 offers no oral interpretive services.

Table 21. Number of Interpretive Services using each Primary Medium, Mt. Rushmore (n=29).

	General Sponsor Type							
	NPS		Concessioner		Cooperative		Total	
Primary Media	n	%	n	%	n	%	n	%
Oral	8	(36)	0	(0)	1	(50)	9	(31)
Written	11	(50)	5	(100)	1	(50)	17	(59)
Electronic	3	(14)	0	(0)	0	(0)	3	(10)



Map 9. Percentage of NPS Oral Interpretive Services in each Section, Mt. Rushmore.

Table 22 shows that most interpretive services (79 percent) had no secondary medium of communication. Those that did accounted for a mix of oral, written and electronic media.

Table 22. Number of Interpretive Services using each Secondary Medium, Mt. Rushmore (n=29).

Secondary Media	Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Total n	%
Oral	3	(14)	0	(0)	0	(0)	3	(10)
Written	2	(9)	0	(0)	0	(0)	2	(7)
Electronic	0	(0)	0	(0)	1	(50)	1	(3)
None	17	(77)	5	(100)	1	(50)	23	(79)

Interpretive Subject Matter

Figure 7 shows the primary topics used in the Mt. Rushmore interpretive program. Cultural history was the most common topic (59 percent), while 24 percent of the services were general in nature, emphasizing two or more topics (e.g., a publication sales area containing books on cultural history as well as on local flora, fauna and recreation opportunities). As Table 23 shows, both the NPS and concessioners followed this general pattern.

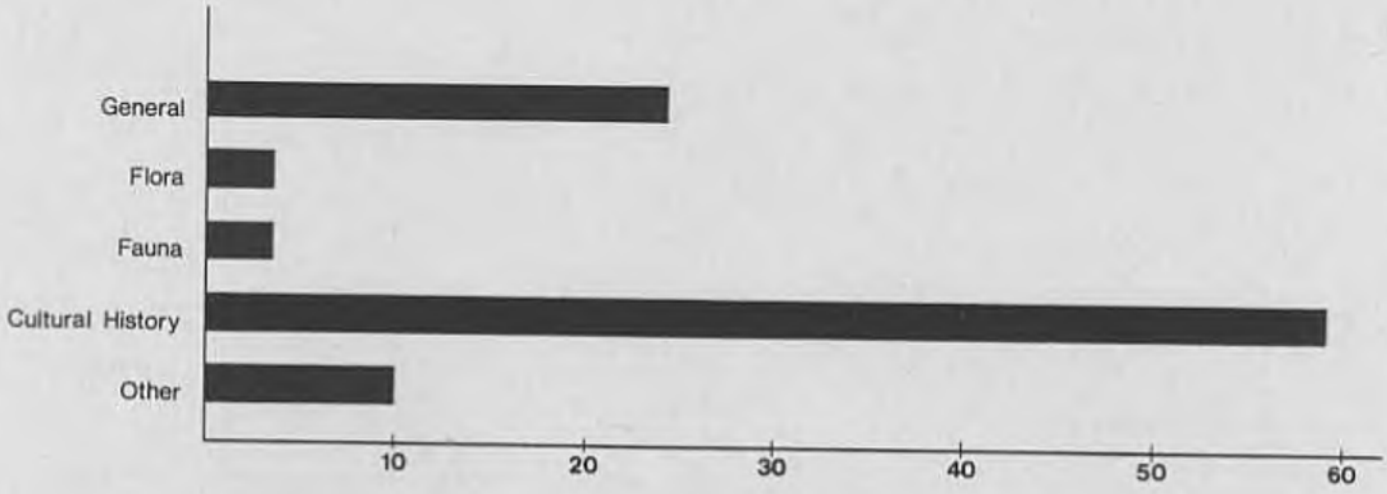


Figure 7. Percentage of Interpretive Services using each Primary Topic, Mt. Rushmore.

Table 23. Number of Interpretive Services using each Primary Topic by Sponsor Type, Mt. Rushmore (n=29).

Primary Topic	Sponsor Type: NPS n	%	Concessioner n	%	Cooperative n	%	Total n	%
General	5	(23)	2	(40)	0	(0)	7	(24)[a]
Flora	1	(4)	0	(0)	0	(0)	1	(3)
Fauna	1	(4)	0	(0)	0	(0)	1	(3)
Cultural History	14	(67)	3	(60)	0	(0)	17	(59)
Other	1	(4)	0	(0)	2	(100)	3	(10)

[a]Because of rounding, column percentages may not add to 100.

Table 24 shows the relative emphasis given each primary topic in each section. Cultural history is emphasized throughout the park, whereas geology and recreation topics are not offered in any section. Over 90 percent of the services had no secondary topic (see Table 25).

Table 24. Number of Interpretive Services Focusing on each Primary Topic in each Section, Mt. Rushmore (n=29).

Primary Topic	Subdistricts: Section I n	%	Section 2 n	%	Section 3 n	%	Total n	%
General	5	(45)	0	(0)	2	(33)	7	(24)[a]
Flora	0	(0)	1	(8)	0	(0)	1	(3)
Fauna	0	(0)	1	(8)	0	(0)	1	(3)
Geology	0	(0)	0	(0)	0	(0)	0	(0)
Cultural History	5	(45)	8	(67)	4	(67)	17	(59)
Recreation	0	(0)	0	(0)	0	(0)	0	(0)
Other	1	(9)	2	(17)	0	(0)	3	(10)

[a]Because of rounding, column percentages may not add to 100.

Table 25. Number of Interpretive Services using each Secondary Topic by Sponsor Type, Mt. Rushmore (n=29)

Secondary Topic	Sponsor Type: NPS n	NPS %	Concessioner n	Concessioner %	Cooperative n	Cooperative %	Total n	Total %
Cultural History	1	(5)	0	(0)	0	(0)	1	(3)[a]
Other	1	(5)	0	(0)	0	(0)	1	(3)
None	20	(91)	5	(100)	2	(100)	27	(93)

[a]Because of rounding, column percentages may not add to 100.

Interpretive Themes

Of the 29 services, 26 (90 percent) had primary themes and 3 services had no discernible theme. Appendix D contains a list of the themes by each primary topic.

Schedules

Schedules of interpretive services were recorded only for conducted activities (n=11) since self-guided services could be available any time, any day. Results indicate little variation in the scheduling of interpretive services throughout the week (Figure 8), with most services scheduled to begin in the morning and afternoon (Figure 9). The greatest concentration of conducted services occurred during afternoons.

