

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

Electronic Theses and Dissertations

1975

A Study of Factors Associated With Outdoor Recreational Participation in South Dakota

James W. DeLong

Follow this and additional works at: <https://openprairie.sdstate.edu/etd>



Part of the [Rural Sociology Commons](#)

Recommended Citation

DeLong, James W., "A Study of Factors Associated With Outdoor Recreational Participation in South Dakota" (1975). *Electronic Theses and Dissertations*. 5541.

<https://openprairie.sdstate.edu/etd/5541>

This Dissertation - Open Access is brought to you for free and open access by Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

A STUDY OF FACTORS ASSOCIATED WITH OUTDOOR RECREATIONAL
PARTICIPATION IN SOUTH DAKOTA

BY

JAMES W. DeLONG

[Signature]

[Signature]

A thesis submitted
in partial fulfillment of the requirements for the
degree Doctor of Philosophy, Major in
Rural Sociology, South Dakota
State University

1975


208

A STUDY OF FACTORS ASSOCIATED WITH OUTDOOR RECREATIONAL
PARTICIPATION IN SOUTH DAKOTA

This thesis is approved as a creditable and independent investigation by a candidate for the degree Doctor of Philosophy, and is acceptable as meeting the thesis requirements for this degree, but without implying that the conclusions reached by the candidate are necessarily the conclusions of the major department.


Thesis Adviser

Date


Head, Rural Sociology Department

Date

A STUDY OF FACTORS ASSOCIATED WITH OUTDOOR RECREATIONAL
PARTICIPATION IN SOUTH DAKOTA

Abstract

JAMES W. DeLONG

Under the supervision of Dr. Robert T. Wagner

Participation by South Dakotans in selected areas of outdoor recreation was studied to determine varying extents of participation and associated selected sociodemographic, socialization and attitudinal factors.

A statewide random sample of 474 heads-of-households (or their spouses) was selected and interviewed using a pretested schedule. The findings were present in three forms: a descriptive summary, a non-parametric analysis of association and a multivariate analysis.

The descriptive analysis revealed fishing, hunting and lakeside camping or picnicking to be the activities participated in most frequently. Conversely, water-skiing, ice fishing and snowmobiling were participated in least.

Analysis of association showed that each of the sociodemographic and socialization variables employed in the study were significantly associated with participation in at least four of the selected outdoor recreational activities. Readership of conservation or outdoor sports magazines was significantly associated with all 11 activities studied. Age was associated with all activities except game bird hunting.

Using a stepwise multiple regression analysis, 13 variables were found to contribute significantly to the total proportion of variance explained. They were sex, readership of outdoor sports magazines, age, children living at home, urban-rural residence, participation in predator control, attitudes towards game management, commitment to the dove hunting issue, race, marital status, income, education and enrollment in a course in safe handling of firearms. Males, regular readers of conservation or outdoor sports magazines, younger, householders with more children living at home, urbanites, participants in predator control, persons with less favorable sentiments regarding present game management regulations, highly committed advocates or opponents of a hunting issue, nonwhites, single persons or married persons dwelling together, persons with higher incomes, persons with less formal education and persons who had taken a course in safe handling of firearms participated more in outdoor recreational activities.

Conclusions from the study were:

1. Although the findings indicate hunting, fishing and lakeside camping or picnicking to be popular outdoor leisure activities among South Dakotans, there is no consistent pattern regarding the attributes of individuals most likely to participate in these or other activities studied.

2. Participation in the various outdoor recreational activities selected for study depends on the characteristics of the activities.

3. Varying participation in outdoor recreational activities in South Dakota partially supports previously posited theories and perspectives.

4. The findings indicate sociodemographic, socialization and attitudinal variables are related to participation in the outdoor activities studied; thus, providing substantial support for the theoretical framework of this study. Over 52 percent of the variance in participation in outdoor recreation was explained in the regression analysis, and it is noted that the predominance of factors explaining variance in outdoor recreational behavior were sociodemographic.

ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the following individuals for their assistance and encouragement:

Dr. Robert T. Wagner, my major adviser and project co-leader, whose assistance and advice has made this thesis possible;

Dr. Robert M. Dimit, a member of my committee and project co-leader, who has been a source of advice and encouragement throughout my program;

Dr. James L. Satterlee, department head and chairman of my Ph.D. committee throughout much of my program;

Dr. Marvin P. Riley, Dr. Jacob L. Foreman, Dr. Frederick C. Westin, members of my Ph.D. committee;

Mrs. Karen McComish, who gave valuable help with the computer runs of data and typing the rough drafts of the thesis;

Mrs. Betty Prunty, for her efforts in typing the final copy of the thesis; and

The other faculty members of the Rural Sociology Department for their advice and aid.

I would like to express a special feeling of gratitude to my wife, Becky; my son, Victor; and my daughter, Marcina. They have been very patient and understanding and deserve my deepest gratitude.

JMD

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
<u>Statement of the Problem</u>	1
<u>Objectives of the Study</u>	3
<u>Organization of the Dissertation</u>	4
II. REVIEW OF LITERATURE	5
<u>Opportunity theory</u>	5
<u>Reduced social contacts perspective</u>	6
<u>The new experience theory</u>	6
<u>Familiarity theory</u>	7
<u>The place of residency approach</u>	8
<u>The pleasant childhood memory theory</u>	10
<u>Other approaches</u>	10
III. THEORETICAL FRAMEWORK	18
<u>Theoretical Framework</u>	22
IV. METHODOLOGY	25
<u>Unit of Analysis</u>	25
<u>Sample</u>	25
<u>Interview Schedule</u>	26
<u>Analysis of Data</u>	28
<u>Descriptive Analysis</u>	28
<u>Nonparametric Analysis</u>	28
<u>Multiple Regression Analysis</u>	29
<u>Operational Definition of Variables</u>	30
V. FINDINGS OF THE STUDY	32
<u>Frequency and Extent of Participation: Objective One.</u>	32
<u>Water-related recreation</u>	32
<u>Game species hunted</u>	34
<u>Extent of Participation Compared</u>	35
<u>Variables</u>	35
<u>Procedure for reporting findings</u>	38
<u>Participation by sex</u>	39

<u>Participation by race</u>	44
<u>Participation by age</u>	47
<u>Participation by marital status</u>	53
<u>Participation by children at home</u>	59
<u>Participation by veteran status</u>	64
<u>Participation by magazine readership</u>	69
<u>Participation by urban-rural residence</u>	75
<u>Participation by farming</u>	78
<u>Participation by socioeconomic status</u>	82
<u>General summary</u>	86

Socioeconomic Factors and Extent of Participation 87

<u>Independent variables</u>	87
<u>Dependent variable</u>	91
<u>Null hypothesis</u>	92
<u>Statistical findings</u>	92

VI. SUMMARY, CONCLUSIONS AND IMPLICATIONS 95

<u>Summary</u>	95
<u>Conclusions</u>	99
<u>Implications</u>	103
<u>Limitations</u>	105
<u>Recommendations For Further Research</u>	106

REFERENCES CITED 107

LIST OF TABLES

Table	Page
1. FREQUENCY OF PARTICIPATION IN SELECTED WATER-RELATED ACTIVITIES, BY NUMBER AND PERCENT	33
2. EXTENT RESPONDENTS NEVER HUNTED, HUNTED ONE OR HUNTED MORE THAN ONE SPECIES, BY GAME CATEGORY	34
3. PARTICIPATION IN BOATING BY SEX	40
4. PARTICIPATION IN WATER-SKIING BY SEX	41
5. PARTICIPATION IN FISHING BY SEX	41
6. PARTICIPATION IN ICE FISHING BY SEX	42
7. PARTICIPATION IN GAME BIRD HUNTING BY SEX	42
8. PARTICIPATION IN WATERFOWL HUNTING BY SEX	43
9. PARTICIPATION IN BIG GAME HUNTING BY SEX	43
10. PARTICIPATION IN SMALL GAME HUNTING BY SEX	44
11. PARTICIPATION IN ICE FISHING BY RACE	45
12. PARTICIPATION IN SNOWMOBILING BY RACE	46
13. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY RACE	46
14. PARTICIPATION IN SMALL GAME HUNTING BY RACE	47
15. PARTICIPATION IN SWIMMING BY AGE	48
16. PARTICIPATION IN BOATING BY AGE	49
17. PARTICIPATION IN WATER-SKIING BY AGE	49
18. PARTICIPATION IN FISHING BY AGE	50
19. PARTICIPATION IN ICE FISHING BY AGE	50
20. PARTICIPATION IN SNOWMOBILING BY AGE	51
21. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY AGE	51

Table	Page
22. PARTICIPATION IN WATERFOWL HUNTING BY AGE	52
23. PARTICIPATION IN BIG GAME HUNTING BY AGE	52
24. PARTICIPATION IN SMALL GAME HUNTING BY AGE	53
25. PARTICIPATION IN SWIMMING BY MARITAL STATUS	55
26. PARTICIPATION IN FISHING BY MARITAL STATUS	55
27. PARTICIPATION IN ICE FISHING BY MARITAL STATUS	56
28. PARTICIPATION IN SNOWMOBILING BY MARITAL STATUS	56
29. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY MARITAL STATUS	57
30. PARTICIPATION IN GAME BIRD HUNTING BY MARITAL STATUS . . .	57
31. PARTICIPATION IN WATERFOWL HUNTING BY MARITAL STATUS . . .	58
32. PARTICIPATION IN BIG GAME HUNTING BY MARITAL STATUS . . .	58
33. PARTICIPATION IN SMALL GAME HUNTING BY MARITAL STATUS . . .	59
34. PARTICIPATION IN SWIMMING BY CHILDREN AT HOME	61
35. PARTICIPATION IN BOATING BY CHILDREN AT HOME	61
36. PARTICIPATION IN WATER-SKIING BY CHILDREN AT HOME	62
37. PARTICIPATION IN FISHING BY CHILDREN LIVING AT HOME . . .	62
38. PARTICIPATION IN SNOWMOBILING BY CHILDREN LIVING AT HOME	63
39. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY CHILDREN LIVING AT HOME	63
40. PARTICIPATION IN SMALL GAME HUNTING BY CHILDREN LIVING AT HOME	64
41. PARTICIPATION IN SWIMMING BY VETERAN STATUS	65
42. PARTICIPATION IN BOATING BY VETERAN STATUS	66
43. PARTICIPATION IN FISHING BY VETERAN STATUS	66

Table	Page
44. PARTICIPATION IN GAME BIRD HUNTING BY VETERAN STATUS . .	67
45. PARTICIPATION IN WATERFOWL HUNTING BY VETERAN STATUS . .	67
46. PARTICIPATION IN BIG GAME HUNTING BY VETERAN STATUS . .	68
47. PARTICIPATION IN SMALL GAME HUNTING BY VETERAN STATUS .	68
48. PARTICIPATION IN SWIMMING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	70
49. PARTICIPATION IN BOATING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	70
50. PARTICIPATION IN WATER-SKIING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	71
51. PARTICIPATION IN FISHING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	71
52. PARTICIPATION IN ICE FISHING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	72
53. PARTICIPATION IN SNOWMOBILING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	72
54. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	73
55. PARTICIPATION IN GAME BIRD HUNTING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	73
56. PARTICIPATION IN WATERFOWL HUNTING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	74
57. PARTICIPATION IN BIG GAME HUNTING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	74
58. PARTICIPATION IN SMALL GAME HUNTING BY READERSHIP OF OUTDOOR SPORTS MAGAZINES	75
59. PARTICIPATION IN BOATING BY URBANISM	76
60. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY URBANISM	77

Table	Page
61. PARTICIPATION IN GAME BIRD HUNTING BY URBANISM	77
62. PARTICIPATION IN SMALL GAME HUNTING BY URBANISM	78
63. PARTICIPATION IN BOATING BY FARM OPERATOR OCCUPATION	79
64. PARTICIPATION IN SNOWMOBILING BY FARM OPERATOR OCCUPATION	80
65. PARTICIPATION IN GAME BIRD HUNTING BY FARM OPERATOR OCCUPATION	80
66. PARTICIPATION IN WATERFOWL HUNTING BY FARM OPERATOR OCCUPATION	81
67. PARTICIPATION IN BIG GAME HUNTING BY FARM OPERATOR OCCUPATION	81
68. PARTICIPATION IN SMALL GAME HUNTING BY FARM OPERATOR OCCUPATION	82
69. PARTICIPATION IN SWIMMING BY SOCIOECONOMIC STATUS	83
70. PARTICIPATION IN BOATING BY SOCIOECONOMIC STATUS	84
71. PARTICIPATION IN WATER-SKIING BY SOCIOECONOMIC STATUS	84
72. PARTICIPATION IN SNOWMOBILING BY SOCIOECONOMIC STATUS	85
73. PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY SOCIOECONOMIC STATUS	85
74. PARTICIPATION IN WATERFOWL HUNTING BY SOCIOECONOMIC STATUS	86
75. SUM OF SQUARES AND PROPORTION OF VARIANCE ACCOUNTED FOR BY THE INDEPENDENT VARIABLES AS ENTERED INTO THE EQUATION	94

CHAPTER I

INTRODUCTION

In 1972, a research project was cooperatively developed by the Rural Sociology Department of South Dakota State University and the South Dakota Wildlife Research Unit. Interest regarding the attitudes of residents of the state toward selected aspects of hunting resulted from a 1972 general election in which 67 percent of the voters cast their ballots against continuing seasons for the hunting of mourning doves. Previously, the mourning dove had been classified as a game bird and legally hunted since 1962.

