

CROSS-COUNTRY SKIING TREND DATA: PLANNING FOR PARTICIPANT NEEDS¹

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As societal and economic pressures mold and alter patterns of human behavior, the outdoor recreation planner gazes into the mil-ange of "trend data" developed to simplify his planning efforts and

Planning without empirical data on which to base sound decisions or solutions is somewhat akin to skydiving with a businessman's umbrella -- things go well until that final moment of truth when responsiveness to need must be evaluated. Planning for cross-country skiing has not enjoyed the security of a strong research base and only recently has there begun to emerge a somewhat accurate picture of the needs being expressed by the participants in this very rapidly growing winter activity. Where are the data coming from and are some data better than others? Do we hang our planner's hats on the economic approaches suggested by Keith (1980), the behavioral tact taken by Driver and Knopf (1977), the "opportunity spectrum" analysis of Ballman (1980), the social/psychological experience attribute studies by Haas, Driver and Brown (1980), or is it possible to simply reach into each process and extract those insights which can improve the planner's ability to eclectically synergize solutions to management problems?

In a recent Michigan study (Stynes 1980), interrelationships between winter recreation activities were explored in order to extract data which could be used in planning and forecasting management and user needs peculiar to winter recreation. Studies such as this can help facilitate a greater use of existing data from multiple sources rather than re-inventing the wheel everytime new information

is needed. Available data which suggest that people participate in a particular activity in a particular setting or circumstance because they expect to harvest a particular value or realize a particular and predictable recreation experience (Driver and Brown 1980), further suggest an almost mandatory analysis of multiple discipline research concepts as well as data. Such analysis will help bring trend data into focus for application to planning and management problems.

Some of the more promising research being done touches upon the imagery of certain activities and the motivational effects of common and unique images. The data of the USDA, Forest Service (1980) study of "Growth Potential of the Skier Market..." seem to add support to research conducted in the State of Maine over the past few winters. In particular, the concept of "psychological" (equates with the "experience opportunities" proposed by Driver and Tocher 1970, Hendee 1974, and Brown, et.al. 1979) is derived from specific imagery extracted through data analysis of the Maine studies (Newby and Lilley 1978, 1980; Newby and Warner 1980). It is hypothesized that much of the motivation for participation in a particular recreation activity is derived from the "images" held of that activity. This also ties in with the "experience opportunities" concept previously mentioned, but perhaps the more important aspect is that adopting the specific activity image becomes a stronger motivation than the actual participation in the activity. The attempts of the individual to adopt a specific activity image with its predictable behavior should serve as indicators of trends which can aid planners and managers in meeting participant needs.

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The process of defining indicators of trends in such outdoor recreation activities as alpine skiing, nordic skiing and snow-

mobiling involves analyzing participation data and shifts in use patterns over time. Research conducted on these activities across the United States is producing the kinds of data needed to define trends which in turn are useful to planners and managers in both public and private sectors of winter recreation management.

Trend Data For What?

To illustrate the kinds of trend data that might be useful to management, a study of cross-country skiers in Maine was conducted over a three year period. The last winter (1976-77) studied in depth provided some rather detailed data on use, preferences, and behavioral variations among cross-country skiers (a sample of 1042 skiers was obtained by questionnaire). Although only a small part of the data will be presented here, several interesting insights were developed concerning the cross-country skier.

The principal trend data to be addressed will deal first of all with cross-country skier use patterns, followed by some interactions with downhill skiing, and lastly with some trend relationship between the cross-country skier and snowmobiling. This data is presented primarily to show how trend data can be of assistance to management rather than to present it as a methodological analysis. Another methodology study is just too much of a temptation to become totally immersed in what LaPage (1971) once referred to as "research fogweed".

