

A RECREATION QUALITY RAPID ASSESSMENT METHOD FOR VISITOR CAPACITY MANAGEMENT

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Abstract.—A rapid assessment method for inexpensively obtaining representative samples of place-specific visitor numbers and perceptions of visit quality was tested on Niobrara National Scenic River (NSR). Similar tests have been done on national forest areas in Indiana and Illinois. The data are used in meetings focusing on visitor capacity management.

The rapid assessment visitor inventory (RAVI) method utilizes four-day sampling periods (two weekend days plus two weekdays) within heavy use seasons. Counts of visitors by types are recorded along with one-page surveys focusing on visitors' perceptions of conditions. RAVI studies are conducted at travel pattern concentration sites, places where most visitors tend to visit or pass by.

A four-day sampling period at Niobrara NSR was thought to be representative of weekend/weekday use within a two-month summer use season. Additional sampling is planned for following years to monitor specific numbers and changes occurring. Then decisions can be made about maintaining different levels of use in similar places and providing information for visitor choices.

1.0 INTRODUCTION

Changes in conditions occur frequently on large, diverse outdoor recreation areas. Managers of those areas are responsible for noting those changes and making recommendations for possible actions.

When changes involve significant increases in visitor use of an area, or changes in types of visitors or their

behaviors, recommendations may involve limiting or redistributing use. These decisions fall into a category generally referred to as recreation carrying capacity (Manning 1999) or visitor capacity (Haas 2002). Capacity decisions are often contentious, with objections raised by area users and user groups, environmental groups, or local businesses and communities. The objections often culminate in court cases (Chilman et al. 1996).

Recreation capacity planning processes have been developed to systematically approach capacity decision-making (Chilman et al. 1981, Stankey et al. 1985, Graefe et al. 1990, Chilman et al. 1990, Manning et al. 1995). These are usually long-term (several years), expensive, and implemented when conditions become quite controversial.

The focus of the research reported here is to develop a rapid assessment, relatively inexpensive method, and to test it in various recreation settings. Then further research will investigate how to train managers to gather the data and to be able to communicate the data and the method in capacity-decision meetings. The method is designed to address questions, such as "How serious is the problem?" "Who is affected and to what extent?" "What management actions might improve the situation?"

This paper discusses a method for obtaining those kinds of information systematically, rapidly, and inexpensively. The paper then discusses how that information may be used in discussions about capacity recommendations. An application of the method at Niobrara NSR in Nebraska is discussed. Tests of the method have also been conducted on national forest areas in Indiana and Illinois.

2.0 METHODS

The research reported here begins with the premise that, if field-level managers of parks and other recreation use areas could obtain specific visitor use information early in difficult capacity-decision situations and communicate it in meetings internal and external to the managing

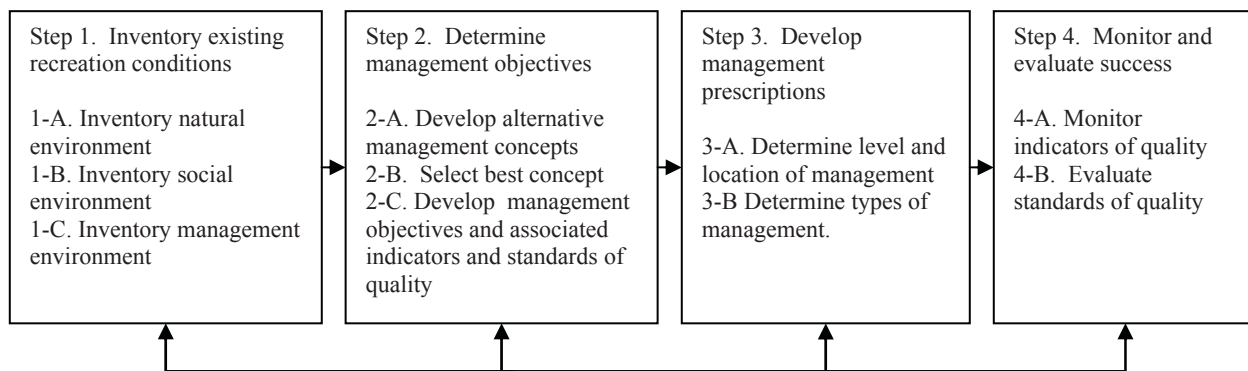


Figure 1.—An Outdoor Recreation Management Framework.

organization, capacity decisions could be reached faster and with less controversy. Accordingly, to determine the nature of capacity decision-making and what information is needed by managers, the research method participant observation, negative case analysis (Kidder 1981) was utilized.