The research conducted by the Rural Sociology Department of South Dakota State University attempted to answer questions concerning the attitudes of South Dakotans toward selected aspects of hunting; however, hunting is but one category of the larger field of outdoor recreation. Therefore, the scope of the research also examined other aspects of outdoor recreational activities.

Statement of the Problem

Because of the researcher's interest concerning both the extent of participation in selected types of outdoor recreation and the characteristics of persons who do or do not participate in various outdoor activities, the following is posed as the central problem of this study:

What social and attitudinal factors are associated with participation in selected outdoor recreational activities in South Dakota?

The investigation of this question is important for a number of reasons. For instance, changing social and cultural structures due to increasing industrialization, attendant increases in urbanization, timesaving technology, more free time, demographic shifts and a delay in the age at which adolescents assume adult roles have created new and changing demands for available outdoor recreational activities. As available leisure time increases, so does the demand for outdoor recreation. By the year 2000 the demand in the nation for almost all types of recreational activity is expected to double, and the number of participants to increase from 4.4 billion in 1960 to approximately 12.1 billion.¹

According to Hendricks,² the sociology of leisure has become an important subfield of general sociology since World War II. A major task for sociologists in this subfield is to study variables that affect recreational behavior. This is important for theoretical reasons and practical considerations.³

In regard to theoretical importance, many previous studies have had limitations due to lack of theoretical design or because they

¹William J. Goode, "Outdoor Recreation and The Family to The Year 2000," Trends In American Living and Outdoor Recreation, ORRRC Study Report 22, (Washington: U. S. Government Printing Office, 1962), pp. 61-80.

²Jon Hendricks, "Leisure Participation as Influenced by Urban Residence Patterns," Sociology and Social Research, 4:414-415, Winter, 1971.

³Tony F. Peterle, "Characteristics of Some Ohio Hunter," Journal of Wildlife Management, 2:375, Spring, 1967.

considered only very low level hypotheses. Furthermore, many previous studies have been tentative due to methodological factors, such as sampling techniques or methods used to analyze data. It is the intention of this study to approach the subject from a higher level of abstraction and to use a sampling technique presumed to more adequately represent the population.

Knowledge concerning the extent of participation in outdoor recreation and the factors that influence participation in South Dakota is useful from the practical standpoint because of the economic impact of outdoor recreation in the state. Outdoor recreation is a major industry in South Dakota, but relatively little is known of the characteristics of South Dakotans who participate in outdoor recreational activities. Additional knowledge and greater understanding of participants will aid persons involved in making policy decisions regarding outdoor recreational maintenance and development.

Objectives of the Study

The objectives of the study are to determine:

1. The extent of participation in selected areas of outdoor recreation in South Dakota.
2. The socioeconomic and demographic variables associated with participation in selected outdoor recreational activities.
3. The association among selected attitudes of South Dakotans toward hunters, hunting, game officials, game management and participation in selected outdoor recreational activities.

Organization of the Dissertation

The remainder of this dissertation is organized as follows:

1. Chapter II examines the literature pertinent to the problem researched and summarizes the research and writings cited.
2. Chapter III discusses the theoretical format of the study, provides a conceptual model and states the research hypotheses.
3. Chapter IV contains a discussion of the methodology and provides operational definitions of variables.
4. Chapter V presents a descriptive analysis of the findings, nonparametric tests of association and the findings of multiple regression analysis of selected variables.
5. Chapter VI contains a summary, conclusions, implications, limitations and suggestions for further research pertaining to the problem researched in this study.

CHAPTER II

REVIEW OF LITERATURE

Previous literature relative to participation in leisure activities, including outdoor recreation, has approached the subject from a number of different perspectives and has examined the effect of a wide range of variables. Hendee,⁴ in his work looking at differences in outdoor recreation participation between urban and rural residents, provides a fairly comprehensive summation of the various approaches or perspectives used to examine aspects of outdoor recreational participation. These approaches include:

1. Opportunity Theory.
2. Reduced Social Contacts Perspective.
3. New Experience Theory.
4. Familiarity Theory.
5. The Place of Residency Approach.
6. The Pleasant Childhood Memory Theory.
7. Other Approaches (principally socioeconomic).

This review of literature will discuss material dealing with each of the above perspectives.

Opportunity theory. This theory provides a perspective in which participation in outdoor recreation is related to opportunity. Various

⁴John C. Hendee, "Rural-Urban Differences Reflected in Outdoor Recreation," Journal of Leisure Research, 4:333-341, Winter, 1969.

authors have examined the relationship of work and leisure activities. Sofranko and Nolan⁵ showed that the level of participation in hunting and fishing was related to hours worked per day and the days off during the week. Peterle's⁶ study of Ohio hunters reported the demand for outdoor recreation to be positively correlated with amounts of leisure time available. Also, he found certain occupations, such as farming, service, labor and crafts to be overrepresented among hunters.

Reduced social contacts perspective. This perspective implies that participation in outdoor recreation is based on a desire to reduce, temporarily, social contacts with others. Thus, urban participants might seek activities involving social isolation while rural participants might be more likely to seek activities that provide some social contact.⁷ Knopp⁸ compared residence, work and recreation using a sample of adult employed males. He found that the rural farm group tended to value opportunities for social interaction more than the urban group, who place a higher value on solitude.

The new experience theory. This theory suggests that people seek leisure experiences that allow escape from their routine, everyday

⁵Andrea J. Sofranko and Michael F. Nolan, Selected Characteristics, Participation Patterns, and Attitudes of Hunters and Fishermen in Pennsylvania (Pa. State Agricultural Experiment Bulletin, 770, 1970), pp. 1-39.

⁶Peterle, op. cit., pp. 375-389.

⁷Hendee, op. cit., p. 336.

⁸Timothy B. Knopp, "Environmental Determinants of Recreational Behavior," Journal of Leisure Research, 4:129-138, Spring, 1972.

lives and provide contrasting and new experiences. Knopp's study found that the desire to use public lands by outdoor recreation participants was greater for those who owned little or no property than for those who did.⁹ Knopp's conclusions supported his hypothesis that individuals will seek elements in their leisure activities lacking in their nonleisure environment.

Familiarity theory. This theory is a perspective that contradicts new experience theory in that this perspective suggests that people seek leisure experiences similar to their everyday lives. It implies that urban residents would be less involved in primitive types of outdoor recreation because these represent extreme contrasts with urban life. Rural residents, conversely, would more likely participate in activities like hunting, fishing and more challenging types of camping.¹⁰

Hendee's "new experience theory" and "familiarity theory" are very similar to approaches suggested by Burch.¹¹ He termed the notion that whenever people are given the opportunity to avoid their regular routine they will seek a directly opposite activity as "the compensatory hypothesis". Burch's study showed the majority of campers to come from urban areas; whereas rural residents comprised only 7.7

⁹Ibid., loc. cit.

¹⁰Hendee, op. cit., p. 336.

¹¹William R. Burch, Jr., "The Social Circles of Leisure: Competing Explanations," Journal of Leisure Research, 1;2:125-148, 1969.

percent of the camper population. However, the percentage of urban campers diminishes in magnitude when demographic factors and childhood residence are considered.

Burch called the second approach the "familiarity hypothesis", which is highly similar to Hendee's "familiarity theory". Here, Burch hypothesized that people seek activities that are similar or familiar to their regular activity programs. Research supporting the familiarity hypothesis is minimal, and the approach seems directly contrary to the compensatory hypothesis. However, Burch believes there are areas of convergence between the two and develops "the personal community hypothesis". This hypothesis suggests that the primary groups of co-workers, family and friends influence a person's leisure life style.¹²

The place of residency approach. This approach implies that certain outdoor recreational activities that are inherent in life styles and values may be a function of urban-rural residency. A study of the influence of childhood socialization on later recreational participation patterns was conducted by Sofranko and Nolan.¹³ They analyzed the association among residency during youth, source of introduction to sports, the frequency of participation during youth and the frequency of participation in adulthood. They found the frequency

¹²Burch, op. cit., pp. 40-48.

¹³Andrea J. Sofranko and Micheal F. Nolan, "Early Life Experiences and Adult Sports Participation," Journal of Leisure Research, 4;4:6-18, 1972.

of participation in hunting and fishing during youth to be significantly associated with participation in these activities as adults. Residency during youth and the source of introduction to the activity during youth had no significant influence on adult levels of participation. Residency during adulthood appeared to be an important intervening variable.

Hendee states that research shows that hunting appeals to rural residents and blue-collar workers.¹⁴ Hendricks¹⁵ concurs that variant leisure behaviors among individuals can be understood in terms of variant life styles. Hendricks contends that urbanism is associated with participation patterns in outdoor recreation. He further argues that apartment dwellers have a style of life that is more characteristic of urbanism than do home dwellers. Consequently, he examined the differences in participation patterns in leisure activities between apartment and home dwellers. Controlling for social class, age, length of residence and earlier experiences, Hendricks found participation in outdoor recreation to be inversely related to urbanism. Peterle,¹⁶ in another study, found attitudes towards some aspects of hunting to vary by urban-rural residence.

¹⁴Hendee, op. cit., p. 335.

¹⁵Hendricks, op. cit., pp. 414-415.

¹⁶Peterle, op. cit., pp. 380-387.

The pleasant childhood memory theory. This theory implies that activities pleasantly familiar during childhood are attractive to persons as adults. Yoesting and Burkhead¹⁷ analyzed factors similar to those examined in the Sofranko and Nolan study.¹⁸ Their research showed that the amount of childhood outdoor recreational activity influenced the amount of outdoor participation as an adult. They also found residency during childhood to not be significantly associated with adult recreational participation frequencies. Another study, by Bevens,¹⁹ found that two-thirds of the hunters and fishermen in the Northeastern states spent their childhood in rural surroundings.

Other approaches. Other approaches include the investigation of socioeconomic factors which have persistently shown that persons of different socioeconomic levels tend to differ in the kinds and extent of participation in recreational activities.²⁰ Mueller and Guin²¹

¹⁷Dean R. Yoesting and Dan Burkhead, "Significance of Childhood Recreational Experience on Adult Leisure Behavior: An Exploratory Analysis," Journal of Leisure Research, 4;5:25-38, 1973.

¹⁸Sofranko and Nolan, op. cit., pp. 6-18.

¹⁹Malcom Bevens, Robert S. Bond, Thomas J. Cochran, Kenneth D. McIntosh and Richard McNeil, Characteristics of Hunters and Fishermen in Six Northeastern States, University of Vermont Agricultural Experiment Station, Northeastern Region Research Bulletin, 1968, pp. 1-76.

²⁰Hendricks, op. cit., p. 414.

²¹Eva Mueller and Gerald Guin, "Participation in Outdoor Recreation: Factors Affecting Demand Among American Adults," ORRRC Study Report 20, (Ann Arbor: University of Michigan Survey Research Center).

isolated socioeconomic variables and tested their effect on participation in recreational activities among subgroups of the United States population. They found that participation in most recreational activities increases as incomes increase. Morris, Pacework and Schultz²² studied participation in public recreation programs in Laramie, Wyoming, and found that individuals in the more prestigious occupational levels were more likely to participate in recreational activities.

Clarke²³ used the North-Hatt Occupational Prestige Scale to develop four occupational categories. Class I included those occupations possessing the highest prestige levels (93-75), Class II and Class III were proportionately lower and Class IV contained the lowest (53-35). Clarke's findings indicated that persons in Class I and II were much more likely to participate in recreational activities. Class IV members were characterized by nonparticipation.

Burdge,²⁴ using the same occupational prestige categories as Clarke, found that persons in Class I and Class II occupations participated more in outdoor recreational activities. Burdge's

²²G. Morris, R. Pacework and J. Schultz, "Occupational Level and Participation in Public Recreation," Journal of Leisure Research, 4;4:25-32.

²³Alfred C. Clark, "The Use of Leisure and Its Relation to Levels of Occupational Prestige," American Sociological Review, Vol. 21, Sept., 1956, pp. 301-312.

²⁴Rabel Burdge, "Levels of Occupational Prestige and Leisure Activity," Journal of Leisure Research, 1;3:262-273.

findings indicated that middle class, white-collar persons participated in hunting more than persons in higher occupational prestige levels. However, the higher classes were the major users of outdoor recreational facilities. Class I persons were most likely to participate in picnicking, swimming, camping, sailing, water-skiing, ice skating and tobogganing. Class II persons were more likely to participate in hunting, fishing, bicycling, boating and hiking. The lower occupational prestige levels were least likely to participate in any of the categories of outdoor recreation.

Noe²⁵ examined four different magazines, each associated with a different social class published from 1900 to 1960. He found the trend for lower-middle class participation to be increasing in sports activities over time, especially hunting. However, regarding leisure activities generally, his findings concurred with social stratification studies supporting the generalization that higher social levels tend to participate more in leisure activities.²⁶

Overall, there have been consistent findings relating participation patterns in outdoor recreation to socioeconomic status. However, some discrepancies exist among studies regarding specific categories of

²⁵John Noe, "Leisure Life Styles and Social Class: A Trend Analysis 1900-1960," Sociology and Social Research, 49;1:76-84, 1964.