Cross-Country Skiing Use Trends in Maine

One measure of trends in an activity is the extent to which individuals participate or vary participation during the week and from year to year. Looking at Maine skiers we found that during the 1976-1977 cross-country skiing season, 77.4 percent of the questionnaire respondents skied on weekends and they averaged 14.1 days (Median = 12 days) of participation (Table 1). Interestingly,

TABLE 1: Days of Cross-Country Participation on Weekends
(Maximum = 39 days)

Number of Days	Percent of Respondents
1-5	18.0
6-10	31.2
11-15	15.3
16-20	19.0
21-25	5.2
26-30	6.5
>30	4.8
	100.0

on weekdays, 60.6 percent of the respondents skied and they averaged 21.5 days (median = 15 days) of cross-country skiing (Table 2). These skiers averaged 2.6 hours of skiing on weekdays whereas the weekend skiers averaged 4.2 hours.

TABLE 2: Days of Cross-Country Participation on Weekdays
(Maximum = 82 days)

Number of Days	Percent of Respondents
1-5	18.6
6-10	21.2
11-15	13.2
16-20	13.9
21-25	6.0
26-30	6.5
31-35	3.3
36-40	3.2
41-45	1.6
46-50	3.6
51-55	0.5
56-60	3.0
>60	5.4
	100.0

These data suggest that use patterns for cross-country skiing are somewhat different than those of downhill skiing, e.g., cross-country skiing is better distributed throughout the week, therefore, weekend peaking may be less of a problem to management.

Looking at some additional trends might also provide the manager with added insights for planning use and opportunity management. For instance, the changes in the amount of skiing from year to year has significance and demonstrates some definite trends. Among the cross-country skiers from the sample population who had skied before 1976-1977 (n=641), 55.9 percent said they skied more in 1976-1977 than previous winters, 30.6 percent said they skied the same amount, and 13.6 percent stated that they skied less (Table 3).

TABLE 3: Number of Days of Participation by Comparison with Previous Use Patterns

Current vs. Previous Use	Median Number of Weekdays	Median Number of Weekend Days
Less	10	10
More	15	15
Same	15	14

Those who now ski more and those who ski the same amount as in previous years are essentially the same whereas, those who ski less do so by about 33% fewer days. Interest-

ingly, those who were skiing less were younger and generally single (Table 4). Questions about future participation showed that more than two-thirds (68.1%) of the respondents planned to increase their next year's cross-country skiing participation over that of their 1976-1977 activity levels. Approximately

TABLE 4: Age and Marital Status of Skiers by Use Comparisons

Current vs. Previous Use	Median Age Groups	Percent Single
Less	20-24	83.3
More	30-34	38.5
Same	30-34	32.2

thirty percent planned to continue their present level of activity and only a little over two percent planned to reduce their number of skiing occasions.

If we look at the reasons for plans to ski more or less compared to the 1976-1977 levels, we see that new or increased interest accounted for the shift to more skiing, whereas, those who planned to ski less gave changed or changing opportunities as the principal reason (Table 5). These same basic reasons were given for current shifts in activity levels. Seasonal snow conditions

TABLE 5: Percentage of Respondents Indicating Specific Reasons for Planning to Cross-Country Ski More or Less

Reason for Change	% Indications Less Participation (n=22)	% Indications More Participation (n=685)
Changing Opportunities	50.0	37.3
Changing Interest or Attitude	31.8	46.8
Changed Skiing Conditions	22.7	11.3
Social Interactions	----	13.1
Other Reasons	9.1	11.1

(too little snow, poor due to warm weather, more snow, etc.) usually accounted for considerable temporary shifts and were not really a part of definable trends.

Another trend, which was noted in use patterns, surfaced as years of participation in cross-country skiing were compared with future involvement. For example, more than seventy-five percent of the respondents who had skied for more than a year planned to increase their participation in subsequent years,

at least during the early years of involvement, after which use levels tended to level off. Most changes in activity levels or frequency were most dynamic in the participation years, 2 to 5, and more particularly with regard to those who had cross-country skied for three years. Within this group, 36.7 percent planned to increase their cross-country skiing activity in subsequent years. The median years of involvement for those planning to ski less was four years, five years for those planning to ski the same amount, and four years for those planning to ski more.

Availability of opportunity is a principal motivator for change in activity levels and a variable often expressed was that of proximity to skiing opportunities.