Length of Conducted Services

Lengths of conducted services were assigned to four categories: less than 30 minutes, 30 minutes to 1 hour, 1 to 2 hours, and over 2 hours. Table 26 shows the most frequent duration was less than 30 minutes, with services 30 minutes to 1 hour the second most frequent. Less frequent were services longer than 1 hour.

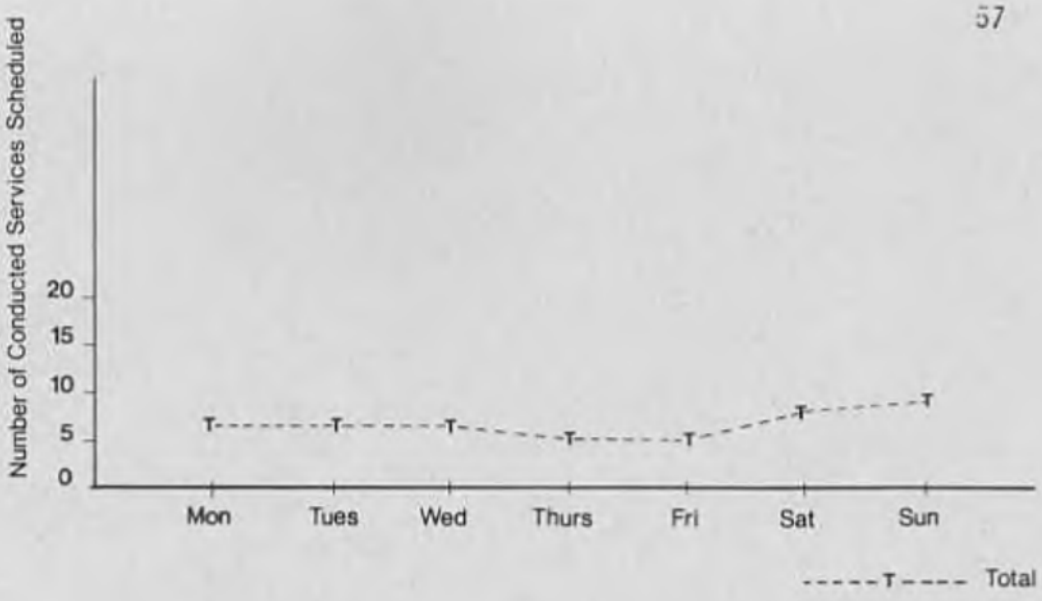


Figure 8. Number of Conducted Services Scheduled for each Day of the Week, Mt. Rushmore.

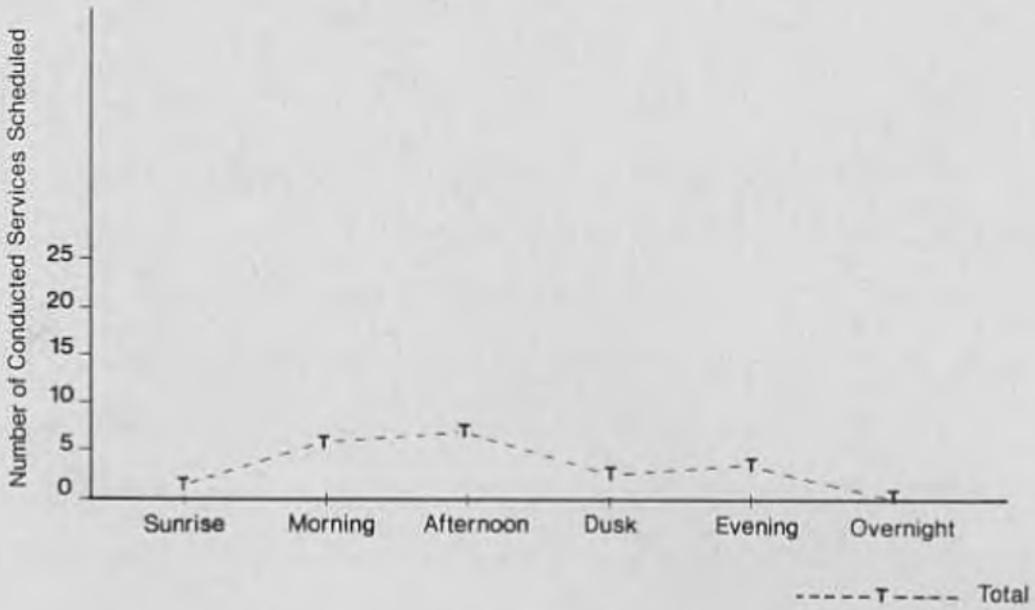


Figure 9. Number of Conducted Services Scheduled for each Time Period, Mt. Rushmore.

Table 26. Number of Conducted Services by Length of Activity, Mt. Rushmore (n=10).

	General Sponsor Type							
Length of Activity	n	%	n	%	n	%	n	%
Less than 30 min.	5	(55)	0	(0)	0	(0)	5	(50)
30 min.-1 hr.	3	(33)	0	(0)	0	(0)	3	(30)
1 hr.-2 hrs.	0	(0)	0	(0)	1	(100)	1	(10)
Over 2 hours	1	(11)	0	(0)	0	(0)	1	(10)

Cost to Visitors

Eight-six percent of Mt. Rushmore's interpretive services were free. The remaining 14 percent were publications offered by concessioners which ranged in price from $1.75 to $45.00. All of the NPS services were free, as were the cooperative services and 3 percent of the concessioners' offerings. An example of free concessioner services is viewing exhibits.

Analysis of Overlap

For each interpretive service, a measure of overlap was determined for five variables (location, service type, media, topic and schedule), and an overall overlap index was computed (see Methods Section). The results of this analysis are presented in Table 27. In this table, an interpretive service number is given, followed by the service title, sponsor type, specific service type, overlap measure for each variable, and the overlap index. A high number indicates much overlap with other services; a low number suggests that a particular service is relatively uncommon.

Table 27. Overlap Measures and Overlap Indices of Mt. Rushmore Interpretive Services (n=29).