²⁶Harold M. Hodges, Jr., Social Stratification: Class in America (Cambridge: Schenkman Publishing Company, Inc., 1964), pp. 130-172.

outdoor recreation. Whereas Burdge²⁷ and Noe²⁸ found participation in hunting to be more a middle class, white-collar activity, Hodges²⁹ in "Peninsula People", found the upper-lower, blue-collar man to be "far and away the most avid outdoorsman, hunter and fisherman".

Lindsay and Ogle³⁰ contend that the association between increases in socioeconomic status, as measured independently by income or education, and increases in participation in outdoor recreational activities may be spurious. They contend that individuals with lower income and educational levels would use recreational facilities more if such were available and inexpensive. They hypothesized that if the de facto opportunities were approximately equal for all income levels, recreational facility use would be approximately the same for all segments of the population. Their research in Weber County, Utah, studied the use of a recreational area that was easily accessible and did not require much investment in travel time or camping equipment. They found that the facilities were used by persons of all income levels. Surprisingly, the users generally had less education than average.

²⁷Burdge, op. cit., pp. 262-273.

²⁸Noe, op. cit., pp. 76-84.

²⁹Harold M. Hodges, Jr., "Peninsula People: Social Stratification in a Metropolitan Complex," Permanence and Change, Clayton Lane, ed. (Cambridge: Schenkman Publishing Company, Inc., 1969), pp. 5-36.

³⁰John J. Lindsay and Richard A. Ogle, "Socioeconomic Patterns of Outdoor Recreational Use Near Urban Areas," Journal of Leisure Research, 4:1:19-24, 1972.

Therefore, Lindsay and Ogle's study tends to support an "opportunity perspective" more than a "socioeconomic perspective".

The different findings regarding the association of socioeconomic status and outdoor recreation participation patterns may be due to different indexes used to measure social class, dissimilar samples and variant sampling procedures. Hodges³¹ used questionnaires and extensive interviews to determine social class, whereas many other studies used limited criteria such as occupation, income or education. Furthermore, many of the studies used mailed questionnaires or reported research on small "site" samples. Generally, however, the studies support the generalization that persons of higher socioeconomic levels are more likely to be participants in outdoor recreation than persons of lower socioeconomic levels.

Regarding the association of attitudes and participation in outdoor recreation, Rosonke found that favorable attitudes toward hunting, hunters and game officials were associated with hunting participation.³² Neulinger and Breit³³ examined the relationship between attitudes and leisure. They contended that one of the basic factors that determines a person's life style is his attitude toward work and

³¹Hodges, op. cit., 1969, pp. 5-36.

³²Jerome R. Rosonke, A Study of Attitudes of South Dakota Residents Toward Selected Aspects of Hunting, Hunters, and Game Officials (unpublished Ph.D. dissertation, Brookings, S. D.: South Dakota State University), p. 93.

³³John Neulinger and Miranda Breit, "Attitude Dimensions of Leisure," Journal of Leisure Research, 1;3:255-261, 1969.

leisure. They stated that five relatively independent dimensions lie within the leisure domain that are important in the characterization of a person's attitude toward leisure. They are:

1. The amount of work or vacation desired.
2. Society's role in leisure planning.
3. Self-definition through work or leisure.
4. Amount of perceived leisure available.
5. Affinity toward leisure.

Regarding "affinity toward leisure", Burdge³⁴ found farmers more work oriented and more likely to adhere to a work ethic. He also found the extent of work orientation to be inversely related to attitudes about leisure and the extent of participation in outdoor recreational activities. Other cultural differences found by Peterle³⁵ to influence participation in outdoor recreation were sex, race and religion. Additional factors found to influence participation in selected categories of outdoor recreation were military experience, age, marital status and attitudes toward wildlife preservation.

The review of literature shows that almost all writings and research concerned with participation in outdoor recreation have dealt with variables that can be grouped under one or more of the five

³⁴Rabel Burdge, Occupational Influences On The Use of Outdoor Recreation (unpublished Ph.D. dissertation, The Pennsylvania State University, 1965).

³⁵Peterle, op. cit., pp. 415-419.

following categories:

1. Socioeconomic Status. Generally, studies have shown that participation in outdoor recreation is associated with income, education and occupation. Discrepancies exist among studies as to exactly what types of activities are associated with different social classes; nonetheless, socioeconomic variables have been shown as important in determining participation in outdoor recreation. Furthermore, members of higher socioeconomic levels are more likely to participate in various categories of outdoor recreation than members of lower levels.

2. Social Situational Factors. Numerous studies have examined the association between urban and rural residence and participation in outdoor recreational activities. They have found urban persons to participate less in outdoor activities than rural persons. A number of explanations have been given for the difference in participation patterns between urban and rural residents; however, explanations dealing with accessibility, differences in life style and familiarity appear to hold the most promise.

3. Prior Experiences or Socialization. The extent to which an individual participated in outdoor recreation as a youth is held to influence the extent of his participation as an adult. However, other intervening variables, such as place of adult residency, appear to have more influence on the extent of adult participation than either place of residency as a youth or the source of his introduction to activities as a child. Prior experiences such as military experience,

however, have been related to participation in some outdoor recreational activities.

4. Demographic Variables. Studies have shown certain types of recreation, particularly hunting, have tended to decrease as area population has increased.³⁶ Also, they have shown the typical hunter and fisherman as being male, young, married and white. The studies dealing with general sociodemographic characteristics of recreational participants, however, have tended to sample only hunting and fishing license holders. They have also depended primarily upon mailed questionnaires from selected groups rather than professional interviewing randomly selected respondents for data collection. Therefore, the explanations from these studies may be selective.

5. Attitudinal Variables. The number of studies linking attitudes with participation in outdoor activities is few. The studies reviewed have shown that there is a relationship between work orientations and participation, and between hunting participation and attitudes toward selected aspects of hunting. The literature has suggested that a number of independent dimensions of leisure are related with attitudes toward leisure. This appears to be a fruitful area for further research.

³⁶Peterle, op. cit., p. 416.

CHAPTER III

THEORETICAL FRAMEWORK

Different approaches to the study of participation in outdoor recreational activities were discussed in the review of literature. Additional perspectives are suggested by Burdge and Field³⁷ who propose the following six different perspectives:

1. The social aggregate level, which would involve studying the association between aggregates of people possessing one or more common characteristics and their participation in outdoor recreation.

2. The social psychological level, which would involve studying attitudes and other social psychological phenomenon associated with participation in outdoor recreation.

3. Types of organization level, which would use organizations as the unit of analysis and focus on participation patterns of various types of organizations involved in outdoor recreation.

4. Activity attribute level, which would study, as the unit of analysis, the attribute of different types of outdoor recreation associated with participation patterns.

5. Community level, which would use communities as the unit of analysis and study how participation in outdoor recreation varies by community.

³⁷Rabel J. Burdge and Donald R. Field, "Methodological Perspectives for the Study of Outdoor Research," Journal of Leisure Research, 4;4:63-70, 1972.

6. The social ecological level, which would examine factors such as residential patterns and occupational structures as they are associated with participation in outdoor recreational patterns.

The perspectives suggested by Burdge and Field employ different units of analysis, some of which are outside the scope of this study. This study will be confined to a theoretic approach that considers the participation patterns of individuals in outdoor recreation. Those perspectives presented by Burdge and Field in which the individual respondent can be used as the unit of analysis are similar to the four categories derived from the review of literature, namely:

1. a demographic perspective,
2. a socialization perspective,
3. a socioeconomic perspective and
4. a social psychological perspective.

However, this study will not test any single, specific hypothesis or perspective previously discussed. Instead, a more general conceptual model will be used that will include several of the more specific approaches and will employ three major categories of variables.

It is evident from previous research that childhood experiences influence adult behavior. However, significant socialization experiences also continue into adulthood. Experiences occurring during adulthood have been found to influence recreational patterns also. Therefore, this research will not limit itself to childhood socialization but will analyze selected experiences, elements of socialization and associations both in childhood and adulthood.

Variations in behavior are also greatly influenced by the immediate situation in which the individual finds himself.³⁸ Ample research has shown that previous socialization experiences influence present attitudes, life styles, values, beliefs and behavior patterns.³⁹ A primary concern in this study is with individual attitudes, which Newcomb, Turner and Converse⁴⁰ contend are determined by the sum of past experiences. The concept "attitude" as used in this study is defined as " . . . an individual's cognitions, feelings and action tendencies with respect to the various objects in his world which are organized into enduring systems."⁴¹ Thus, attitudes include an action or behavior component.

The behaviors of individuals are influenced by what the individual brings into his present situation. The predisposition toward certain behaviors is included within his attitudes and is determined by the sum of his past experiences and his current social situation. However, attitudinal sets are complex, and current social situations, both perceived and real, can provide a wide range of stimuli providing

³⁸Theodore M. Newcomb, Ralph Turner and Phillip Converse, Social Psychology: The Study of Human Interaction (New York: Holt, Rinehart and Winston, 1965), pp. 67-68.

³⁹Hodges, op. cit., 1964, pp. 130-192.

⁴⁰Newcomb, Turner and Converse, loc. cit.

⁴¹David Kretch, Richard S. Crutchfield and Egerton Ballachy, Individual in Society: A Textbook in Social Psychology (New York: McGraw-Hill, 1963), p. 139.

multiple response possibilities.⁴² Also, attitudes alone cannot adequately explain behavior as attitudes are finite and can be possessed with respect to objects which exist in his psychological world. Attitudes are also not static, but subject to change as social situations change. It is not within the scope of this research to determine subjective perceptions of reality within a social situation nor to measure the impact of an immediate ongoing reality on shifting attitudinal sets. Instead, one aspect of social situations is used in this research--sociodemographic statuses.

It is this researcher's contention that current social situations, expressed in terms of socioeconomic and demographic statuses, affect attitudes and are affected by attitudes. Together they influence overt behaviors. Consequently, it is held that current sociodemographic statuses and attitudes are affected by past experiences, jointly affect one another and influence overt behavior patterns.

The conceptual model which summarizes the relations between past experience, attitudes and current sociodemographic statuses is given in Figure 1.

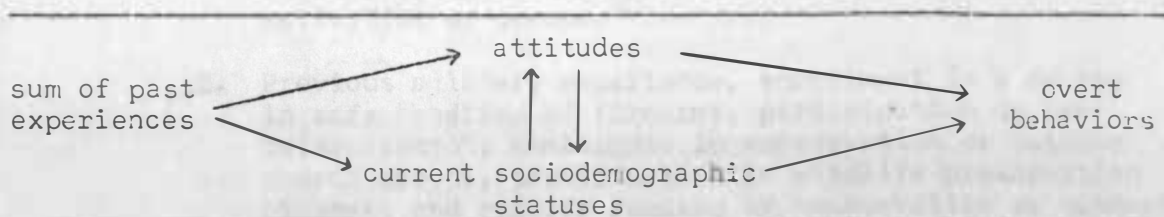


Figure 1.

⁴²Newcomb, Turner and Converse, loc. cit.

In summary, it is believed that the sum of past experiences influences present attitudes and current sociodemographic statuses. Current attitudes and sociodemographic statuses affect one another and influence overt behavior patterns.

It is this researcher's contention that past experiences, current sociodemographic statuses and attitudes affect, directly or indirectly, behavior patterns as they relate to participation in outdoor recreational activities. It is also this researcher's contention that the majority of approaches to the study of outdoor recreation can be subsumed under one or more of the above mentioned categories.

Theoretical Framework

Based on previous research, theoretical perspectives and the conceptual model, the author presents the following propositions and hypotheses:

- I. Overt behavior is a function of past experiences, current sociodemographic statuses and individual attitudes.
 - A. Past experiences include, among other things, all prior childhood and adult socialization associated with participation in outdoor recreational activities or groups.
 - B. Previous military experience, enrollment in a course in safe handling of firearms, participation in predator control, membership in conservation or outdoor sports groups, participation in wildlife preservation programs and regular reading of conservation or outdoor sports magazines represent prior socialization and participation in outdoor recreational groups and activities.

II. The current statuses of individuals influence their participation in outdoor recreation.

- A. Current sociodemographic statuses are represented by such characteristics as age, sex, race, marital status, size of family, place of residence, education, occupation and income.

III. Current attitudes of individuals influence their participation in outdoor recreation.

- A. Attitudes include predispositions to respond to a social object.
- B. A statement is a symbolized social object.
- C. Therefore, attitudes are represented by the responses of persons to statements about hunting, hunters, game management and extent of commitment to dove hunting issue.

IV. Participation in outdoor recreation is an overt behavior.

- A. Outdoor recreational behavior includes such activities as water related sports and hunting of various game species.

V. Consequently, participation in water related sports and the hunting of various game species is associated with:

1. Sex.
2. Race.
3. Age.
4. Education.
5. Marital status.
6. Farm-nonfarm occupation.
7. Income.
8. Enrollment in a course in safe handling of firearms.