Travel Distance Trends in Cross-Country Skiing

One of the major differences between the behavior of the cross-country skier and the downhill skier has to do with the opportunity to participate. Within this variable, the distance a skier must go to participate in his chosen winter recreation activity becomes a significant element. Many cross-country skiers state they have greater opportunity to participate because they don't have to travel very far to find a suitable area for skiing. In 1976-1977, study respondents traveled a median distance on weekdays of 1-5 miles and 6-10 miles on weekend days (Table 6). The median longest trip taken by cross-country skiers to an area for skiing was 41-60 miles.

For 64.3 percent of the respondents who had skied before 1976-1977, the areas where they skied in 1976-1977 were the same distance as previous years. (Table 7). For those who traveled closer to home, the median longest trip was between 41 and 60 miles; those who traveled further from home went from 81 to 100 miles; and the median distance traveled by those having the same travel patterns, was from 41 to 60 miles (Table 8). The comparisons of distance traveled by longest skiing trips taken, weekday travel, and weekend travel with those who declared that they had skied closer, further, or the same distance from home also provide some insight into behavioral trends (Table 9). In most instances, the cross-country skier is either skiing closer to home or at least is not going further away to ski. The high percentages of individuals who ski within a relatively close distance to home regardless of the shifts in their declared travel distances, perhaps would suggest that planners and managers should consider both proximity and basic motivations as prime criteria in evaluating what and where opportunities should be provided.

Although shifts in the distance traveled

TABLE 6: Travel Distance (one way) on Weekdays, Weekends, and Longest Trip

Miles	Longest Trip (%)	Average Weekend Travel Distance	Average Weekday Travel Distance
Less than 1	6.5	18.4	39.9
1-5	10.9	23.5	38.8
6-10	11.1	18.6	11.7
11-20	9.5	10.1	4.7
21-40	8.3	6.8	2.1
41-60	7.4	6.3	(over 40) 2.8
61-80	8.3	4.9	100.0
81-100	8.6	2.9	
101-125	6.5	2.7	
126-150	5.9	(over 125) 5.8	
151-175	3.0	100.0	
176-200	3.7		
201-300	6.4		
>300	3.9		
	100.0		

TABLE 7: Travel Distance for Cross-Country Skiing
in 1976-1977 Compared to Previous Winters

Relative Distance Traveled	% of Respondents (n=626)
Closer to Home	13.7
Further from Home	22.0
Same Distance from Home	64.3

TABLE 8: Travel Distances (one way) by Percent of Skiers for Relative Travel
Patterns on Weekdays, Weekends, and Longest Trip Taken.

Travel Distance (Miles)	Percent of Respondents								
	Weekday Travel			Weekend Travel			Longest Trip		
	Closer	Further	Same	Closer	Further	Same	Closer	Further	Same
less than 1	43.3	45.6	39.7	23.8	10.6	19.9	5.9	2.9	6.5
1-5	38.8	32.2	39.9	26.2	22.0	22.9	9.4	3.6	10.6
6-10	10.4	8.7	12.3	23.8	16.7	19.9	8.2	9.5	12.6
11-20	4.5	6.8	3.8	6.0	10.6	9.0	10.6	4.4	10.6
21-40	----	1.9	2.8	7.1	9.8	6.6	11.8	5.1	8.1
41-60 (over 40)	3.0	4.8	1.5	3.6	7.6	6.9	11.8	6.6	8.1
61-80				3.6	6.1	5.3	8.2	10.9	8.3
81-100				----	3.8	2.4	5.9	11.7	7.8
101-125				1.2	3.0	2.4	1.2	11.7	6.8
over -125				4.7	9.8	4.7	27.0	33.6	20.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 9: Skiing Activity Comparisons After Taking Up Cross-Country Skiing.

Amount of Downhill Skiing	% of Respondents Who Downhill & Cross-Country Ski
More	10.3
Same	23.8
Less	65.9

by the cross-country skier are interesting, some of the other trends seem to provide deeper insight concerning the participants in this activity. The relationships between downhill skiing, snowmobiling, and cross-country skiing are but a few of interactive trends which have been studied.