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					Overlap Index
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	
001	Information Desk Room	NPS	Exhibit/Sign	10	13	16	16	--	56[a]
001	Information Desk Room	NPS	Publications	10	2	16	6	--	45
002	Audio Visual Room	NPS	Combination	10	2	2	16	--	31
003	Solar Energy Exhibit	Coop.	Exhibit/Sign	10	13	16	2	--	41
004	The Four Presidents	NPS	Combination	10	2	8	16	--	37
005	Plains Indians Artifacts	Conc.	Exhibit/Sign	5	13	16	16	--	51
006	Mt. Rushmore Co. Book Sales	Conc.	Publications	5	2	16	6	--	28
007	Your National Parks	Conc.	Publications	5	2	16	6	--	28
008	John A. Bolard	NPS	Exhibit/Sign	5	13	16	16	--	51
009	Gallery of Indian and Western Art	Conc.	Exhibit/Sign	5	13	16	16	--	51
010	Quotes of the Presidents	NPS	Exhibit/Sign	10	13	16	16	--	56
011	Avenue of the Flags	NPS	Exhibit/Sign	10	13	16	6	--	44
012	Gutzon Borglum	NPS	Exhibit/Sign	11	13	16	16	--	57
013	Sculptor's Demonstration	NPS	Living Interpretation	11	2	8	2	38	23
014	Sculptor's Studio Exhibit	NPS	Exhibit/Sign	11	13	16	16	--	57
015	Sculptor's Studio Talk	NPS	Talk	11	4	8	16	48	40
016	Wildlife Seen at Mt. Rushmore	NPS	Exhibit/Sign	11	13	16	0	--	40
017	Why are the Hills Black?	NPS	Exhibit/Sign	11	13	16	0	--	40
018	South Dakota Artists	Conc.	Exhibit/Sign	5	13	16	16	--	51
019	Mt. Rushmore National Memorial	NPS	Exhibit/Sign	10	13	16	6	--	44

Table 27—*Continued*

Interpretive Service No.	Interpretive Service Title	Sponsor Type	Specific Service Type	Overlap Measures					
				Location	Specific Service Type	Primary Media	Primary Topic	Schedule	Overlap Index
020	Living History Talk	NPS	Living Interpretation	11	2	8	16	18	38
021	Terrace Talk	NPS	Talk	10	4	8	6	38	27
022	Evening Lighting Ceremony	NPS	Combination	11	2	2	16	7	32
023	History of U.S. of America	NPS	Exhibit/Sign	11	13	16	16	--	57
024	Living History (female)	NPS	Living Interpretation	11	2	8	16	20	38
025	Handicapped Evening Program	NPS	Talk	10	4	2	16	7	33
026	Seminar on Mt. Rushmore	NPS	Talk	11	4	8	16	--	40[b]
027	Sunday Worship Service	Coop.	Talk	11	4	8	2	4	25
028	Roving Contact	NPS	Combination	10	0	8	6	38	23

[a]The overlap index does not include the schedule overlap measures.

[b]Schedule was not recorded due to availability of staff

Interpretive services with the lowest overlap indexes are listed in Table 28. These are the most 'unique' services as measured by the index. Generally, they include oral interpretive services. Services that had the highest overlap indexes are shown in Table 29. All the high scores were exhibits or signs, focusing on cultural history.

Table 28. Overlap Measures and Index for Interpretive Services with Lowest Scores, Mt. Rushmore.

Interpretive Service	Service Number	Sponsor	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Overlap Index
Sculptor's Demonstration	013	NPS	11	2	8	2	23
Roving Contact	028	NPS	10	0	8	6	23
Sunday Worship Service	027	Coop.	11	4	8	2	25
Terrace Talk	021	NPS	10	4	8	6	27
Mt. Rushmore Co. Book Sales	006	Conc.	5	2	16	6	28
Your National Parks	007	Conc.	5	2	16	6	28
Audio Visual Room	002	NPS	10	2	2	16	31

Table 29. Overlap Measures and Index for Interpretive Services with Highest Score, Mt. Rushmore.

Interpretive Service	Service Number	Sponsor	Overlap Measures: Location	Specific Service Type	Primary Media	Primary Topic	Overlap Index
Plains Indians Artifacts	005	Conc.	5	13	16	16	51
John A. Bolard	008	NPS	5	13	16	16	51
Gallery of Indian and Western Art	009	Conc.	5	13	16	16	51
South Dakota Artists	018	Conc.	5	13	16	16	51
Information Desk Room	001	NPS	10	13	16	16	56
Quotes of the Presidents	010	NPS	10	13	16	16	56
Gutzon Borglum	012	NPS	11	13	16	16	57
History of USA	023	NPS	11	13	16	16	57

FURTHER USES OF INTERPRETIVE MAPPING DATA

Beyond the analyses presented in the preceding sections, several other uses of the interpretive mapping data exist. Generally, it is possible to display the data for any combination of variables, e.g., the number of services provided by each sponsor in each park location at each time of day, or the number of services using each primary topic in each park location, and so forth. Table 30 presents several examples of specific planning needs and corresponding uses of the data. Table 31 contains a detailed menu of potential data displays. After determining the types of information desired, managers can use the menu to request specific data tables.

Table 30. Example Planning Needs and Potential Uses of the Interpretive Mapping Data.

Planning Need	Use of Interpretive Mapping Data
1. Planning staff wish to know the current emphasis given each primary topic in a particular park location.	1. Data on primary topic can be separately displayed for any of all major locations.
2. A subdistrict naturalist wants to know the number of conducted activities beginning each time period so she/he can determine whether employee shift changes are needed.	2. Data on services can be separately displayed by time period and park location.
3. The chief interpreter needs to know the locations and primary topics of all wayside exhibits for a rehab proposal she/he is preparing for Harper's Ferry.	3. Data can be separately displayed for any or all service types.
4. A concessioner wishes to know the percent of its interpretive services in each cost category.	4. Data on cost can be separately displayed for any specific service type.

Table 30 —*Continued*

Planning Need	Use of Interpretive Mapping Data
5. An NPS concessioners specialist needs data on the diversity of concessioner-sponsored information services for a report she/he is preparing.	5. Data on mapping variables can be separately displayed for any specific service type.
6. Information describing the total interpretive effort is needed to complete the Annual Visitor Contact Report.	6. Data on numbers and kinds of interpretive services and person-hour allocations can be displayed for any sponsor type.
7. Park biologists want to know whether interpreters are giving adequate attention to a particular resource management problem.	7. Theme statements for any or all services can be reviewed and suggestions for additions or changes can be discussed with appropriate supervisors.
8. A concessioners manager is contemplating marketing a new interpretive service and wishes to guage its similarity to current offerings.	8. Overlap measures on all or selected variables can be computed. Overlap analyses can also be done for specific locations.
9. Interpretive trainers want to schedule a session on living history techniques and would like to present some examples of last year's efforts. Hence, they need to know all the living history demonstrations given last year.	9. Locations and schedules of last year's activities can be matched with duty rosters to obtain the needed information.
10. The park historian suspects that visitors in some park locations cannot obtain information about the history of the park during certain time periods of the day. She/he wants to confirm this suspicion.	10. Data on any mapping variable can be separately displayed along any other variable or combination of variables. For instance, the number of services focusing on any primary topic (e.g., cultural history) can be displayed for each park location during each day of the week and, if desired, for each time period of each of those days, and so on.