9. Previous military experience.
10. Participation in predator control.
11. Regular reading of conservation or outdoor sports magazines.
12. Urban-rural residence.
13. Attitudes towards hunting.
14. Attitudes towards hunters.
15. Attitudes towards game officials.
16. Attitudes towards game management.
17. Number of children living at home.
18. Membership in conservation or outdoor sports group.
19. Participation in wildlife preservation programs.
20. Commitment to the dove hunting issue.

VI. Therefore, the selected set of independent variables X_1 through X_{20} will contribute to the explanation of observed variation participation in water related outdoor sports and hunting of various game species.

CHAPTER IV

METHODOLOGY

Unit of Analysis

The population in this study consists of all persons on the personal property tax listings in South Dakota in 1973 and all Indian reservation households. Thus, the head of the household or individual taxpayer is the unit of analysis. A list of all taxpayer households was obtained from each county and edited to remove duplications, corporations and nonresident property owners. The reservation households were obtained from tribal listings.

Sample

A sample of 474 persons, or 0.25 percent of the total population of households in South Dakota, was randomly selected by computer. Data were collected by trained interviewers from the selected heads of households or their spouses during the summer of 1973. Only 16 percent of those sampled were spouses of heads of households, and they were admitted to the sampling set because previous studies have shown a close connection between the responses of husbands and wives.⁴³

⁴³Robert O. Blood and Donald M. Wolfe, "The Power to Make Decisions," Sociological Analysis: An Empirical Approach Through Replication, Strauss and Nelson, editors (New York: Harper and Row, 1968), p. 54. It is noted that the studies of correspondence of responses of spouses has dealt primarily with attitudes towards aspects of the family. However for the purposes of this study, the assumption was made that there is also a high degree of correspondence between spouses in regard to attitudes towards selected areas of outdoor participation.

Interview Schedule

A pretested schedule with fixed-option questions was used. The interview schedule was constructed so as to obtain information on the following:

The socioeconomic and demographic characteristics of respondents, the organizations to which the respondent belongs or has belonged, the extent of participation of respondents in organizations, participation in selected areas of outdoor recreation, membership in conservation or outdoor sports groups, readership of outdoor or conservation magazines, participation in wildlife preservation programs, predator control activities, attitudes towards hunting, hunters, game officials, and game management and the respondent's commitment to a position on the dove hunting issue.

Statements were used in the interview schedule to measure attitudes towards selected aspects of hunting, hunters and game management. The interviewer read the stimulus statements and the interviewee responded with one of seven choices from a card provided by the interviewer. The cards contained a seven-point scale, commonly referred to as a Likert Scale. The seven responses were:

1. Strongly disagree.
2. Disagree.
3. Somewhat disagree.
4. Undecided.
5. Somewhat agree.
6. Agree.
7. Strongly agree.

A summated rating scale, as defined by Blalock,⁴⁴ is an ordinal scale because an ordinal scale allows for the ordering of categories with respect to the degree to which they possess a certain characteristic. However, ordinal scales may not allow one to say exactly how much of the characteristic respondents possess. Thus, information about the magnitude of the differences between elements is not supplied. However, attitude scales " . . . are constructed primarily for the purpose of obtaining attitude scores for individuals and thus being able to order individuals with respect to the degree of favorableness or unfavorableness they associate with a psychological element."⁴⁵

Studies have shown the reliability for the Likert Scale to exceed 0.90 and the reliability coefficient for equal-appearing interval scales to range from 0.85 to 0.89. Also, there is a high correlation between summated-rating and equal appearing scales. It is reasonable to predict that the relative ordering on either type of scale will, for all practical purposes, be the same.⁴⁶ Therefore, the summated rating scale used in this study concerning attitudes is considered to have properties near enough to an interval scale that it will be used in parametric statistical techniques.

⁴⁴Hubert M. Blalock, Jr., Social Statistics (New York: McGraw-Hill Book Company, 1972), pp. 15-16.

⁴⁵Allen L. Edwards, Techniques of Attitude Scale Construction (New York: Appleton, Century, Crofts, Inc., 1957), p. 165.

⁴⁶Ibid., pp. 167-168.

Analysis of Data

The data were coded and recorded on IBM punch cards. Programs provided in the Statistical Package for the Social Sciences were used for statistical computations.⁴⁷ The data were analyzed to:

1. Provide a descriptive analysis of the characteristics of participants in selected outdoor recreational activities and determine the extent of participation in the selected activities.
2. Determine what independent variables are significantly associated with selected outdoor recreational activities, using non-parametric tests of association.
3. Determine the extent to which the selected past experience variables, current social status variables and attitudinal variables explain the variation in outdoor recreation.

Descriptive Analysis

The frequencies and percentages of participation were calculated from the data for each of the types of outdoor recreational participation.

Nonparametric Analysis

Cross tabulations were used to report the association of selected independent variables with each type of outdoor recreational participation. Chi-square analysis was the primary nonparametric test used in the analysis.

⁴⁷Norman H. Nie and C. Hadlai Hull, Statistical Package for the Social Sciences (New York: McGraw-Hill Book Company, 1970).

Multiple Regression Analysis

Variation in a given dependent variable is often a function of concomitant variation in many independent variables acting together.⁴⁸ Multiple regression is a means of examining two or more independent variables to predict scores on a single dependent variable. The principle of least squares, which tells us to calculate the predicted dependent variable values so that the squared errors of prediction are minimized, is one regression solution employed. Thus, the principle of least squares provides a better predictor of the dependent variable values than the mean average of the dependent variable.

The mathematical model for multiple regression is:

$$Y' = a + b_1X_1 + b_2X_2 + \dots + b_kX_k,$$

where "Y'" is the predicted Y (raw) scores, "a" is the intercept constant, " $b_1 \dots b_k$ " are the regression coefficients, and " $X_1 \dots X_k$ " are the raw scores of the independent variables.

The multiple regression procedure used in this study is referred to as "the stepwise solution". The stepwise solution provides a rank ordering of independent variables, indicating their significance and relative importance in explaining the variation in the dependent variable. The stepwise solution has the added advantage in that after each step in which the variable having the highest semipartial correlation with the dependent variable is entered into the equation, each

⁴⁸John T. Roscoe, Fundamental Research Statistics for the Behavioral Sciences (New York: Holt, Rinehart and Winston, Inc., 1975), p. 362.

variable already in the equation is tested again to determine its significance in explaining variation in the dependent variable. Variables previously found to be significant may become less important or spurious as new variables are entered. Thus, with the stepwise solution the researcher is provided with a rank ordering of independent variables tested for the significance of their contribution to the variation of the dependent variable, and each independent variable has been treated as though it was the last variable entered into the equation.⁴⁹

Operational Definition of Variables

There were three objectives to this study, the second and third of which were to determine: (a) how the extent of participation in each of 11 outdoor recreational activities varied between selected groups of South Dakotans; and (b) what were the socioeconomic characteristics of persons with high levels of overall participation in outdoor recreation.

Consequently, each objective utilizes sets of independent variables differing in number, and in some instances in the criteria for measurement. Furthermore, the dependent variables appropriate to each objective are not the same. Also, some of the dichotomous variables employed for testing in Objective Two are treated as "dummy variables"

⁴⁹Fred N. Kerlinger and Elazar J. Pedhazur, Multiple Regression in Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1973), pp. 290-295.

in Objective Three. According to Kerlinger,⁵⁰ a "dummy variable" is a vector in which members of a given category are assigned an arbitrary number, and those not members of the category are assigned another arbitrary number. Dummy variables are generally used when data include some discrete, nominal variables that the researcher desires to enter into a parametric test in combination with continuous variables. Kerlinger states that the nominal (or categorical) variables, expressed as dummy variables, can be entered appropriately into multiple regression equations as independent variables.

Therefore, for the convenience to the reader the operational specification of the variables appropriate to each objective will be given in Chapter V in conjunction with the reporting of study findings related to each objective.

⁵⁰Kerlinger, op. cit., pp. 105-108.

CHAPTER V

FINDINGS OF THE STUDY

This chapter discusses the findings relative to this study. In the first section the findings regarding frequency and extent of outdoor recreational participation will be reported. The second section compares the extent of outdoor recreational participation by selected socioeconomic characteristics. The final section reports those factors that were found to help explain the variant participation levels of the respondents.

Frequency and Extent of Participation: Objective One

One objective of this study was to determine the frequency and extent of participation of South Dakotans in water related recreational activities and in selected specie hunting.

Water-related recreation. In order to determine the extent of water related recreational participation, the respondents were asked: "How often did you participate in the following water-related activities in the past 12 months?"

1. Swimming.
2. Boating.
3. Water-skiing.
4. Fishing.
5. Ice fishing.
6. Snowmobiling.

7. Lakeside camping or picnicking.

8. Waterfowl hunting.

Respondents replied to each recreational category by indicating whether their extent of participation was best characterized as "never," "occasionally" or "frequently." Table 1 reports the extent of participation in each activity by number and percent.

TABLE 1

FREQUENCY OF PARTICIPATION IN SELECTED WATER-RELATED
ACTIVITIES, BY NUMBER AND PERCENT

	Never	Occasionally	Frequently
Swimming	326 69%	104 22%	44 9%
Boating	323 68%	112 24%	39 8%
Water-skiing	441 93%	22 5%	11 2%
Fishing	220 46%	164 35%	90 19%
Ice fishing	398 84%	54 11%	22 5%
Snowmobiling	403 85%	40 8%	31 7%
Lakeside camping or picnicking	239 50%	179 38%	56 12%
Waterfowl hunting	359 76%	55 12%	60 13%

Table 1 shows fishing and lakeside camping or picnicking to be the water-related activity participated in most. Conversely, over three-fourths of the respondents indicated they had not participated in either waterfowl hunting, ice fishing, snowmobiling or water-skiing.

Game species hunted. Respondents were also asked to indicate from a list of 22 game species those they had ever hunted. The list included seven indigenous game birds, three waterfowl, four indigenous big game, three State small game and five predatory species.

For comparison purposes, responses were categorized by type of game and number of species in each type hunted (Table 2).

TABLE 2

EXTENT RESPONDENTS NEVER HUNTED, HUNTED ONE OR HUNTED
MORE THAN ONE SPECIES, BY GAME CATEGORY

	Never	One Species	More than One Species
Game birds	133 28%	132 28%	209 44%
Waterfowl	210 44%	72 15%	192 41%
Big game	184 39%	29 6%	261 55%
Small game	304 64%	76 16%	94 20%

Examination of Table 2 indicates that almost two-thirds of the respondents reported never hunting small game. Fewer respondents indicated they had never hunted waterfowl (44 percent) or big game (39 percent). Less than one-third (28 percent) of the respondents stated they had never hunted game birds. More respondents (28 percent) reported hunting one species of game birds than those indicating same in the other game categories. Comparing game categories, the larger proportion of those reporting never hunting more than one species was found among big game hunters.

Extent of Participation Compared

This section analyses how the extent of participation in outdoor recreational activities varies among South Dakotans when examined according to selected characteristics of the respondents. When the respondents are classified into groups for analysis according to specified characteristics, the aim is to sort them into distinct categories and then compare the participation representative of the various groups for possible differences. This type of analysis is done to provide additional answers to the question, "How do South Dakotans vary in their participation in selected outdoor recreational activities?"

Variables. For comparison purposes, the various characteristics of the respondents were measured and classified as follows:

1. Sex: male or female.
2. Race: white or nonwhite.

3. Age: 15-29; 30-44; 45-59; 60 and over.
4. Marital Status: single; married; separated-divorced; widowed.
5. Children Under 20 Residing at Home: yes or no.
6. Veteran Status: veteran or nonveteran.
7. Regular Reader of Outdoor Sports or Conservation Magazines:

yes or no.

8. Urban-Rural Residence: city, 2,500 and over, and residing in a multiple dwelling; city, 2,500 and over, and residing in a single dwelling; town, less than 2,500, and residing in a multiple dwelling; town, less than 2,500, and residing in a single dwelling; open-country, but not as part of a farming operation; on farm as part of farming operation.

9. Farm Operator: farmer or nonfarmer.

10. Socioeconomic Status: respondents were classified into five socioeconomic status groups depending upon income level and completed formal education. Five socioeconomic categories were defined. The categories, together with the criteria by which respondents were classified into each category, are given below:

A. Upper: college graduate with an income of at least \$12,000.

B. Upper Middle: college graduate with an income of \$6,000-\$11,999; post high school or some college with an income of \$9,000-\$14,999; high school graduate with an income of \$12,000 and over; some high school with an income of \$15,000 and over.

C. Middle: college graduate with an income of \$0-\$5,999; post high school or some college with an income of \$6,000-\$11,999; some high school with an income of \$9,000-\$14,999; grade school and less with an income of \$12,000 and over.

D. Lower Middle: post high school or college with an income of \$0-\$2,999; high school graduate with an income of \$0-\$5,999; some high school with an income of \$3,000-\$8,999; grade school and less with an income of \$6,000-\$11,999.

E. Lower: some high school with an income of \$0-\$2,999; grade school and less with an income of \$0-\$5,999.

Bogue⁵¹ hypothesized that a person's status may be regarded as a function of two principal components: "income", which represents a level of livelihood, and "education", which represents a level of social interest. Bogue has shown the two components to be highly correlated: consequently, a person's ranking is influenced very little by varying the weights by which the two components are combined. Therefore, an enumeration of the income and education of respondents were totaled and used as an index of socioeconomic status.