Downhill and Cross-Country Skiing Relationship Trends

In the Maine study, 74.9 percent of the cross-country skiers had participated in downhill skiing. Of these, 65.9 percent indicated that they had reduced their level of participation in downhill skiing since taking up cross-country skiing (Table 9). The reasons given for downhill skiing less were numerous and varied but high costs, crowding, and changed opportunity (time and facility proximity) were dominant (Newby and Lilley 1980). Among those who downhill ski less after taking up cross-country skiing, the high expenses of downhill skiing was indicated as a reason by 57.2 percent of the respondents. Additional reasons for the shifts in activity are given in Table 10.

TABLE 10: Principal Reasons for Decisions to Downhill Ski Less.

Reasons	% of Those Skiing Less
Downhill Expensive; X-C Cheaper	57.2
Cross-Country Skiing Less Crowded	27.2
Prefer Cross-Country Skiing	25.9
Downhill Skiing less Available	18.5
Cross-Country Safer & Within Abilities	13.4
Cross-Country More Available	11.7
Cross-Country Provides More Exercise	7.0
Dislike Downhill Social Atmosphere	6.0
Cross-Country Quieter	6.0
Dislike Downhill Skiing	5.4
Family & Friends Can Participate Better in X-C	4.3
Reason Not Related to Cross-Country	3.7
Other	8.6

For shifts in activity wherein those who had taken up cross-country but were downhill skiing more, the two principal reasons given were first, increased availability of downhill skiing opportunities (28.8% of participants) and secondly, an expressed preference for the downhill sport (23.8% of participants). Respondents who now downhill ski more expressed reasons which were less specific but do show similar kinds of criteria (Table 11).

TABLE 11: Principal Reasons for Decisions to Downhill Ski More.

Reasons	% of Those Skiing More (n=80)
Downhill Skiing More Available (Time, Proximity, etc.)	28.8
Prefer Downhill Skiing	23.8
Family Can Downhill Ski Also	3.8
Not Related to Cross-Country	5.0
Downhill More Exercise	2.5
Other	13.8

Research conducted by others has suggested that perceived high costs, crowding, and relative opportunity to participate are common concerns which shape the trends of winter recreation activities (Haas, et.al. 1980; Smith 1980; USDA, Forest Service 1980; Stynes 1980). There are sufficiently large enough numbers of individuals who both downhill and cross-country ski to warrant further analysis of the interactions in order that the concepts such as the opportunity spectrum concepts proposed by Driver and Brown (1978) might become applicable in day-to-day resource management. Trend data analysis and responsive flexible management programming can be achieved to more fully satisfy participant needs.

Participation in winter recreation activities is really more broadly based than many resource managers care to admit. They also tend to dislike accepting the fact that there are many "shared" elements of winter recreation activities but perhaps more importantly they tend to dismiss the oftentimes small incompatibilities which mean the difference between an "experience" and a "quality experience". Cross-country skiers and snowmobile users are often thrown into the same area to "experience" their individual activities, but can this be done? Are the experience differences great or are they relatively miniscule yet extremely critical to need satisfaction? Trend data produce some insights which are important to both user and resource manager, particularly when confronted with such seemingly incompatible activities as cross-country skiing and snow-

mobiling.

Cross-Country Skiing and Snowmobiling Interaction Trends

Of all the winter recreation activity combinations possible, cross-country skiing and snowmobiling seem to be the most polarized. Perhaps a look at some basic data may verify or refute this concept. In the Maine study of cross-country skiers, 34.8 percent of the respondents had either borrowed, owned, and/or rented a snowmobile during the 1976-1977 winter season (Table 12).

TABLE 12: Percentages of Respondents Sub-sample (n=363) who Borrowed, Owned, or Rented a Snowmobile.

Use Status	% of Respondents
Borrowed	27.4
Owned	16.0
Rented	2.5

Of those who had used a snowmobile (n=363), 72.7 percent indicated they used the snowmobile less often after they began cross-country skiing (Table 13). Interestingly, those who continued to snowmobile, generally tended to assume the role and perceived imagery of the activity in which they were participating. Where perceived conflicts surfaced, the cross-country skier (who may also snowmobile) tended to be more intolerant during participation, i.e., this individual might almost seem to be Dr. Jeckyl and Mr. Hyde, depending on which role or image he was currently adopting.