INSTRUCTIONS FOR USING MENU OF DATA ANALYSES

Since interpretive planning often involves deciding when and where interpretation should take place, the variables of schedule and location are frequently most critical. The following table presents alternative uses of the interpretive mapping data according to these two key criteria. For each of the other mapping variables, specific comparisons related to schedule (when) and location (where) are listed. For instance, if a manager wished to know how many NPS services focused on flora in a particular section of the park, he/she would circle Table 14 (general sponsor type by primary topic by location). If the manager wished to see which days of the week and times of day these services were offered in each section, he/she would circle Table 22 (general sponsor type by primary topic by schedule by location). A particular concessioner could obtain the same information by requesting the corresponding comparisons under *specific* sponsor type (i.e., Tables 38 and 46, respectively).

To request tables, circle the numbers of the tables desired and send to:

Dr. Gary E. Machlis
Sociology Project Leader
Cooperative Park Studies Unit
Dept. of Forest Resources
College of Forestry, Wildlife and
Range Sciences
University of Idaho
Moscow, Idaho 83843

Table 31. Menu of Data Tables for Interpretive Mapping. *(Circle numbers of tables desired).*

Variable of Concern	Table Number	When	Table Number	Where	Table Number	When and Where
GENERAL SPONSOR TYPE	1	By Schedule	9	By Location	17	By Schedule by Location
	2	By Fee by Schedule	10	By Fee by Location	18	By Fee by Schedule by Location
	3	By General Service Type by Schedule	11	By General Service Type by Location	19	By General Service Type by Schedule by Location
	4	By Specific Service Type by Schedule	12	By Specific Service Type by Location	20	By Specific Service Type by Schedule by Location
	5	By Primary Media by Schedule	13	By Primary Media by Location	21	By Primary Media by Schedule by Location
	6	By Primary Topic by Schedule	14	By Primary Topic by Location	22	By Primary Topic by Schedule by Location
	7	By Primary Theme by Schedule	15	By Primary Theme by Location	23	By Primary Theme by Schedule by Location
	8	By Length of Conducted Activities by Schedule	16	By Length of Conducted Activities by Location	24	By Length of Conducted Activities by Schedule by Location
SPECIFIC SPONSOR TYPE	25	By Schedule	33	By Location	41	By Schedule by Location
	26	By Fee by Schedule	34	By Fee by Location	42	By Fee by Schedule by Location
	27	By General Service Type by Schedule	35	By General Service Type by Location	43	By General Service Type by Schedule by Location
	28	By Specific Service Type by Schedule	36	By Specific Service Type by Location	44	By Specific Service Type by Schedule by Location
	29	By Primary Media by Schedule	37	By Primary Media by Location	45	By Primary Media by Schedule by Location
	30	By Primary Topic by Schedule	38	By Primary Topic by Location	46	By Primary Topic by Schedule by Location
	31	By Primary Theme by Schedule	39	By Primary Theme by Location	47	By Primary Theme by Schedule by Location

Table 31 —*Continued*

Variable of Concern	Table Number	When	Table Number	Where	Table Number	When and Where
SPECIFIC SPONSOR TYPE (continued)	32	By Length of Conducted Activities by Schedule	40	By Length of Conducted Activities by Location	48	By Length of Conducted Activities by Schedule by Location
FEE	49	By Schedule	56	By Location	63	By Schedule by Location
	50	By General Service Type by Schedule	57	By General Service Type by Location	64	By General Service Type by Schedule by Location
	51	By Specific Service Type by Schedule	58	By Specific Service Type by Location	65	By Specific Service Type by Schedule by Location
	52	By Primary Media by Schedule	59	By Primary Media by Location	66	By Primary Media by Schedule by Location
	53	By Primary Topic by Schedule	60	By Primary Topic by Location	67	By Primary Topic by Schedule by Location
	54	By Primary Theme by Schedule	61	By Primary Theme by Location	68	By Primary Theme by Schedule by Location
	55	By Length of Conducted Activities by Schedule	62	By Length of Conducted Activities by Location	69	By Length of Conducted Activities by Schedule by Location
GENERAL SERVICE TYPE	70	By Schedule	75	By Location	80	By Schedule by Location
	71	By Primary Media by Schedule	76	By Primary Media by Location	81	By Primary Media by Schedule by Location
	72	By Primary Topic by Schedule	77	By Primary Topic by Location	82	By Primary Topic by Schedule by Location
	73	By Primary Theme by Schedule	78	By Primary Theme by Location	83	By Primary Theme by Schedule by Location
	74	By Length of Conducted Activities by Schedule	79	By Length of Conducted Activities by Location	84	By Length of Conducted Activities by Schedule by Location

Table 31 —*Continued*

Variable of Concern	Table Number	When	Table Number	Where	Table Number	Where and When
SPECIFIC SERVICE TYPE	85	By Schedule	90	By Location	95	By Schedule by Location
	86	By Primary Media by Schedule	91	By Primary Media by Location	96	By Primary Media by Schedule by Location
	87	By Primary Topic by Schedule	92	By Primary Topic by Location	97	By Primary Topic by Schedule by Location
	89	By Length of Conducted Activities by Schedule	94	By Length of Conducted Activities by Location	99	By Length of Conducted Activities by Schedule by Location
	100	By Schedule	104	By Location	108	By Schedule by Location
	101	By Primary Topic by Schedule	105	By Primary Topic by Location	109	By Primary Topic by Schedule by Location
	102	By Primary Theme by Schedule	106	By Primary Theme by Location	110	By Primary Theme by Schedule by Location
	103	By Length of Conducted Activities by Schedule	107	By Length of Conducted Activities by Location	111	By Length of Conducted Activities by Schedule by Location
PRIMARY TOPIC	112	By Schedule	117	By Location	122	By Schedule by Location
	113	By Primary Theme by Schedule	118	By Primary Theme by Location	123	By Primary Theme by Schedule by Location
	114	By Length of Conducted Activities by Schedule	119	By Length of Conducted Activities by Location	124	By Length of Conducted Activities by Schedule by Location
PRIMARY THEME	115	By Schedule	120	By Location	125	By Schedule by Location
	116	By Length of Conducted Activities by Schedule	121	By Length of Conducted Activities by Location	126	By Length of Conducted Activities by Schedule by Location
LENGTH OF CONDUCTED ACTIVITIES	127	By Schedule	128	By Location	129	By Schedule by Location

RECOMMENDATIONS

Results of this study suggest several implications for the NPS, for staff and concessioners at Yellowstone and Mt. Rushmore, and for future research.