⁵¹Donald J. Bogue, Principles of Demography (New York: John Wiley and Sons, Inc., 1969), pp. 428-462.

For purposes of analysis, each of these preceding characteristics were presumed to be independent variables and tested for possible association with variant participation in each of 11 outdoor recreational activities. The 11 activities were those specified in the previous section under Tables 1 and 2. For purposes of testing, respondents' varying levels of participation were classified in the same manner as reported in those tables.

Procedure for reporting findings. The procedure for reporting the findings is as follows:

1. A hypothesis related to each independent variable and the 11 outdoor recreational activities will be stated in null form for purposes of testing.
2. Contingency tables with appropriate Chi-square values will be presented where significant differences between variables were found to exist.
3. The findings will be discussed.

The Chi-square test and contingency coefficient are employed in this analysis for statistical testing. The Chi-square test is used to evaluate whether or not frequencies that have been empirically obtained differ significantly from those which would be expected. The expected values for each cell will be computed under the assumption that the null hypothesis is true.

The Chi-square formula is given as follows:

$$\chi^2 = \sum \frac{(\text{observed} - \text{expected})^2}{\text{expected}}$$

The contingency coefficient, another test of association, is based on Chi-square, its value being determined by the following formula:

$$C = \sqrt{\frac{X^2}{N + X^2}}$$

The contingency coefficient indicates the degree of association between two sets of scores. However, two contingency coefficients are not comparable unless they result from contingency tables of the same size. Since there is no direct test of significance for the contingency coefficient, it is assumed that when the Chi-square value is significant, the contingency coefficient is significant also.⁵²

It should be noted that tables and interpretations will be given only for those associations significant at the 0.05 level.

Participation by sex. Analyses were conducted to determine the effect of sex on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 1. Men and women will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

⁵²Sidney Seigel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw Hill Book Company, 1956), pp. 196-201.

Significant differences were found to exist in the extent to which men and women participated in:

1. Boating.
2. Water-skiing.
3. Fishing.
4. Ice fishing.
5. Game bird hunting.
6. Waterfowl hunting.
7. Big game hunting.
8. Small game hunting.

The null hypothesis pertaining to sex and the above outdoor recreational activities is rejected. Tables 3-10 report the findings. The numerical values in Table 3 and subsequent tables represent the frequencies for the various cells. The figures in parenthesis represent the corresponding percentages.

TABLE 3
PARTICIPATION IN BOATING BY SEX

	Never	Occasionally	Frequently
Male	197 (61.0)	82 (73.2)	31 (79.5)
Female	126 (39.0)	30 (26.8)	8 (20.5)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 9.218$	d.f. = 2	p = 0.010	C = 0.138

TABLE 4
PARTICIPATION IN WATER-SKIING BY SEX

	Never	Occasionally	Frequently
Male	282 (63.9)	17 (77.3)	11 (100.0)
Female	159 (36.1)	5 (22.7)	0 (0.0)
Totals	441 (100.0)	22 (100.0)	11 (100.0)
$\chi^2 = 7.602$	d.f. = 2	p = 0.022	C = 0.126

TABLE 5
PARTICIPATION IN FISHING BY SEX

	Never	Occasionally	Frequently
Male	116 (52.7)	125 (76.2)	69 (76.7)
Female	104 (47.3)	39 (23.8)	21 (23.3)
Totals	220 (100.0)	164 (100.0)	90 (100.0)
$\chi^2 = 29.147$	d.f. = 2	p < 0.001	C = 0.240

TABLE 6
PARTICIPATION IN ICE FISHING BY SEX

	Never	Occasionally	Frequently
Male	242 (60.8)	47 (87.0)	21 (95.5)
Female	156 (39.2)	7 (13.0)	1 (4.5)
Totals	398 (100.0)	54 (100.0)	22 (100.0)
$\chi^2 = 23.669$	d.f. = 2	$p < 0.001$	$C = 0.218$

TABLE 7
PARTICIPATION IN GAME BIRD HUNTING BY SEX

	Never	One Species	More Than One
Male	21 (15.8)	98 (74.2)	191 (91.4)
Female	112 (84.2)	34 (25.8)	18 (8.6)
Totals	133 (100.0)	132 (100.0)	209 (100.0)
$\chi^2 = 211.599$	d.f. = 2	$p < 0.001$	$C = 0.556$

TABLE 8
PARTICIPATION IN WATERFOWL HUNTING BY SEX

	Never	Occasionally	Frequently
Male	208 (57.9)	44 (80.0)	58 (96.9)
Female	151 (42.1)	11 (20.0)	2 (3.3)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 39.935$	d.f. = 2	$p < 0.001$	$C = 0.279$

TABLE 9
PARTICIPATION IN BIG GAME HUNTING BY SEX

	Never	One Species	More Than One
Male	160 (26.6)	64 (84.2)	86 (91.5)
Female	144 (73.4)	12 (15.8)	8 (8.5)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
$\chi^2 = 62.062$	d.f. = 2	$p < 0.001$	$C = 0.340$

TABLE 10
PARTICIPATION IN SMALL GAME HUNTING BY SEX

	Never	One Species	More Than One
Male	49 (26.6)	22 (75.9)	239 (91.6)
Female	135 (73.4)	7 (24.1)	22 (8.4)
Totals	184 (100.0)	29 (100.0)	261 (100.0)
<hr/>			
$\chi^2 = 202.625$	d.f. = 2	$p < 0.001$	$C = 0.547$

Further analysis of the contingency tables examining the association between sex and participation in outdoor recreation activities indicates that the strongest relationship exists with hunting and fishing activities; the weakest with swimming, snowmobiling and lakeside camping and picnicking.

Participation by race. Analyses were conducted to determine the effect of race on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 2. Whites and nonwhites will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which whites and nonwhites participated in:

1. Ice fishing.
2. Snowmobiling.
3. Lakeside camping and picnicking.
4. Small game hunting.

The null hypothesis pertaining to race and the above outdoor recreational activities is rejected. Tables 11-14 report the findings.

TABLE 11
PARTICIPATION IN ICE FISHING BY RACE

	Never	Occasionally	Frequently
White	395 (99.2)	53 (98.1)	20 (90.9)
Nonwhite	3 (0.8)	1 (1.9)	2 (9.1)
Totals	398 (100.0)	54 (100.0)	22 (100.0)
$\chi^2 = 11.762$	d.f. = 2	p = 0.003	C = 0.156

TABLE 12
PARTICIPATION IN SNOWMOBILING BY RACE

	Never	Occasionally	Frequently
White	400 (99.3)	38 (95.0)	30 (96.8)
Nonwhite	3 (0.7)	2 (5.0)	1 (3.2)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
$\chi^2 = 6.292$	d.f. = 2	p = 0.043	C = 0.114

TABLE 13
PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY RACE

	Never	Occasionally	Frequently
White	237 (99.2)	179 (100.0)	52 (92.9)
Nonwhite	2 (0.8)	0 (0)	4 (7.1)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 18.123$	d.f. = 2	p < 0.001	C = 0.192

TABLE 14
PARTICIPATION IN SMALL GAME HUNTING BY RACE

	Never	One Species	More Than One
White	303 (99.7)	76 (100.0)	89 (94.7)
Nonwhite	1 (0.3)	0 (0)	5 (5.3)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
<hr/>			
$\chi^2 = 15.467$	d.f. = 2	$p < 0.001$	$C = 0.178$

It should be noted that the nonwhite portion of the sample consisted entirely of American Indians and was very small. Only 1.46 percent of the total sample were nonwhites. The population sampled were heads of households who paid personal property taxes in 1973. This percentage, however, closely approximates the total nonwhite heads of households paying personal property taxes in South Dakota in 1973.

Participation by age. Analyses were conducted to determine the effect of age on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 3. Various age groups will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which various age groups participated in:

1. Swimming.
2. Boating.
3. Water-skiing.
4. Fishing.
5. Ice fishing.
6. Snowmobiling.
7. Lakeside camping and picnicking.
8. Waterfowl hunting.
9. Big game hunting.
10. Small game hunting.

The null hypothesis pertaining to age and the above outdoor recreational activities is rejected. Tables 15-24 report the findings.

TABLE 15
PARTICIPATION IN SWIMMING BY AGE

	Never	Occasionally	Frequently
15-29	22 (6.7)	27 (26.0)	12 (27.3)
30-44	61 (18.7)	39 (37.5)	15 (34.1)
45-59	96 (29.4)	26 (25.0)	14 (31.8)
60 and over	147 (45.1)	12 (11.5)	3 (6.8)
Totals	326 (100.0)	104 (100.0)	44 (100.0)
$\chi^2 = 81.143$	d.f. = 6	p < 0.001	C = 0.382

TABLE 16
PARTICIPATION IN BOATING BY AGE

	Never	Occasionally	Frequently
15-29	33 (10.2)	22 (19.6)	6 (15.4)
30-44	73 (22.6)	33 (29.5)	9 (23.1)
45-59	84 (26.0)	33 (29.5)	19 (48.7)
60 and over	133 (41.2)	24 (21.4)	5 (12.8)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 29.037$	d.f. = 6	p < 0.001	C = 0.240

TABLE 17
PARTICIPATION IN WATER-SKIING BY AGE

	Never	Occasionally	Frequently
15-29	49 (11.1)	10 (45.5)	2 (18.2)
30-44	103 (23.4)	8 (36.4)	4 (36.4)
45-59	128 (29.0)	4 (18.2)	4 (36.4)
60 and over	161 (36.5)	0 (0)	1 (9.1)
Totals	441 (100.0)	22 (100.0)	11 (100.0)
$\chi^2 = 32.928$	d.f. = 6	p < 0.001	C = 0.255

TABLE 18
PARTICIPATION IN FISHING BY AGE

	Never	Occasionally	Frequently
15-29	20 (9.1)	23 (14.0)	18 (20.0)
30-44	51 (23.2)	44 (26.8)	20 (22.2)
45-59	46 (20.9)	58 (35.4)	32 (35.6)
60 and over	103 (46.8)	39 (23.8)	20 (22.2)
Totals	220 (100.0)	164 (100.0)	90 (100.0)
$\chi^2 = 34.777$	d.f. = 6	p < 0.001	C = 0.261

TABLE 19
PARTICIPATION IN ICE FISHING BY AGE

	Never	Occasionally	Frequently
15-29	48 (12.1)	10 (18.5)	3 (13.6)
30-44	98 (24.6)	14 (25.9)	3 (13.6)
45-59	107 (26.9)	22 (40.7)	7 (31.8)
60 and over	145 (36.4)	8 (14.8)	9 (40.9)
Totals	398 (100.0)	54 (100.0)	22 (100.0)
$\chi^2 = 12.726$	d.f. = 6	p = 0.048	C = 0.162

TABLE 20
PARTICIPATION IN SNOWMOBILING BY AGE

	Never	Occasionally	Frequently
15-29	38 (9.4)	13 (32.5)	10 (32.3)
30-44	88 (21.8)	15 (37.5)	12 (38.7)
45-59	119 (29.5)	10 (25.0)	7 (22.6)
60 and over	158 (39.2)	2 (5.0)	2 (6.5)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
$\chi^2 = 51.882$	d.f. = 6	$p < 0.001$	$C = 0.314$

TABLE 21
PARTICIPATION IN LAKESIDE CAMPING OR PICKNICKING BY AGE

	Never	Occasionally	Frequently
15-29	19 (7.9)	32 (19.9)	10 (17.9)
30-44	49 (20.5)	54 (30.2)	12 (21.4)
45-59	54 (22.6)	60 (33.5)	22 (39.3)
60 and over	117 (49.0)	33 (18.4)	12 (21.4)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 50.868$	d.f. = 6	$p < 0.001$	$C = 0.311$

TABLE 22
PARTICIPATION IN WATERFOWL HUNTING BY AGE

	Never	Occasionally	Frequently
15-29	35 (9.7)	13 (23.6)	13 (21.7)
30-44	88 (24.5)	15 (27.3)	12 (20.0)
45-59	97 (27.0)	14 (25.5)	25 (41.7)
60 and over	139 (38.7)	13 (23.6)	10 (16.7)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 25.351$	d.f. = 6	p < 0.001	C = 0.225

TABLE 23
PARTICIPATION IN BIG GAME HUNTING BY AGE

	Never	One Species	More Than One
15-29	24 (13.0)	7 (24.1)	30 (11.5)
30-44	41 (22.3)	4 (13.8)	70 (26.8)
45-59	41 (22.3)	7 (24.1)	88 (33.7)
60 and over	78 (42.4)	11 (37.9)	73 (28.0)
Totals	184 (100.0)	29 (100.0)	261 (100.0)
$\chi^2 = 17.396$	d.f. = 6	p = 0.008	C = 0.188

TABLE 24

PARTICIPATION IN SMALL GAME HUNTING BY AGE

	Never	One Species	More Than One
15-29	37 (12.2)	10 (13.2)	14 (14.9)
30-44	68 (21.7)	24 (31.6)	25 (26.6)
45-59	80 (26.3)	23 (30.3)	33 (35.1)
60 and over	121 (39.8)	19 (25.0)	22 (23.4)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
$\chi^2 = 13.014$	d.f. = 6	p = 0.043	C = 0.163

Examining the variant strengths of each relationship, age was most strongly related to lakeside camping and picnicking, snowmobiling and swimming. Persons in the age group 15 to 29 were more likely to participate in all of the selected water-related outdoor activities. Persons in the age group 45 to 59 were the next most likely to participate in all water-related activities, except swimming, water-skiing and snowmobiling. Persons 60 and over were least likely to participate in any of the water-related activities.