TABLE 13: Snowmobiling Activity (Percent) of Respondents After Taking Up Cross-Country Skiing.

Activity Levels	All Users	Source of Snowmobile		
		Borrowed	Owned	Rented
More	4.1	5.5	3.1	5.6
The Same	23.2	23.2	25.2	33.3
Less	72.7	71.3	71.7	61.1
	100.0	100.0	100.0	100.0

Some of the primary reasons for snowmobiling less were (a) dislike for snowmobiling, (b) more interest in cross-country skiing, and (c) reduced opportunity to snowmobile (Table 14). Such concerns as noise, smell, and environmental intrusion often were heavy contributors to dislike of snowmobiling and resultant reduced participation.

TABLE 14: Reasons For Snowmobiling Less After Taking Up Cross-Country Skiing (Percent of Respondents Where n=264)

Reason	% of Respondents
Dislike Snowmobiling	36.0
More Interested in Cross-Country	27.3
Less Opportunity to Snowmobile	21.6
Dislike Associated Environmental Impact	9.8
Cross-Country Provides More Exercise	9.5
Cost of Snowmobiling	8.3
Never Developed Taste for Snowmobiling	6.4
Family and Friends Don't Participate	3.4
Other	3.8

For those individuals who snowmobiled more after taking up cross-country skiing, the major reason for doing so was the increased opportunity, however, only 15 persons of the sample population (n=1042) had actually increased their snowmobiling activity. In most instances either availability of a snowmobile or desire to fully capitalize on machine investment were motivations behind greater or increased opportunity for snowmobiling.

The principal interaction between the cross-country skier and the snowmobiler was in the area of tolerance for each other. Snowmobilers expressed no concern with sharing an area with or encountering a skier, whereas the cross-country skier had almost unanimous intolerance for encounters with snowmobilers. When a snowmobiler also skied, he adopted basically the same attitude and expressed a strong dislike for what Newby and Warner (1980) described as the "crude bullies of field and forest". The intricacies of this role adoption are interesting and suggest perhaps that trend evaluation must address what might be termed the "psychological contracts" associated with participation in each recreation activity.

IMPLICATIONS OF TREND ANALYSIS

Researchers who develop trend data and those who interpret that data frequently lose sight of a real value associated with understanding trends, i.e., the potential to satisfy human need through better management. With the complex array of opportunities in winter recreation, it is pathetic and perplexing that the research being done has no common

focus -- no deliberate attempt to solve management problems or address human need. In a recent symposium, no less than fifteen papers were presented on cross-country skiing topics. Those in the audience who came seeking possible management solutions went away shaking their head, wondering why all the existing data were not analyzed and focused to help them. After all, isn't there a difference between applied research and pure research? Yet, from a research standpoint the symposium was a success, mainly because the data were broad and deep in scope, nonetheless, the interpretations were narrow and shallow. Why? To help answer the question, let's explore the issue of cross-country skiing and the application of current trend analysis.

Trend data for comparison between cross-country skiing participants on weekends versus weekdays shows that cross-country skiing is distributed throughout the week. This might eliminate the need to manage for peak periods on weekends -- or does it? We also see that weekday users ski fewer hours per day (2.6 hrs.) than weekend users (4.2 hrs.) but ski more days per season. In addition, weekday skiers ski closer to home but may double their travel distance for a weekend trip. Obviously this suggests potential marketing analysis -- but does it really tell managers what they want to know about providing opportunities and meeting needs? Quantification often provides results which are too abstract, too esoteric, too general, or too specific to be of use to managers and planners. Indeed, the researcher may prove his results to be reliable, but he may also prove them to be invalid and useless within the realms of practical assistance to the manager. Many managers are concerned about shifts... shifts from or among winter recreation activities. What are these shifts and what are the frequencies or relative permanencies of these shifts? Most changes are occurring during the active learning years of involvement with an activity, i.e., during the third to sixth years. These are the years most critical to supply/demand decisions, therefore, sensitivity to reasons or motivations to change, to adopt, to complement, or to drop an activity is of particular importance to managers.