Recommendations to the NPS

1. The interpretive mapping method should eventually be adopted.

The two seasons of field testing have shown the method to be reliable and capable of providing useful information not available from previous methodologies. Further pilot testing is recommended before the mapping method is made available service-wide.

2. Policies regarding funding and responsibility for data collection and analysis should be formulated.

WASO, regions, individual units and CPSUs will need to work out their respective roles for determining where and when mapping data is to be collected, who should pay for it, and who should collect and analyze the data. Key NPS employees should meet to develop these policies before service-wide use of the method.

Recommendations to Staff at Yellowstone and Mt. Rushmore

1. Staff at both Yellowstone and Mt. Rushmore should consider using the data in their interpretive planning. The information has several potential uses:
   a). Interpretive objectives can be compared with the topics and themes of actual services. For example, services focusing on recreation opportunities and flora were relatively uncommon compared to the other topics emphasized at both study sites (Tables 9 and 24).

b). The diversity of services can be described. At Yellowstone, for example, walks, talks and exhibits accounted for 92 percent of the NPS services (Table 6); at Mt. Rushmore, exhibits, talks and living interpretation were the most common types of NPS services (Table 20). At both study sites, the data on schedule (Figures 4, 5, 8 and 9) could be used to develop activity schedules and duty rosters, and the overlap indexes (Tables 14 and 26) could suggest ideas for program diversification.

c). Seasonal program planning and hiring may be aided by use of the data. Each year, new services are developed and new employees hired. The overlap measures in Tables 14 and 27 may help point out which services are unique, and which require specialized skills or knowledge. Similarly, the data on topic (Tables 9 and 23) can be used to suggest particular subject matter specialties desired of future employees.

2. The data could be used in seasonal orientations and in-service training. Potential uses include:

a). Seasonal interpreters can be given a quick overview of the interpretive services offered to visitors. The information in the Results section could help them understand how their activities are related to others (Tables 14 and 27 would be especially useful).

b). The complete data set (i.e., all the information on all of the interpretive services observed) can be used to set up 'networks' of interpreters that are dealing with similar topics or themes, or using similar media. For example, those employees responsible for services with cultural history

themes (Tables 9 and 23) could be gathered for special training sessions. Interpreters could also be encouraged to attend programs that overlap with theirs as an additional form of in-service training.

3. Both parks should consider further uses of the data for individual planning or decision-making needs.

As an aid, page 62 contains a list of example planning needs and corresponding uses of the data, and a detailed menu which can be used to request additional data and analyses is included on page 65.

4. A workshop should be considered to familiarize interpreters with the data that is available. Potential uses include:
   a). Interpretation staff could be briefed on the results and limitations of the study, as well as on how to make use of the data.
   b). Staff from other divisions could be given an overview of the interpretive services offered at each area. This might be especially useful for law enforcement and resource management staff, and could encourage the use of interpretive services in providing safety messages to visitors.

5. NPS interpretive staff should consider cooperative activities with concessions staff involved in interpretation. Such cooperation could include:
   a). Concession staff could be invited to participate in a workshop on using the data (see #4 above).
   b). Cooperative training sessions on various subject specialties (e.g., geology, flora, history and so forth), might be valuable.

The data on topic and theme (Tables 9, 23, C-1 and D-1) illustrate that concessioner and NPS interpretation dealt with a wide range of subjects. Employees with particular expertise in a given topic might lead seminars attended by other staff. Besides improving the factual content of programs, such sessions would facilitate sharing knowledge of useful materials and techniques.

Recommendations to Concessioners at Yellowstone and Mt. Rushmore

1. Concessioners should consider using the data in planning and marketing. Potential uses include:
   a). Actual services that are offered to visitors can be compared with potential markets. For example, few services were found to rely primarily on electronic media (Tables 7 and 21); multi-media presentations, interactive computer terminals and rental of closed circuit television tapes may offer attractive alternatives to visitors. Likewise, opportunities may exist to provide conducted services not now widely available (e.g., bicycle tours or living interpretation).
   b). Information on the topics and themes interpreted within the study sites may suggest new marketing opportunities. For example, flora was the primary topic for only 5 percent of the total interpretive services at Yellowstone (Table 9). Activities oriented to visitors with interests in such subjects might prove popular.

c). The information could be used to develop advertising strategies. Visitors could be informed of the unique features of a particular service (Tables 15 and 28). For example, short talks (less than one-half hour in duration) which focus on recreation opportunities might prove useful (Tables 12 and 26). Such services might be useful, especially to first-time visitors, and could be effective ways to advertise concession services.

2. Concessioners should consider using the data in their training programs. Potential uses include:
   a). The data could provide employees with an overview of interpretive services available to visitors. Interpreters and information-desk personnel would especially benefit.
   b). The complete data set can provide employees conducting interpretive programs with a list of similar programs offered at Yellowstone and Mt. Rushmore. Employees could be encouraged to attend these programs as part of in-service training.

3. Concessioners should consider further uses of the data for specific planning or marketing needs. (See page 62.)

4. Concessioners should consider cooperative activities with NPS personnel involved in interpretation. Examples of potential activities are described above (see Recommendation #5, page 70).

Recommendations for Research

1. The method should be field tested an additional time before implementation.

As described below, this should include experimentation with alternative data collection methods and further improvement of the recording form. Ideally, this effort would utilize NPS employees as data collectors and be conducted in NPS units previously untested (e.g., a recreation area or historic site) and in other regions.

2. A more cost-effective data collection method for conducted activities should be explored.

Although labor-intensive, observation of conducted activities was essential during initial development and testing of the method. Before implementation, a combination of less costly data collection methods (e.g., interviews and self-reporting by interpreters) should be considered.

3. The recording form should be made more efficient for coding.

This should involve consolidating some parts of the form as well as deleting some variables (e.g., secondary theme) and adding others (e.g., season of the year and special events).

4. Overlap measures and overlap indices should be converted to standard scores or percentages to allow comparisons between parks.

Since the magnitudes of overlap measures are directly related to the total number of services in a park, comparisons of overlap scores between NPS units is not possible. Conversion of the measures to a standard form would permit inter-park comparisons.

5. Attention should be devoted to improved ways of analyzing and displaying the data.

Besides improving the coding form, computer software for analyzing and graphically displaying the data should be developed.

6. Plans to develop a comprehensive training program on data collection and analysis should be made.

Before implementation can occur, individuals responsible for data collection and analysis will need to be oriented to the variables, recording procedures and methods of analyzing the interpretive mapping data.