Participation by marital status. Analyses were conducted to determine the effect of marital status on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting,

waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 4. Single, married, separated or divorced and widowed persons will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which single, married, separated or divorced and widowed persons participated in:

1. Swimming.
2. Fishing.
3. Ice fishing.
4. Snowmobiling.
5. Lakeside camping and picnicking.
6. Game bird hunting.
7. Waterfowl hunting.
8. Big game hunting.
9. Small game hunting.

The null hypothesis pertaining to marital status and the above outdoor recreational activities is rejected. Tables 25-33 report the findings.

TABLE 25
PARTICIPATION IN SWIMMING BY MARITAL STATUS

	Never	Occasionally	Frequently
Single	20 (6.1)	7 (6.7)	3 (6.8)
Married	232 (71.2)	94 (90.4)	37 (84.1)
Separated or Divorced	10 (3.1)	1 (1.0)	1 (2.3)
Widowed	64 (19.6)	2 (1.9)	3 (6.8)
Totals	326 (100.0)	104 (100.0)	44 (100.0)
<hr/>			
$\chi^2 = 24.598$	d.f. = 6	$p < 0.001$	$C = 0.222$

TABLE 26
PARTICIPATION IN FISHING BY MARITAL STATUS

	Never	Occasionally	Frequently
Single	16 (7.3)	9 (5.5)	5 (5.6)
Married	143 (65.0)	142 (86.6)	78 (86.7)
Separated or Divorced	5 (2.3)	4 (2.4)	3 (3.3)
Widowed	56 (25.5)	9 (5.5)	4 (4.4)
Totals	220 (100.0)	164 (100.0)	90 (100.0)
<hr/>			
$\chi^2 = 41.599$	d.f. = 6	$p < 0.001$	$C = 0.284$

TABLE 27
PARTICIPATION IN ICE FISHING BY MARITAL STATUS

	Never	Occasionally	Frequently
Single	26 (6.5)	3 (5.6)	1 (4.5)
Married	293 (73.6)	49 (90.7)	21 (95.5)
Separated or Divorced	11 (2.8)	1 (1.9)	0 (0)
Widowed	68 (17.1)	1 (1.9)	0 (0)
Totals	398 (100.0)	54 (100.0)	22 (100.0)
<hr/>			
$\chi^2 = 14.760$	d.f. = 6	p = 0.022	C = 0.174

TABLE 28
PARTICIPATION IN SNOWMOBILING BY MARITAL STATUS

	Never	Occasionally	Frequently
Single	20 (5.0)	4 (10.0)	6 (19.4)
Married	304 (75.4)	34 (85.0)	25 (80.6)
Separated or Divorced	11 (2.7)	1 (2.5)	0 (0)
Widowed	68 (16.9)	1 (2.5)	0 (0)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
<hr/>			
$\chi^2 = 21.697$	d.f. = 6	p < 0.001	C = 0.151

TABLE 29

PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY MARITAL STATUS

	Never	Occasionally	Frequently
Single	15 (6.3)	15 (8.4)	0 (0)
Married	164 (68.6)	150 (83.8)	49 (87.5)
Separated or Divorced	7 (2.9)	2 (1.1)	3 (5.4)
Widowed	53 (22.2)	12 (6.7)	4 (7.1)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 31.360$	d.f. = 6	$p < 0.001$	$C = 0.249$

TABLE 30

PARTICIPATION IN GAME BIRD HUNTING BY MARITAL STATUS

	Never	One Species	More Than One
Single	5 (3.8)	14 (10.6)	11 (5.3)
Married	79 (59.4)	102 (77.3)	182 (87.1)
Separated or Divorced	3 (2.3)	2 (1.5)	7 (3.3)
Widowed	46 (34.6)	14 (10.6)	9 (4.3)
Totals	133 (100.0)	132 (100.0)	209 (100.0)
$\chi^2 = 68.009$	d.f. = 6	$p < 0.001$	$C = 0.354$

TABLE 31
PARTICIPATION IN WATERFOWL HUNTING BY MARITAL STATUS

	Never	Occasionally	Frequently
Single	23 (6.4)	4 (7.3)	3 (5.0)
Married	262 (73.0)	46 (83.6)	55 (91.7)
Separated or Divorced	9 (2.5)	2 (3.6)	1 (1.7)
Widowed	65 (18.1)	3 (5.5)	1 (1.7)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 16.525$	d.f. = 6	p = 0.011	C = 0.184

TABLE 32
PARTICIPATION IN BIG GAME HUNTING BY MARITAL STATUS

	Never	One Species	More Than One
Single	8 (4.3)	1 (3.4)	21 (8.0)
Married	115 (62.5)	24 (82.8)	224 (85.8)
Separated or Divorced	4 (2.2)	0 (0)	8 (3.1)
Widowed	57 (31.0)	4 (13.8)	8 (3.1)
Totals	184 (100.0)	29 (100.0)	261 (100.0)
$\chi^2 = 69.452$	d.f. = 6	p < 0.001	C = 0.357

TABLE 33

PARTICIPATION IN SMALL GAME HUNTING BY MARITAL STATUS

	Never	One Species	More Than One
Single	17 (5.6)	8 (10.5)	5 (5.3)
Married	218 (71.7)	61 (80.3)	84 (89.4)
Separated or Divorced	6 (2.0)	4 (5.3)	2 (2.1)
Widowed	63 (20.7)	3 (3.9)	3 (3.2)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
<hr/>			
$\chi^2 = 30.443$	d.f. = 6	$p < 0.001$	$C = 0.246$

Seventy-seven percent of the sample were married. Married respondents were more likely to be participants in swimming, fishing, ice fishing, lakeside camping or picnicking and waterfowl hunting. Single persons and divorced or separated persons were less likely to participate in most activities than married persons, but more likely to participate than widowed persons.

An examination of the contingency coefficients shows that the strongest relationships exist between marital status and hunting and fishing activities.

Participation by children at home. Analyses were conducted to determine the effect of children at home on the extent to which respondents participated in each of the following outdoor recreational

activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 5. Persons with and those without resident children under 20 years old will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which persons with and those without resident children under 20 years old participated in:

1. Swimming.
2. Boating.
3. Water-skiing.
4. Fishing.
5. Snowmobiling.
6. Lakeside camping and picnicking.
7. Small game hunting.

The null hypothesis pertaining to children at home and the above outdoor recreational activities is rejected. Tables 34-40 report the findings.

TABLE 34
PARTICIPATION IN SWIMMING BY CHILDREN AT HOME

	Never	Occasionally	Frequently
Children at home	126 (38.7)	73 (70.2)	32 (72.7)
None	200 (61.3)	31 (29.8)	12 (27.3)
Totals	326 (100.0)	104 (100.0)	44 (100.0)
$\chi^2 = 42.573$	d.f. = 2	p < 0.001	C = 0.287

TABLE 35
PARTICIPATION IN BOATING BY CHILDREN AT HOME

	Never	Occasionally	Frequently
Children at home	152 (47.1)	52 (46.4)	27 (69.2)
None	171 (52.9)	60 (53.6)	12 (30.8)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 7.159$	d.f. = 2	p < 0.028	C = 0.122

TABLE 36

PARTICIPATION IN WATER-SKIING BY CHILDREN AT HOME

	Never	Occasionally	Frequently
Children at home	205 (46.5)	16 (72.7)	10 (90.9)
None	236 (53.5)	6 (27.3)	1 (9.1)
Totals	441 (100.0)	22 (100.0)	11 (100.0)
$\chi^2 = 13.793$	d.f. = 2	p < 0.001	C = 0.168

TABLE 37

PARTICIPATION IN FISHING BY CHILDREN LIVING AT HOME

	Never	Occasionally	Frequently
Children at home	88 (40.0)	88 (53.7)	55 (61.1)
None	132 (60.0)	76 (46.3)	35 (38.9)
Totals	220 (100.0)	164 (100.0)	90 (100.0)
$\chi^2 = 13.826$	d.f. = 2	p < 0.001	C = 0.168

TABLE 38

PARTICIPATION IN SNOWMOBILING BY CHILDREN LIVING AT HOME

	Never	Occasionally	Frequently
Children at home	179 (44.4)	28 (70.0)	24 (77.4)
None	224 (55.6)	12 (30.0)	7 (22.6)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
$\chi^2 = 20.457$	d.f. = 2	p < 0.001	C = 0.203

TABLE 39

PARTICIPATING IN LAKESIDE CAMPING OR PICNICKING
BY CHILDREN LIVING AT HOME

	Never	Occasionally	Frequently
Children at home	88 (36.8)	105 (58.7)	38 (67.9)
None	151 (63.2)	74 (41.3)	18 (32.1)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 28.833$	d.f. = 2	p < 0.001	C = 0.239

TABLE 40

PARTICIPATION IN SMALL GAME HUNTING BY CHILDREN
LIVING AT HOME

	Never	One Species	More Than One
Children at home	126 (41.4)	46 (60.5)	59 (62.8)
None	178 (58.6)	30 (39.5)	35 (37.2)
Totals	304 (100.0)	76 (100.0)	94 (100.0)

$\chi^2 = 18.099$ d.f. = 2 $p < 0.001$ $C = 0.195$

Analysis of data shows that the greatest strengths in the relationship were found between children living at home and swimming and lakeside camping and picnicking. In all activities where there were significant differences in participation, persons who had children at home were more likely to be participants than those with no children living at home.

Participation by veteran status. Analyses were conducted to determine the effect of veteran status on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 6. Veterans and nonveterans will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which veterans and nonveterans participated in:

	Never	Occasionally	Frequently
1. Swimming.			
2. Boating.			
3. Fishing.	78 (23.9)	44 (42.3)	14 (31.8)
4. Game bird hunting.		60 (57.7)	30 (68.2)
5. Waterfowl hunting.			
Totals	326 (100.0)	104 (100.0)	44 (100.0)
6. Big game hunting.			
7. Small game hunting.			

The null hypothesis pertaining to veteran status and the above outdoor recreational activities is rejected. Tables 41-47 report the findings.

TABLE 41
PARTICIPATION IN SWIMMING BY VETERAN STATUS

	Never	Occasionally	Frequently
Veteran	78 (23.9)	44 (42.3)	14 (31.8)
Nonveteran	248 (76.1)	60 (57.7)	30 (68.2)
Totals	326 (100.0)	104 (100.0)	44 (100.0)
$\chi^2 = 13.252$ d.f. = 2 $p < 0.001$ $C = 0.165$			

TABLE 42
PARTICIPATION IN BOATING BY VETERAN STATUS

	Never	Occasionally	Frequently
Veteran	76 (23.5)	45 (40.2)	15 (38.5)
Nonveteran	247 (76.5)	67 (59.8)	24 (61.5)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 13.250$	d.f. = 2	$p < 0.001$	$C = 0.165$

TABLE 43
PARTICIPATION IN FISHING BY VETERAN STATUS

	Never	Occasionally	Frequently
Veteran	49 (22.3)	55 (33.5)	32 (35.6)
Nonveteran	171 (77.7)	109 (66.5)	58 (64.4)
Totals	220 (100.0)	164 (100.0)	90 (100.0)
$\chi^2 = 8.384$	d.f. = 2	$p = 0.015$	$C = 0.132$

TABLE 44
PARTICIPATION IN GAME BIRD HUNTING BY VETERAN STATUS

	Never	One Species	More Than One
Veteran	8 (6.0)	42 (31.8)	86 (41.1)
Nonveteran	125 (94.0)	90 (68.2)	123 (58.9)
Totals	133 (100.0)	132 (100.0)	209 (100.0)
$\chi^2 = 49.909$	d.f. = 2	$p < 0.001$	$C = 0.309$

TABLE 45
PARTICIPATION IN WATERFOWL HUNTING BY VETERAN STATUS

	Never	Occasionally	Frequently
Veteran	89 (24.8)	17 (30.9)	30 (50.0)
Nonveteran	270 (75.2)	38 (69.1)	30 (50.0)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 16.117$	d.f. = 2	$p < 0.001$	$C = 0.181$

TABLE 46

PARTICIPATION IN BIG GAME HUNTING BY VETERAN STATUS

	Never	One Species	More Than One
Veteran	25 (13.6)	6 (20.7)	105 (40.2)
Nonveteran	159 (86.4)	23 (79.3)	156 (59.8)
Totals	184 (100.0)	29 (100.0)	261 (100.0)
<hr/>			
$\chi^2 = 38.409$	d.f. = 2	$p < 0.001$	$C = 0.274$

TABLE 47

PARTICIPATION IN SMALL GAME HUNTING BY VETERAN STATUS

	Never	One Species	More Than One
Veteran	65 (21.4)	24 (31.6)	47 (50.0)
Nonveteran	239 (78.6)	52 (68.4)	47 (50.0)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
<hr/>			
$\chi^2 = 29.110$	d.f. = 2	$p < 0.001$	$C = 0.241$

The contingency coefficients indicate that the strongest relationships were between veteran status and the hunting activities.