This research method involves participating with recreation managers as a recreation visitor information specialist in capacity-decision situations. A detailed discussion of how this participant observation method has been employed in various places during the past 30 years can be found in Chilman (2005). Basic theory for this method is offered in Manning (1999) as an Outdoor Recreation Management Framework (Figure 1).

The first and most basic step of any management is *inventory*—determining as exactly as possible what and how much is to be managed. In Manning's model, he suggests recreation inventories should include natural environment, social, and management aspects. The focus of this paper is the *social inventory*: how many and what types of visitors are using the management area now, and what their perceptions of area and visit conditions are.

It should be noted here that recreation visitor inventories are done at three levels: national, forest/park management unit, and management area subunit. U.S. Forest Service researchers have developed a sampling design for entire national forests (Zarnoch et al. 2003) that may then be aggregated into national use estimates. What has been lacking are systematic recreation visitor inventories for management subunits.

Management subunits are usually parts of large, diverse recreation areas where different conditions exist with different kinds of users and use patterns. Field level managers can usually identify these different use patterns and can establish subunit boundaries. Within these subunits, visitors usually are attracted to specific areas for specific purposes. These attraction points and the travelways to them can be identified as travel pattern concentrations (TPCs) where most of the subunit users will visit or pass by (Chilman 1983).

A second key concept of the Rapid Assessment Visitor Inventory (RAVI) method is a representative four-day sampling period within a recreation use season: spring, summer, fall, winter. The sampling period includes two weekend days when use is highest, a Friday or Monday where use is usually higher than other weekdays, and a fourth day to represent middle of the week use. Lucas and Oltman (1971) proposed sampling by days—a known population—rather than by number of visitors—an unknown population. The four-day sample utilized here is an extension of that concept to sample by number of weekends—a known population—within 12 weekends of a three-month season. One four-day sample weekend would thus be an 8.3 percent sample. This is an indicator sample, providing a useful indication of user numbers and perceptions in a particular time frame.

Sampling is usually done during the busiest seven hours of the day to fit a surveyor's work schedule. Busiest use times are readily identified by patrol rangers. Counts of numbers and types of visitors are recorded. Additionally, one-page surveys focusing on type of visit experience,

perceptions of conditions, and satisfaction ratings are administered to one person per group of users. Questions addressing specific aspects of a particular site may also be added.

A short report is written, basically tabulating responses and pointing out implications, and is circulated for discussion. The entire process, including a day or two for reconnaissance and discussion of managers' information needs, four days of sampling, and approximately a week to write the report, makes up a short time frame of approximately two weeks to obtain representative data for discussion meetings.

3.0 RESULTS

How did the RAVI method work for the managers of the Niobrara National Scenic River? Results will be discussed using the following steps (design of the study, data collection, data analysis and reporting, and discussion of data with managers) and sub-steps.

3.1 Step I: Design of the Study

A. Identify concerns/questions. A visitor study was conducted at Niobrara NSR from June 21 to August 27, 2001 (Davenport et al. 2002). A large amount of data was collected: 923 visitors were contacted and asked to fill out a registry card. Then 11-page mail-back questionnaires were sent to persons agreeing to participate; 504 questionnaires were returned. Cost of the study was approximately \$67,000.

Results of the study were not displayed to represent visitors exiting the NSR at specific places. National Park Service (NPS) managers wanted to obtain sample data from visitors at the end of river management subunits, or zones, so that capacity planning might offer choices of river conditions.

The RAVI method was tested to obtain an inexpensive sample of visitors at the end of river trip zones. The managers were interested in study data and method that could be more easily communicated.