7. The interpretive mapping data should be integrated with other Visitor Services Project data.

The Visitor Services Project (Figure 1) involves three research studies aimed at providing an integrated data base for management of NPS visitor service programs. As the research phases are completed, a coordinated effort for integration of the three programs will be important.

Appendix A
Operational Definitions for Key Variables

Sponsor — The organization(s) which have day-to-day responsibility for an interpretive service. A cooperative sponsor involves two or more organizations working together to operate an interpretive service.

Cost — The amount of money (other than park entrance and camping fees) that an adult visitor must pay in order to utilize an interpretive service.

Schedule — The scheduled beginning and ending time(s) of an interpretive service for each day of the week it is offered.

Location — The geographical section of the park in which an interpretive service begins. Generally, administrative or otherwise defined subdivisions.

General Service Type — The general format of the interpretive service, either conducted (led by a representative of the sponsoring organization), or self-guided (no representative of the sponsor need be present).

Specific Service Type — The specific format of the interpretive service, which could include the following:

a) conducted tours: excursions on which the audience accompanies the interpreter through a prescribed sequence of locations. Form of transportation (e.g., foot, boat, horse, bicycle, car, etc.) is also specified.

b) talks: oral presentations by an interpreter(s) in which the audience is stationary. (Examples include campfire programs, orientation talks, etc.).

c) living interpretation: presentations that primarily involve a dramatic role performance by an interpreter(s).

d) exhibits/signs: written or electronic displays independent of other interpretive services.

e) self-guided tours: excursions on which the audience uses a communication device keyed to a system of locations in a prescribed sequence. Form of transportation is also specified.

f) publications: interpretive materials which can be obtained by visitors and taken home. (Examples include books, brochures, cassette tapes, 35 mm slides, phonograph albums and so forth).

Sponsor (continued)

g) combination or other: a combination of two or more of the above, or a specific service type not included above. Examples include a combination living interpretation-conducted tour, or an automated slide/tape presentation shown in a visitor center.

Media

The communicative methods used to convey information to audiences (oral, written or electronic).

Topic

The subject area(s) addressed by an interpretive service or interpretive episode:

flora: the plant kingdom.

fauna: the animal kingdom.

geology: physical, land-shaping processes (past, present or future) or physical manifestations of these processes (e.g., volcanos, geysers, water and so forth).

cultural history: human activities of the past.

recreation: activity opportunities, skills, equipment or related safety considerations.

other: a topic category not listed above.

general: two or more topic categories equally emphasized in an interpretive service or interpretive episode (e.g., a web of life story emphasizing plants, animals and physical geology).

Theme

The main point(s) of an interpretive message, stated in a declarative sentence.

Appendix B
Interpretive Mapping Form

INTERPRETIVE MAPPING FORM

1. Identification

Form #__ __ __ Month_____ Day __ __ Park _____

Time of Observation_____ to _____

Day of Week_____ Observer #_____

Service # _____ Title _____

2. Sponsor

_____NPS

_____Concessioner.....Name of Company_____

_____Other organization.....Describe_____

_____Cooperative.....Describe_____
(more than one sponsor)

3. Fee (if any)

Price in U.S. dollars_____

4. Scheduled Starting Times

		Day of Week						
		SU	M	T	W	TH	F	S
Sunrise	(5-8a)	___	___	___	___	___	___	___
Morning	(8-12p)	___	___	___	___	___	___	___
Afternoon	(12-5p)	___	___	___	___	___	___	___
Dusk	(5-7p)	___	___	___	___	___	___	___
Evening	(7-11p)	___	___	___	___	___	___	___
Overnight	(11-5a)	___	___	___	___	___	___	___

5. Length of Activity (conducted only) _____hrs. _____min.

6. Location

Section Number Place Name (or description)

_____ _____

6. General Service Type

_____Conducted

_____Self-guided

_____Other.....Describe_____

7. Specific Service Type

Conducted

_____Conducted Tour.....Form of Transportation_____

_____Talk

_____Living Interpretation

_____Combination or Other Conducted Service

Describe:_____

Self-Guided

_____Exhibit/Sign

_____Self-Guided Tour.....Form of Transportation_____

_____Publications

_____Combination or Other Self-Guided Service

Describe:_____

Other

Describe:_____

8. Media

	oral	written	electronic
Primary	_____	_____	_____
Secondary	_____	_____	_____

9. Subject Area

	general	flora	fauna	geology	cultural history	recreation	other
Primary	_____	_____	_____	_____	_____	_____	_____
Secondary	_____	_____	_____	_____	_____	_____	_____

If other, describe:_____

10. Theme

Primary (describe):

Secondary (describe):

11. Additional Comments

_____

_____

_____

Appendix C

Primary Themes Recorded for each Primary Topic at Yellowstone

Yellowstone primary themes were compiled for each primary topic and are listed in Table C-1. Using the table, interpretive planners can determine whether the listed themes under each topic convey desired information and whether particular themes receive adequate treatment. This can be accomplished by evaluating the listed themes against interpretive objectives.

Table C-1. Primary Themes by Primary Topic, Yellowstone.

Primary Topic	Service Number	Primary Theme
GENERAL	011	No discernible theme
	012	No discernible theme
	013	No discernible theme
	017	TWA can accommodate you
	028	No discernible theme
	030	No discernible theme
	034	The eco-system of the park is a complex web of interdependency
	044	No discernible theme
	052	No discernible theme
	053	No discernible theme
	065	No discernible theme
	073	No discernible theme
	075	No discernible theme
	077	No discernible theme
	081	Not applicable
	082	No discernible theme
	084	Yellowstone is an extremely diverse park
	086	Yellowstone is a rainbow of color
	101	No discernible theme
	102	The wilderness has value to you
	103	Enjoy the wilderness: you are man and you are the wilderness
	104	Not applicable
	105	No discernible theme
	106	No discernible theme
	107	Not applicable
	108	Not applicable
	110	Not applicable
	112	Many natural wonders require close observation
	113	Not applicable
	116	Not applicable
	117	Not applicable
	119	Wilderness enables man to gain perspective on his existence
	120	Not applicable
	123	Take the time and effort to know Yellowstone's real wilderness
	126	Energy makes the park a dynamic environment
	129	The Pelican Creek walk is a microcosm of Yellowstone trails