Participation by magazine readership. Analyses were conducted to determine the effect of magazine readership on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 7. Readers and non-readers of outdoor sports or conservation magazines will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which readers and non-readers of outdoor sports or conservation magazines participated in:

1. Swimming.
2. Boating.
3. Water-skiing.
4. Fishing.
5. Ice fishing.
6. Snowmobiling.
7. Lakeside camping and picnicking.
8. Game bird hunting.
9. Waterfowl hunting.
10. Big game hunting.
11. Small game hunting.

The null hypothesis pertaining to magazine readership and the above outdoor recreational activities is rejected. Tables 48-58 report the findings.

TABLE 48

PARTICIPATION IN SWIMMING BY READERSHIP OF OUTDOOR
SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	97 (29.8)	48 (46.2)	26 (59.1)
Does not read magazines	229 (70.2)	56 (53.8)	18 (40.9)
Totals	326 (100.0)	104 (100.0)	44 (100.0)
$\chi^2 = 20.335$	d.f. = 2	p < 0.001	C = 0.203

TABLE 49

PARTICIPATION IN BOATING BY READERSHIP OF OUTDOOR
SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	97 (30.0)	48 (42.9)	26 (66.7)
Does not read magazines	226 (70.0)	64 (57.1)	13 (33.3)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 23.177$	d.f. = 2	p < 0.001	C = 0.216

TABLE 50
PARTICIPATION IN WATER-SKIING BY READERSHIP OF OUTDOOR
SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	152 (34.5)	11 (50.0)	8 (72.7)
Does not read magazines	289 (65.5)	11 (50.0)	3 (27.3)
Totals	441 (100.0)	22 (100.0)	11 (100.0)
$\chi^2 = 8.752$	d.f. = 2	p = 0.013	C = 0.135

TABLE 51
PARTICIPATION IN FISHING BY READERSHIP OF OUTDOOR
SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	43 (19.5)	82 (50.0)	46 (51.1)
Does not read magazines	177 (80.5)	82 (50.0)	44 (48.9)
Totals	220 (100.0)	164 (100.0)	90 (100.0)
$\chi^2 = 48.678$	d.f. = 2	p < 0.001	C = 0.305

TABLE 52

PARTICIPATION IN ICE FISHING BY READERSHIP OF OUTDOOR
SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	113 (28.4)	40 (74.1)	18 (81.8)
Does not read magazines	285 (71.6)	14 (25.9)	4 (18.2)
Totals	398 (100.0)	54 (100.0)	22 (100.0)
$\chi^2 = 63.960$	d.f. = 2	p < 0.001	C = 0.345

TABLE 53

PARTICIPATION IN SNOWMOBILING BY READERSHIP OF OUTDOOR
SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	132 (32.8)	17 (42.5)	22 (71.0)
Does not read magazines	271 (67.2)	23 (57.5)	9 (29.0)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
$\chi^2 = 19.009$	d.f. = 2	p < 0.001	C = 0.196

TABLE 54

PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY
READERSHIP OF OUTDOOR SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	67 (28.0)	71 (39.7)	33 (58.9)
Does not read magazines	172 (72.0)	108 (60.3)	23 (41.1)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 20.385$	d.f. = 2	p < 0.001	C = 0.203

TABLE 55

PARTICIPATION IN GAME BIRD HUNTING BY READERSHIP OF
OUTDOOR SPORTS MAGAZINES

	Never	One Species	More Than One
Reads outdoor magazines	20 (15.0)	31 (23.5)	120 (57.4)
Does not read magazines	113 (85.0)	101 (76.5)	89 (42.6)
Totals	133 (100.0)	132 (100.0)	209 (100.0)
$\chi^2 = 75.874$	d.f. = 2	p < 0.001	C = 0.371

TABLE 56

PARTICIPATION IN WATERFOWL HUNTING BY READERSHIP
OF OUTDOOR SPORTS MAGAZINES

	Never	Occasionally	Frequently
Reads outdoor magazines	87 (24.2)	33 (60.0)	51 (85.0)
Does not read magazines	272 (75.8)	22 (40.0)	9 (15.0)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 97.756$	d.f. = 2	p < 0.001	C = 0.413

TABLE 57

PARTICIPATION IN BIG GAME HUNTING BY READERSHIP OF
OUTDOOR SPORTS MAGAZINES

	Never	One Species	More Than One
Reads outdoor magazines	33 (17.9)	10 (34.5)	128 (49.0)
Does not read magazines	151 (82.1)	19 (65.5)	133 (51.0)
Totals	184 (100.0)	29 (100.0)	261 (100.0)
$\chi^2 = 45.318$	d.f. = 2	p < 0.001	C = 0.295

TABLE 58

PARTICIPATION IN SMALL GAME HUNTING BY READERSHIP OF
OUTDOOR SPORTS MAGAZINES

	Never	One Species	More Than One
Reads outdoor magazines	60 (19.7)	39 (51.3)	72 (76.6)
Does not read magazines	244 (80.3)	37 (48.7)	22 (23.4)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
<hr/>			
$\chi^2 = 109.770$	d.f. = 2	p < 0.001	C = 0.481

An examination of the degrees of relationship shows that reading outdoor sports and conservation magazines was most strongly related to participation in fishing, ice fishing and hunting waterfowl, game birds, small game and big game. Whereas those who read outdoor sports magazines were more likely to participate in every activity, the weakest relationships were between magazine readership and water-skiing and snowmobiling.

Participation by urban-rural residence. Analyses were conducted to determine the effect of urban-rural residence on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For

purposes of testing, it was hypothesized:

Null Hypothesis 8. Persons in the various residential categories will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which persons in the various residential categories participated in:

1. Boating.
2. Lakeside camping and picnicking.
3. Game bird hunting.
4. Small game hunting.

The null hypothesis pertaining to urban-rural residence and the above outdoor recreational activities is rejected. Tables 59-62 report the findings.

TABLE 59
PARTICIPATION IN BOATING BY URBANISM

	Never	Occasionally	Frequently
1.	20 (6.2)	13 (11.6)	0 (0)
2.	111 (34.4)	59 (52.7)	26 (66.7)
3.	82 (25.4)	22 (19.6)	4 (10.3)
4.	1 (0.3)	0 (0)	0 (0)
5.	29 (9.0)	8 (7.1)	3 (7.7)
6.	80 (24.8)	10 (8.9)	6 (15.4)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 35.552$	d.f. = 10	$p < 0.001$	$C = 0.264$

TABLE 60

PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING BY URBANISM

	Never	Occasionally	Frequently
1.	23 (9.6)	8 (4.5)	2 (3.6)
2.	81 (33.9)	83 (46.4)	32 (57.1)
3.	66 (27.6)	31 (17.3)	11 (19.6)
4.	1 (0.4)	0 (0)	0 (0)
5.	21 (8.8)	14 (7.8)	5 (8.9)
6.	47 (19.7)	43 (24.0)	6 (10.7)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 22.602$	d.f. = 10	p = 0.012	C = 0.213

TABLE 61

PARTICIPATION IN HUNTING GAME BIRDS BY URBANISM

	Never	One Species	More Than One
1.	7 (5.3)	15 (11.4)	11 (5.3)
2.	56 (42.1)	51 (38.6)	89 (42.6)
3.	36 (27.1)	19 (14.4)	53 (25.4)
4.	0 (0)	0 (0)	1 (0.5)
5.	16 (12.0)	9 (6.8)	15 (7.2)
6.	18 (13.5)	38 (28.8)	40 (19.1)
Totals	133 (100.0)	132 (100.0)	209 (100.0)
$\chi^2 = 23.125$	d.f. = 10	p = 0.010	C = 0.216

TABLE 62

PARTICIPATION IN SMALL GAME HUNTING BY URBANISM

	Never	One Species	More Than One
1.	26 (8.6)	5 (6.6)	2 (2.1)
2.	135 (44.4)	26 (34.2)	35 (37.2)
3.	66 (21.7)	16 (21.1)	26 (27.7)
4.	0 (0)	0 (0)	1 (1.1)
5.	27 (8.9)	4 (5.3)	9 (9.6)
6.	50 (16.4)	25 (32.9)	21 (22.3)
Totals	304 (100.0)	76 (100.0)	94 (100.0)

$$\chi^2 = 21.058$$

$$d.f. = 10$$

$$p = 0.021$$

$$C = 0.206$$

No single pattern emerged. Persons living on a farm as part of a farming operation were most likely to hunt game birds and small game. Persons living in a multiple dwelling in a city were the next most likely to hunt game birds and persons living in a single dwelling in a city less than 2,500 were the next most likely to hunt small game. Persons living in a single dwelling in a city 2,500 or more were most likely to participate in boating; whereas those living on a farm as part of a farming operation were least likely.

Participation by farming. Analyses were conducted to determine the effect of farming on the extent to which respondents participated in each of the following outdoor recreational activities: swimming,

boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 9. Farmers and nonfarmers will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which farmers and nonfarmers participated in:

1. Boating.
2. Snowmobiling.
3. Game bird hunting.
4. Waterfowl hunting.
5. Big game hunting.
6. Small game hunting.

The null hypothesis pertaining to farming and the above outdoor recreational activities is rejected. Tables 63-68 report the findings.

TABLE 63
PARTICIPATION IN BOATING BY FARM OPERATOR OCCUPATION

	Never	Occasionally	Frequently
Farmer	85 (26.3)	12 (10.7)	6 (15.4)
Nonfarmer	238 (73.7)	100 (89.3)	33 (84.6)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 12.73$	d.f. = 2	p = 0.004	C = 0.164

TABLE 64

PARTICIPATION IN SNOWMOBILING BY FARM OPERATOR OCCUPATION

	Never	Occasionally	Frequently
Farmer	81 (20.1)	13 (32.5)	9 (29.0)
Nonfarmer	322 (79.9)	27 (67.5)	22 (71.0)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
$\chi^2 = 10.91$	d.f. = 2	p = 0.009	C = 0.151

TABLE 65

PARTICIPATION IN GAME BIRD HUNTING BY FARM OPERATOR OCCUPATION

	Never	One Species	More Than One
Farmer	20 (15.0)	39 (29.5)	44 (21.1)
Nonfarmer	113 (85.0)	93 (70.5)	165 (78.9)
Totals	133 (100.0)	132 (100.0)	209 (100.0)
$\chi^2 = 8.394$	d.f. = 2	p = 0.016	C = 0.129

TABLE 66

PARTICIPATION IN WATERFOWL HUNTING BY FARM OPERATOR OCCUPATION

	Never	Occasionally	Frequently
Farmer	72 (20.1)	19 (34.5)	12 (20.0)
Nonfarmer	287 (79.9)	36 (65.5)	48 (80.0)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 8.509$	d.f. = 2	p = 0.015	C = 0.132

TABLE 67

PARTICIPATION IN BIG GAME HUNTING BY FARM OPERATOR OCCUPATION

	Never	One Species	More Than One
Farmer	28 (15.2)	9 (31.0)	66 (25.3)
Nonfarmer	156 (84.8)	20 (69.0)	195 (74.7)
Totals	184 (100.0)	29 (100.0)	261 (100.0)
$\chi^2 = 12.46$	d.f. = 2	p = 0.005	C = 0.161

TABLE 68

PARTICIPATION IN SMALL GAME HUNTING BY FARM OPERATOR OCCUPATION

	Never	One Species	More Than One
Farmer	52 (17.1)	25 (32.9)	26 (27.7)
Nonfarmer	252 (82.9)	51 (67.1)	68 (72.3)
Totals	304 (100.0)	76 (100.0)	94 (100.0)
<hr/>			
$\chi^2 = 11.85$	d.f. = 2	p = 0.008	C = 0.157

Analysis of Tables 63 through 68 showed that farm operators were less likely to participate in boating but more likely to participate in snowmobiling and waterfowl hunting and to hunt one or more species of game birds, small game and big game. The strengths of relationships between farm operators and the activities significantly associated with the farm or ranch operator occupation varied slightly.

Participation by socioeconomic status. Analyses were conducted to determine the effect of socioeconomic status on the extent to which respondents participated in each of the following outdoor recreational activities: swimming, boating, water-skiing, fishing, ice fishing, snowmobiling, lakeside camping and picnicking, game bird hunting, waterfowl hunting, big game hunting and small game hunting. For purposes of testing, it was hypothesized:

Null Hypothesis 10. Persons in various socioeconomic statuses will not differ in the extent to which they participate in each of the specified outdoor recreational activities.

Significant differences were found to exist in the extent to which persons in various socioeconomic statuses participated in:

1. Swimming.
2. Boating.
3. Water-skiing.
4. Snowmobiling.
5. Lakeside camping and picnicking.
6. Waterfowl hunting.

The null hypothesis pertaining to socioeconomic status and the above outdoor recreational activities is rejected. Tables 69-74 report the findings.