Perhaps the image held of a recreation activity may be the best barometer to measure shifts. Think about it; what are the popular images today? What were they five years ago? Possibly, images and imagery may be more important to understand than the motivations for a particular behavior pattern. A tragic flaw in the analysis of trend data is that participant responses are often tailored to fit their image of what an activity is all about. Their participation is often a reflection only of the individual's desire to

adopt the image of the activity -- that's their motivation. Cross-country skiers may well be skiing more on weekdays than weekends because it is easier to assume the role or image on weekdays. The image (myth induced) of the cross-country skier most often articulated vocally and pictorially is that of a solitary figure etching fine lines in the unbroken snow -- an image that is new, unique, and wholesome -- an image as complex as the people adopting it (Newby and Warner 1980). Weekend use is often social interaction motivated and the antithesis of the imagery of the cross-country skier. The motivations (image adoption) are undoubtedly different and management action to satisfy motivated need must also be different.

The concept of image adoption is not new nor are the principles undefined or unresearched, however, the question might be asked, does image adoption reflect the inner self and result in behavior which is definitive in terms of image consciousness and image strength? Images may be the vehicles for various degrees of self-expression and may be tailored to counter the physical, psychological, social, and economic constraints imposed on the individual. The myths, images, and behavior associated with cross-country skiing are probably more important to understanding this winter activity than are all the long arrays of computer-generated data combined. The numerous statistical profiles available are informative and often impressive but not terribly enlightening.

When only the experience itself is analyzed, a great deal of confusion begins to surface. Are we perhaps leaving out the land resources? After all this is the setting or backdrop for the activity -- this is what the managers must also manage. A sense of identifiable "place" (having a specific image) is also a requirement in the image fulfillment. In short, the researchers should be acutely aware of the "psychological contract" that rests in the minds of the participants...the contract that is written in mental images and is either fulfilled or denied by the actual participation in the activity within a certain setting or place. Each image, each place, each psychological contract helps define how to meet the individual's needs, and these are all part of the trend analysis leading to management problem-solving.

To date, researchers have not programmed the image of a user and his resource into a computer terminal. That is not to say it won't be done before long, but it is important to remember that a land resource has definable attributes which create images in function as well as form. Users probably seek out particular resources (landscapes)

which meet the requirements that they have mentally created to meet their needs, motivations and preferences. If this sounds like a myth, that is exactly the point, because imagability is often associated with mental projections of myths and the desire to identify with those myths as part of the behavioral progression within the basic needs hierarchy.

The paradox of images and myths is that they are real; they are manufactured; they lead to stereotyping; they are associated with self-image; they create identity; and their adoption supports concepts of self. They are the foundation of the imagability of a recreation activity. Yet, we know so very little about them because our data collection and interpretations focus on quantification of users and participation patterns. The interaction of resource imagery with the myths and the images supporting a particular activity has been and perhaps will continue to be the most difficult variable for the researcher to isolate.

Perhaps this is the time to stop making the pretense that all qualities are quantifiable and those qualities which are not quantified are not important. The scientist clad in white coat and clutching his volumes of computer print-outs may have valuable information and he may prove his objectivity, but many managers don't seem too impressed these days. They still have their problems to solve. Perhaps the trend of trend data analysis should be to bring the interpretation of trends within a context of imagery, image adoption, image fulfillment and behavior profiles which effect not only the users but the managers' resources. Certainly this will require some innovative procedures for using quantified data within the more qualitative realms but the rewards may be more richly rewarding than the everpresent cry -- "MORE DATA IS NEEDED!" Much of these types of data are available for winter recreation activities. We just seem to lack the imperative needed to reach out beyond the secure bounds of quantification and cautious extrapolation. Perhaps now is the time to start a trend... a trend that synthesizes the existing quantitative and qualitative data into a net result which is capable of solving problems for resource management and human needs.

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