Table C-1—*Continued*

Primary Topic	Service Number	Primary Theme
GENERAL (continued)	130	Not applicable
	135	Not applicable
	142	Not applicable
	145	Not applicable
	146	Not applicable
	147	Not applicable
	153	Not applicable
	154	Not applicable
	155	Not applicable
	156	Not applicable
	171	Not applicable
	175	The upper and lower falls of the Yellowstone and Crystal Falls may be seen from a variety of perspectives.
	196	Not applicable
	199	Not applicable
	200	Not applicable
	201	Natural process is the best manager of the park's natural environment
	208	No discernible theme
	211	Plankton supports all lake life
	212	Not applicable
	213	The task of managing the park is a complex one
	215	Not applicable
	219	Wilderness features are more special than those along trails
	221	Yellowstone has a lot of diversity
	222	The beauty of the hours between dusk and dawn is unsurpassed
	224	There are lots of exciting things to discover off trail
	225	If one goes slowly through the forest, one can discover much
FLORA	054	No discernible theme
	055	Take the time to enjoy the small organisms
	056	Learn to use the compass and get off the trails for a real Yellowstone experience
	064	The closer you look the more you see
	109	Diversity is healthy in both natural and social environments
	140	Two of Yellowstone's major forest types (1. spruce-fir forest, and 2. lodgepole-pine forest) can be seen from this point
	162	Management policies have changed in regards to controlling forest fires

Table C-1—*Continued*

Primary Topic	Service Number	Primary Theme
FLORA (continued)	165	Fires are an important part of the natural environment
	182	Flora and fauna are location dependent
	220	Algae has a unique structure

FAUNA	005	There are a lot of interesting things to know about moose
	007	Many native animals are driven to lower elevations by the severe winter
	015	No discernible theme
	022	Learn to gather information about the wildlands with all your senses
	023	Use all of your senses to discover animal signs
	039	After a long period of mismanagement, Yellowstone's bears are now wild
	040	Birds of prey need proection
	041	A pond has a complex and diverse life
	045	The story of bison in Yellowstone illustrates some of man's stupid treatment of wild animals
	047	No discernible theme
	049	A remarkably diverse web of life exists within the hot springs niche
	067	The Madison elk herd survives naturally without management
	111	The best manager of bear populations is nature
	122	Not applicable
	125	Each animal has distinguishing characteristics
	127	Yellowstone is an enchanted enclosure
	131	Life is more complicated for Yellowstone Lake's cutthroat trout than it once was
	134	It's fun to learn to use our imagination
	136	Not applicable
	139	Animal and plant life have been in delicate balance in the Hayden Valley for thousands of years
	143	Not applicable
	144	Not applicable
	148	There are a lot of interesting things to learn about the fish in Yellowstone
	158	The Yellowstone River provides a suitable habitat for a wide variety of birds
	164	Grizzlies are in conflict with humans
	170	Animal behavior, especially bear behavior, is dependent on several conditions
	174	It's fun to observe birds and beasts early in the morning
	176	Not applicable

Primary Topic	Service Number	Primary Theme
FAUNA (continued)	183	What we have learned about the management of bison can help us understand our relationship to other animals, both in and outside of the park
	187	Insects which attack trees alter the natural environment to provide food and shelter for birds and small mammals (succession
	190	Over-harvesting almost wiped out the original herd of bison
	206	Yellowstone's wildlife depend upon a vast array of plants and other animals
	207	Bears and people can coexist in Yellowstone National Park if people are sensitive to the needs of this wild animal
	210	Many creatures benefit from the lake
	223	The chronological story of the bison has several parts

GEOLOGY	002	Don't drink the water, although used by early visitors
	003	Obsidian differs from rhyolite and granite principally due to the more rapid cooling of the magma
	009	The Gallatin Range is composed of a variety of very old rocks
	010	Water, gravity and ice contribute to geologic process
	019	Hot water is the life of the terraces
	024	The geological events in the Terrace Mountain area followed a very clear chronological order
	031	Full enjoyment of the park requires full use of all of the senses
	035	The hydrological cycle is one of immense, as well as minute proportions
	036	The Yellowstone region is highly prone to seismic activity which has the potential to significantly alter park features
	038	Geologic process determines the type of flora and fauna
	048	Surface hydrothermal manifestations at Norris are dependent on earth substructures
	050	No discernible theme
	051	Variations in seasons, as well as the passing of the years, transforms roaring mountains
	057	The sun is the source of all energy; all other forms are only moments in its flow
	063	A variety of factors contribute to the formation of Yellowstone waterfalls
	066	Yellowstone is a landscape of relatively recent lava flow, resulting in a rock known as rhyolite
	069	Yellowstone is the world's largest concentration of thermal activity
	074	No discernible theme
	078	Yellowstone is a living sculptor
	079	Yellowstone shapes its water with both the Atlantic and Pacific Oceans
	088	No discernible theme

Table C-1—*Continued*

Primary Topic	Service Number	Primary Theme
GEOLOGY (continued)	090	A geyser basin is an area of constant biological and geological process
	091	An examination of Yellowstone's present gives clues to its geological past
	092	Many forces formed the Pocket Basin
	093	No discernible theme
	096	Both life and death can be found on Geyser Hill
	098	Heat and water provide the necessary elements to give Yellowstone its unique character
	100	Earthquakes are essential for thermal activity
	114	The scenery of West Thumb is the result of volcanic action
	115	Thermal basins are continually changing
	118	Not applicable
	132	Several forces account for the Sylvan Pass
	133	The thermal features at Mud Volcano Trail are in a state of constant change
	138	The silt deposited by an ancient lake in this valley makes it difficult for trees to grow here today
	149	Black Dragons Cauldron recently developed
	150	Not applicable
	151	There are many fascinating animals found in the park
	152	Many factors contribute to the formation of the canyon
	159	This ancient thermal basin permitted the Yellowstone River to carve the canyon from otherwise very hard rock
	160	The canyon varies considerably in its dimensions
	161	Hot springs activity continues to produce colors which are largely due to various iron compounds
	163	The Yellowstone caldera represents one of the earth's largest volcanic eruptions
	166	The Yellowstone caldera is a unique geological feature
	167	The river is the heart of the park
	168	Nature is a great painter and a great sculptor
	173	The earth's crust is constantly changing
	178	The unique combination of river flow and thermal activity have carved a similarly unique canyon
	179	The story of the canyons is one of kinetic energy
	185	Yellowstone is the result of several geological processes
	186	Volcanic activity has changed the park, as well as its trees
	189	Geological process changes the character of the park
	191	Continuous volcanic activity has produced layers of fossil forests which are very unique

Primary Topic	Service Number	Primary Theme
GEOLOGY (continued)	192	Glacial activity produced much of the typography of the park
	193	Columns of basalt attest to Yellowstone's volcanic past
	204	The Norris Basin is a constantly changing scene
	205	Use all your senses to interpret the hydrothermal features of Yellowstone
	209	The lake is the result of volcanic activity
	216	Take the time to see the less obvious characteristics of the park
	217	The entire park ecosystem is dependent upon water
	218	No discernible theme

