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Estimating Recreation Market Share for National Forests

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Introduction

Public land managers are often faced with deciding among several alternatives for how to allocate limited funding for the maintenance, improvement, or development of recreation resources and opportunities. Often those decisions are linked to resources that support particular recreation activities, and a goal is to ensure that local residents are well served. One key piece of information is identifying what activities occur often on those lands. More important is identifying for which activities the agency lands are a primary resource. This paper documents a method for determining the relative importance of a specific public lands base for supporting a set of recreation activities for a defined population. In essence, the analysis estimates the share of a regional recreation activity market captured by a particular resource base. Specific examples of results are provided from several National Forests in the U.S.

Methods

This method combines information from two major recreation surveys for the US. Information about the amount of recreation activity occurring on a particular national forest comes from the Forest Service's National Visitor Use Monitoring (NVUM) data. These data provide the numerator for the market share analysis. Total recreation activity is estimated through results from the National Survey on Recreation and the Environment (NSRE). Key elements that enable computation of a market share are consistent definitions of the set of recreation activities, the metric for activity volume, and the bounds for the geographic area of the origin market. In this case the activity volume metric was days of participation in an actvitiy.

The first step in the analysis is to define a geographic area that serves as the control region. From the NVUM data, a cumulative distribution function (CDF) of distances traveled for onsite visits is constructed. The CDF determines the distances from the forest that generate a target percentage of total visits. It is not unusual for a high percentage of National Forest visits to be generated from a small area. By mapping the origin counties of survey respondents who live in the targeted regions, a general picture of the primary market zones can be realized. For this analysis, market zones that generate half and three-fourths of the visits to a national forest are defined. Activity volume occurring on the forest and generated by the target origin zone is computed by a weighted analysis of the percent of visits from the target origin zone engaging in each recreation activity, and multiplying by the number of total visits emanating from that zone. Visits are converted to activity days by multiplying by average visit length in days. NSRE data describes the total volume of recreation that is generated by the population in the same geographic area, regardless of destination. The process is to first determine the percent of the population engaging in an activity, and multiply by the average annual days of participation per participant.

NVUM data provide an estimate of the amount of recreation activity days originating from a given area and ending on a national forest. NSRE data provide an estimate of activity days originating from the same area and ending anywhere.

Table 1: Market share analysis for 50% visit zone around White River National Forest.

Activity	NSRE annual activity days Total (1000's)	NVUM annual activity days on WRNF (1000's)	Market share (%)
Picnicking	16,704	246	1.47
Driving for pleasure	31,491	371	1.18
Hiking	114,299	1,424	1.25
Developed camping	7,751	330	4.26
Primitive camping	7,804	194	2.49
Off- road driving	16,328	243	1.49
Backpacking	6,050	164	2.71
Snowmobiling	1,105	147	13.29
Downhill skiing	5,275	2,991	56.7
Cross-country skiing	2,172	516	24.88
Gathering forest products	11,047	79	0.72
Viewing natural scenery	161,919	2,092	1.29
Visiting nature centers	59,225	187	0.32
Horseback riding	3,311	46	1.4
Hunting big game	2,543	173	6.79
Fishing, cold water	19,011	301	1.58
Biking / Mtn. biking	113,080	482	0.43
Viewing wildlife, etc	124,341	1,559	0.74

The ratio provides an estimate of the market share of recreation days form that origin that are captured by the national forest.

Results

Results of the market area zone analysis for the White River NF(WRNF) in Colorado are displayed in Figure 1. Geographic resolution was limited to counties. Counties in red are ones that had surveyed respondents and lay within the 50% distance zone.

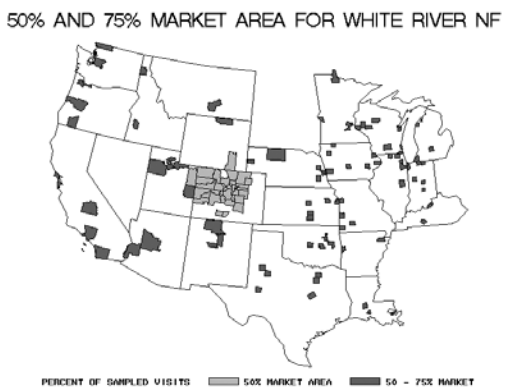

Figure 1: 50% and 75% market share for White River NF.

Counties shown in blue were ones that had survey respondents and lay in the 50 to 75% zone. While the 50 percent zone is a fairly tight geographic area, the draw of a number of major ski areas and summer resorts causes the 75% zone to cover a large portion of the country. Market share analysis was limited to the 50% zone. Table 1 shows the market share results for that origin zone.

The WRNF is a primary provider for winter recreation opportunities for the market zone. This estimate is that over half of the downhill skiing days, and nearly one-quarter of cross-country skiing days generated by the origin zone population have a destination on this forest. As well, over 13 percent of snowmobiling days occur there. In addition to those activities, the forest is an important resource for big game hunting (market share of about 7%), and developed camping (over 4 % market share). Although the market area population generates over 2 million activity days of viewing scenery and over 1.4 million days of hiking, and 1.5 million days of viewing wildlife on the forest, the WRNF market share for each of those activities is less than 1.5%.