B. Examine study area. Prior to the four-day RAVI study, two days were spent by the researcher floating the upper 30 miles, the heavy floater use area, of

Niobrara NSR, with managers. Driving the roads along the river, meeting with watercraft rental personnel and telling them about a study to take place were an important part of the reconnaissance.

C. Develop sampling plan. The decision was made to sample at three river takeout points: Smith Falls, Brewer Bridge, and Rocky Ford. The four days selected were Saturday through Tuesday.

D. Develop count forms and questionnaires. Count forms and one-page questionnaires from previous river use research were adapted for use on the Niobrara. The managers added one question about visitors' perceptions of the quality of visitor services (outfitters).

3.2 Step II. Data Collection

A. Train data collectors. No training was necessary as the research was done by the researcher who had done river research for several years. One assistant was added to do counts while the researcher was surveying visitors.

B. Do counts and interviews. All river floaters stopping or passing by were counted during the seven hours. One person per group was surveyed when groups were ending their trip.

C. Data coding and data entry. Optional. In this case, the descriptive count and survey data were easily tabulated.

3.3 Step III. Data Analysis and Reporting

A. Tabulation of counts, interviews. Data from the river floater counts and interviews were displayed in tabular format.

B. Prepare maps of user distribution. Although not done for purposes of the Niobrara report, map displays of distribution of various types and numbers of users are a useful communication tool.

C. Prepare preliminary report. A very basic format was used in the draft report: Introduction, Methods, Results, Discussion. Of particular interest were counts

of the various types of watercraft (canoes, tubes, kayaks) on the river subunits sampled. Satisfaction ratings were high; only two interviewees ranked their satisfaction lower (7) than 8 on a scale of 1 to 10, with 10 being high. Twelve visitors of the 34 interviewed rated their satisfaction as a 10.

3.4 Step IV. Discussion of Data with Managers

A. Are data, methods clearly understood? Because travel distance was approximately 1,000 miles between the researcher's office and the manager's office, no face-to-face discussions took place after the report was written. However, several telephone conversations were used to discuss the methods and the data.

Subsequently, the Niobrara NSR chief ranger presented the findings of the RAVI test at the May 2006 River Management Society national symposium in South Sioux City, Nebraska.

B. Implications for management issues. A "snapshot" of river user numbers and perceptions on the heavy use subunits of Niobrara NSR will assist discussions when capacity decision-making gets underway. River use capacity planning is being delayed while the National Park Service awaits the outcome of a capacity decision court case for Yosemite National Park in California.

C. Develop plan for monitoring re-measurements. Monitoring remeasurements using the RAVI method were to be planned in June 2006 for summer river use. However, these remeasurements were also delayed by the pending Yosemite court case. The amount of remeasurements also depends on budget allotments.

D. Prepare the final report. In the case of the 2005 RAVI test, no corrections or revisions were requested in the draft report.

4.0 DISCUSSION

The RAVI method was tested on Niobrara NSR to learn if it worked in river use management situations; two other tests were done on forest recreation use areas. The method was also implemented there to find out if the

user data would be useful in capacity discussion meetings: Niobrara NSR has several active advisory groups (USDI 2005). The basic rationale of the one-page visitor surveys is to find ways to improve quality of recreation visits; this is an effective emphasis in discussions.

RAVI appears to be a *place-specific, low-cost visitor inventory method*—similar to localized resource inventories used by forest and wildlife managers (Avery 1975) – that has been lacking in recreation management. RAVI appears especially useful in early decision considerations, "Does a problem exist? What is the nature of the problem? What actions might be taken?" RAVI may be extended to increase the number of four-day samples if heavy conflict exists, to sample in comparable units to provide information on the range of choices available, and for monitoring as repeat measurements over time to measure changes occurring (Manning 1999).

RAVI research is now focusing on replications in other types of recreation areas and on developing training for recreation area managers to implement the method on their areas. To assist training, a RAVI procedures manual is being prepared.

Finally, RAVI is a *tool* to help managers with capacity decision conflicts. These are complex decisions involving various individuals and groups. There are no easy answers, but managers who have used recreation inventories report increased credibility. And this is the basic purpose of RAVI: to help managers, and visitors, maintain high-quality recreation visits.

5.0 CITATIONS

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