CULTURAL HISTORY	001	Appollinaris Springs gets its name from a geyser springs bearing a similar mineral content and taste
	004	Obsidian was an important material to primitive tribes in Yellowstone
	006	Local Indians subsisted principally on sheep
	020	Were it not for the U.S. Cavalry, we would not have the park as we know it today
	026	Yellowstone National Park was preserved because of the foresight of its earliest white visitors
	027	Preservation of natural resources is both a political and economic challenge
	032	Visitors to the park have changed over the years
	033	The early custodians of Yellowstone were people like you and I
	037	Old park management policies have given way to more intelligent ones designed to return Yellowstone National Park to its original condition while still accommodating increasing numbers of visitors
	043	No discernible theme
	046	We've seriously threatened the bison, the beaver and the bear—is wilderness also a threatened 'species'?
	058	Through time many cultures interpreted the natural world very differently, although having similar problems
	059	Hold in your heart our Mother the earth: Lessons from an American Indian
	061	Soldiers once performed much the same duties as do rangers today
	062	From 1886-1916 the U.S. Cavalry protected the park much the same way that the NPS does today
	068	Yellowstone gave birth to the national park idea
	070	It was in this spot in 1870 that the idea of a national park was first formulated
	071	It was the foresight of Stephen Mather which first formulated the policy of national park management
	080	White men pushed the Nez Perce from their land, and several battles and skirmishes occurred

Primary Topic	Service Number	Primary Theme
CULTURAL HISTORY (continued)	085	Life in the Old Faithful part in 1915 was quite different from 1983
	095	Visiting the park in 1915 was quite different than it is today
	124	Everything changes with time, including park management policies
	137	The American Indians around and in Yellowstone have a rich heritage of stories
	141	The Lake Hotel has led a varied history
	169	National parks are an American idea
	184	Given the events leading to the formation of Yellowstone National Park, we must ask whether it was coincidence or providence
	188	The lodge commemorates Teddy's visit in 1906
	194	The Stagecoach Era (1883-1916) in Yellowstone was marked by the transport of many park visitors
	197	There are several interesting things to know about Yancey's Hote
	198	The site of our rustic outing is considerably different than the accommodations here at the turn of the century
	202	The mountain man appreciated Yellowstone in his own way
	203	Early women visitors to Yellowstone viewed it uniquely

RECREATION	008	This is your park
	016	You will get more out of your visit if you participate in range-led activities
	018	No discernible theme
	021	Knowing how to use a compass can be fun and useful
	025	Backpacking requires responsible wilderness behavior and knowledge of dangers
	029	Use all of your senses to appreciate Yellowstone's scenery
	042	Backpacking requires careful planning, organization and knowledge of the area into which you are going
	072	The relationship between man and the wilderness is one of both conflict and cooperation
	076	I will take nothing nor leave anything, and no one will know I have been here
	089	Knowing how to use a map and compass can be useful
	094	The camera can be used in a variety of ways to enable one to gain new perspectives
	097	Enhance your park experience by developing your senses of touch, smell and hearing
	121	Yellowstone has some of the finest fisheries in the world
	128	Mountains have served people in many ways
	157	There are many trails in the canyon area designed for varied degrees of difficulty
	195	"Take only pictures, leave only footprints"

Table C-1—*Continued*

Primary Topic	Service Number	Primary Theme
OTHER	060	The role of the NPS has changed from one of management to one of preservation
	087	The future of our parks is not a given right—what is to become of them will be determined in the political arena
	099	The weather at Old Faithful is highly variable
	177	The walk to Clear Lake includes several diverse ecological systems

Appendix D

Primary Themes Recorded for each Primary Topic at Mt. Rushmore

Mt. Rushmore primary themes were compiled for each primary topic and are listed in Table D-1. Using the table, interpretive planners can determine whether the listed themes under each topic convey desired information and whether particular themes receive adequate treatment. This can be accomplished by evaluating the listed themes against interpretive objectives.

Table D-1. Primary Themes by Primary Topic, Mt. Rushmore.

Primary Topic	Service Number	Primary Theme
GENERAL	001	No discernible theme
	006	No discernible theme
	007	The story of national parks is one of beauty and educational interest
	011	The United States is composed of 50 separate states and four territories, all of which represent the growth and change in our republic.
	019	The Mt. Rushmore sculpture was sculpted by Gutzon Borglum between 1927-1941.
	021	How Mt. Rushmore was constructed and by whom
	028	Mt. Rushmore is a memorial to American democracy

FLORA	017	The hills have a dark color and so named Black Hills due to preponderance of Ponderosa Pine Trees
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FAUNA	016	There are many animals that can be seen at Mt. Rushmore.

CULTURAL HISTORY	001	Special tools, not common to ordinary sculpture, were used to sculpt Mt. Rushmore.
	002	The Mt. Rushmore sculpture commemorates American democracy through four of its great presidents.
	004	No discernible theme
	005	The Plains Indians were an imaginative and colorful people, which is reflected in their art and craft
	008	John Bolard, past president of Mt. Rushmore National Memorial Society, was instrumental in the making of the Rushmore sculpture by lending support to the project
	009	Indian and western art is valuable because of its relation to the cultural traditions of the people who produce it
	010	Democracy is a delicate and difficult thing to maintain, but worth every citizen's effort
	012	Gutzon Borglum is the artist responsible for the Mt. Rushmore culture
	014	The construction of Mt. Rushmore took imaginative and unique engineering, as well as art, with much preparation and model building
	015	The history of the construction of the Mt. Rushmore sculpture shows a great deal of imagination and dedication on the part of all those involved
	018	The American West Indians, cowboys, architecture and landscape are unique and valuable enough to capture in the media of painting
	020	Working on the sculpture as a construction worker was a demanding, dangerous and sometimes humerous experience

Primary Topic	Service Number	Primary Theme
CULTURAL HHISTORY (continued)	022	Gutzon Borglum chose the presidents on Mt. Rushmore to represent American democracy
	023	The history of America in 540 words sums up values of democracy for all mankind
	024	The story of the Rushmore construction is a drama rich in humor and tragedy as viewed from a female employee of Borglum's
	025	The history of America in 540 words sums up values of democracy for all mankind
	026	Working at Mt. Rushmore was a unique experience and clearly shows the challenge of the task and the men who worked on it
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OTHER	003	The Visitor Center is cooled and heated by solar energy using an active system
	013	The art of stone sculpture as represented by Borglum's work is one requiring special tool skills, training and an artistic eye
	027	The memorials to American democracy of Mt. Rushmore are symbols like the cross is to Christians

Appendix E
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