TABLE 69
PARTICIPATION IN SWIMMING BY SOCIOECONOMIC STATUS

	Never	Occasionally	Frequently
1.	24 (7.4)	18 (17.3)	8 (18.2)
2.	50 (15.3)	36 (34.6)	10 (22.7)
3.	85 (26.1)	32 (30.8)	17 (38.6)
4.	92 (28.2)	15 (14.4)	7 (15.9)
5.	75 (23.0)	3 (2.9)	2 (4.5)
Totals	326 (100.0)	104 (100.0)	44 (100.0)
$\chi^2 = 58.009$	d.f. = 8	$p < 0.001$	$C = 0.330$

TABLE 70
PARTICIPATION IN BOATING BY SOCIOECONOMIC STATUS

	Never	Occasionally	Frequently
1.	23 (7.1)	18 (16.1)	9 (23.1)
2.	58 (18.0)	30 (26.8)	8 (20.5)
3.	87 (26.9)	32 (28.6)	15 (38.5)
4.	84 (26.0)	25 (22.3)	5 (12.8)
5.	71 (22.0)	7 (6.3)	2 (5.1)
Totals	323 (100.0)	112 (100.0)	39 (100.0)
$\chi^2 = 35.850$	d.f. = 8	$p < 0.001$	$C = 0.265$

TABLE 71
PARTICIPATION IN WATER-SKIING BY SOCIOECONOMIC STATUS

	Never	Occasionally	Frequently
1.	42 (9.5)	6 (27.3)	2 (18.2)
2.	91 (20.6)	4 (18.2)	1 (9.1)
3.	120 (27.2)	7 (31.8)	7 (63.6)
4.	108 (24.5)	5 (22.7)	1 (9.1)
5.	80 (18.1)	0 (0)	0 (0)
Totals	441 (100.0)	22 (100.0)	11 (100.0)
$\chi^2 = 19.836$	d.f. = 8	$p = 0.011$	$C = 0.200$

TABLE 72
PARTICIPATION IN SNOWMOBILING BY SOCIOECONOMIC STATUS

	Never	Occasionally	Frequently
1.	43 (10.7)	6 (15.0)	1 (3.2)
2.	73 (18.1)	12 (30.0)	11 (35.5)
3.	108 (26.8)	11 (27.5)	15 (48.4)
4.	103 (25.6)	9 (22.5)	2 (6.5)
5.	76 (18.9)	2 (5.0)	2 (6.5)
Totals	403 (100.0)	40 (100.0)	31 (100.0)
$\chi^2 = 24.115$	d.f. = 8	p = 0.002	C = 0.220

TABLE 73
PARTICIPATION IN LAKESIDE CAMPING OR PICNICKING
BY SOCIOECONOMIC STATUS

	Never	Occasionally	Frequently
1.	17 (7.1)	24 (13.4)	9 (16.1)
2.	40 (16.7)	45 (25.1)	11 (19.6)
3.	54 (22.6)	56 (31.3)	24 (42.9)
4.	67 (28.0)	38 (21.2)	9 (16.1)
5.	61 (25.5)	16 (8.9)	3 (5.4)
Totals	239 (100.0)	179 (100.0)	56 (100.0)
$\chi^2 = 42.099$	d.f. = 8	p < 0.001	C = 0.286

TABLE 74

PARTICIPATION IN WATERFOWL HUNTING BY SOCIOECONOMIC STATUS

	Never	Occasionally	Frequently
1.	34 (9.5)	7 (12.7)	9 (15.0)
2.	63 (17.5)	16 (29.1)	17 (28.3)
3.	98 (27.3)	18 (32.7)	18 (30.0)
4.	93 (25.9)	11 (20.0)	10 (16.7)
5.	71 (19.8)	3 (5.5)	6 (10.0)
Totals	359 (100.0)	55 (100.0)	60 (100.0)
$\chi^2 = 17.663$	d.f. = 8	p = 0.024	C = 0.189

The upper and upper-middle levels were more likely to participate in every activity significantly associated with socioeconomic status: those in the lower level were least likely to participate in any of the activities. Persons in the upper level were most likely to participate in boating, water-skiing and lakeside camping and picnicking. Those in the upper-middle level were most likely to participate in swimming, snowmobiling and waterfowl hunting.

Examination of the strengths of relationships indicates that the strongest relationships exist between socioeconomic levels and swimming and socioeconomic levels and lakeside camping and picnicking.

General summary. The number of outdoor recreational activities significantly associated with each of the independent variables ranged

from 4 to 11. Race, urban-rural residence, farm operator status and socioeconomic status showed significant differences for 4 through 6 activities. Children at home, veteran status, sex and marital status produced significant differences in 7 through 9 instances. Age and magazine readership were significantly associated with differences in 10 or more activities. It was found that participation in outdoor recreational activities varied among groups.

Socioeconomic Factors and Extent of Participation

A final objective of this study was to determine the extent to which a selected set of independent variables help explain significantly the variation in the extent of outdoor recreational participation.

Independent variables. For analytical purposes, 20 socioeconomic factors were presumed to help explain variant participation in outdoor recreational activities. They were:

- X₁. Sex: male or female.
- X₂. Race: white or nonwhite.
- X₃. Age as of last birthday.
- X₄. Education: some grade school; completed grade school; some high school; completed high school; post high school training, but not college; some college; completed college; some graduate work; graduate degree.
- X₅. Marital Status: single; married; separated-divorced, widowed.
- X₆. Farm Operator: farmer or nonfarmer.
- X₇. Income: \$0-\$2,999; \$3,000-\$5,999; \$6,000-\$8,999; \$9,000-\$11,999; \$12,000-\$14,999; \$15,000 and over.

- X₈. Completed Course in Safe Handling of Firearms: yes or no.
- X₉. Veteran Status: veteran or nonveteran.
- X₁₀. Currently Engaged in Active Predator Control: yes or no.
- X₁₁. Number of Outdoor Sports or Conservation Magazines Read Regularly.
- X₁₂. Urban-Rural Residence: city, 2,500 and over, and residing in a multiple dwelling; city, 2,500 and over, and residing in a single dwelling; town, less than 2,500, and residing in a multiple dwelling; town, less than 2,500, and residing in a single dwelling; open-country, but not as part of a farming operation; on farm as part of farming operation.

Scales were developed and tested to measure the attitudes of respondents towards hunting, hunters, game officials and game management. The scales consisted of sets of Likert-type statements. The respondents selected one of the following responses that best indicated their extent of agreement or disagreement with each statement appropriate to the respective scales.

1. Strongly disagree.
2. Disagree.
3. Somewhat disagree.
4. Undecided.
5. Somewhat agree.
6. Agree.
7. Strongly agree.

The numerical values assigned to each response were reversed for negatively phrased statements. Finally, the appropriate values were summed to calculate the total score for each scale. Scales were

devised in this way and incorporated as measures for variables

X₁₃ through X₁₆.

X₁₃. Attitudes towards Hunting: the scale consisted of the summated responses to three Likert-type statements:

1. Hunting helps to preserve the balance of nature.
2. There should be more restrictions on hunting.
3. All hunting should be banned in South Dakota.

X₁₄. Attitudes towards Hunters: the scale consisted of the summated responses to three Likert-type statements:

1. Most hunters follow good sportsmanship practices.
2. Hunters are persons who just like to kill animals.
3. Most hunters don't make use of the game they shoot.

X₁₅. Attitudes toward Game Officials: the scale consisted of the summated responses to three Likert-type statements:

1. Game wardens enforce game laws fairly.
2. The Department of Game, Fish and Parks usually makes decisions without considering the needs of the general public.
3. The Game, Fish and Parks Department personnel are the best qualified to make decisions about hunting regulations.

X₁₆. Attitudes toward Game Management: the scale consisted of the summated responses to three Likert-type statements:

1. South Dakota laws allow the killing of too many wild animals.
2. State regulations are conserving wildlife populations effectively.

3. All hunting should be regulated by the federal government.
- X₁₇. Number of Children Living at Home.
- X₁₈. Participation in Conservation or Outdoor Sports Groups:⁵³ a participation index was developed and tested to measure the extent to which respondents participated in the conservation or outdoor sports groups. The participation index represented the sum of the total number of:
- A. Organizations in which the respondent was a member the past year.
 - B. Organizations in which the respondent attended meetings the past year.
 - C. Offices previously or currently held in those organizations.

⁵³ Attitude and participation indexes in this study were tested for reliability employing an "alpha" test. The test for each scale produced a "standardized alpha" of sufficient size to consider the scale reliable.

X₁₉. Wildlife Preservation Index: a wildlife preservation participation index was developed and tested to measure the extent to which respondents participated in wildlife preservation programs. The participation index represented from among the following programs the total number the respondent indicated past or present participation:

1. Federal Wetlands Programs.
2. Boy Scouts of America Wildlife Conservation Program.
3. 4-H Wildlife Program.
4. State Acres for Wildlife.
5. Federal Set-aside Acres.
6. Wildlife Habitat Improvement Program (WHIP).
7. Ducks Unlimited.
8. Pheasants Unlimited.
9. Other programs.

X₂₀. Commitment to Dove Issue: an index measuring the extent either advocates or opponents of dove hunting were willing to encourage others to vote the same as they would vote was developed. The commitment index represented from among the following actions the total number respondent indicated willingness to take:

1. Talk with friends about the issue.
2. Contribute money to a campaign.
3. Talk to organizational meetings.
4. Organize a group to influence voting.

Dependent variable. The dependent variable was the same as specified and summated for Chi-square analysis; namely, extent of

participation in each of eight water-related outdoor recreational activities and the number of species hunted among game birds, small game and big game categories.

Null hypothesis. For purposes of testing the association between the independent variables and the dependent variable, the multiple independent variables $X_1, X_2, X_3, \dots, X_{20}$ were defined as a set, and the following null hypothesis was formulated:

The set of independent variables will not contribute significantly to the explanation of the variable observed in the extent of participation in outdoor recreational activities (Y_1).

Statistical findings. Stepwise multiple regression was used for statistical testing. Table 75 reports the statistical findings. At the 0.05 level of significance, variables $X_1, X_{11}, X_3, X_{17}, X_{12}, X_{10}, X_{16}, X_{20}, X_2, X_5, X_7, X_4$ and X_8 were found to contribute significantly to the explanation of the observed variation in the extent of participation in outdoor recreational activities.

Stated descriptively, South Dakotans with higher rates of participation in outdoor recreational activities were:

1. Males.
2. Readers of greater numbers of outdoor sports and conservation magazines.
3. Younger.
4. Householders with more children living at home.
5. Urbanites.
6. Participants in predator control.

7. Persons with less favorable sentiments regarding present game management regulations.
8. Highly committed advocates or opponents of dove hunting.
9. Nonwhites.
10. Single persons or married persons dwelling together.
11. Persons with higher incomes.
12. Persons with less formal education.
13. Persons who had taken a course in safe handling of firearms.

TABLE 75

SUM OF SQUARES AND PROPORTION OF VARIANCE ACCOUNTED FOR
BY THE INDEPENDENT VARIABLES AS ENTERED
INTO THE EQUATION

Independent Variables	Sum of Squares Accounted For	Proportion of Variation Explained	Cumulative Proportion of Variation Explained	Regression Coefficient for Significant Variables	Y Intercept
X ₁	1777.61050	0.2810	0.2810	-4.5074	28.92372
X ₁₁	728.28912	0.1287	0.4097	1.20156	
X ₃	147.30347	0.0527	0.4624	-0.64815	
X ₁₇	169.34405	0.0107	0.4731	0.28686	
X ₁₂	121.38915	0.0123	0.4853	-0.35614	
X ₁₀	83.94818	0.0088	0.4941	-2.41809	
X ₁₆	83.50200	0.0061	0.5002	-0.18588	
X ₂₀	66.91231	0.0060	0.5062	0.32958	
X ₂	58.77486	0.0048	0.5111	3.52688	
X ₅	38.89112	0.0043	0.5153	-0.51330	
X ₇	46.35648	0.0028	0.5182	0.26076	
X ₄	46.53209	0.0034	0.5215	-0.31132	
X ₈	26.31338	0.0034	0.5249	-0.92240	

CHAPTER VI

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Summary

Changing social and cultural structures due to increases in the extent of industrialization, urbanism, free time and time-saving technology, acting concomitantly with demographic shifts and a delay in the age at which adolescents assume adult roles, have created new and changing demands for available recreational facilities. The trend towards increasing leisure time and greater demand for recreational activity is expected to continue. Consequently, the sociological study of leisure activities has increased in importance. This study represents part of a research project designed to study attitudes and participation patterns regarding selected areas of hunting and outdoor recreation in South Dakota.

The purpose of this study was to examine the extent of participation in selected outdoor recreational activities and to determine the association between socioeconomic, demographic and attitudinal characteristics of South Dakotans and participation in selected outdoor recreation activities.

A number of perspectives and theoretical approaches concerning participation in leisure activities used in previous studies were reviewed. These approaches varied widely: however, this researcher found common elements among them. Nearly all writings and research

concerned with participation in outdoor leisure activities employed approaches that can be subsumed under one or more of the following categories:

1. Socioeconomic status.
2. Social situational factors.
3. Prior experiences or socialization.
4. Demographic variables.
5. Attitudinal variables.

The theoretical framework of this study utilized a more general conceptual model. It was held that current sociodemographic statuses and attitudes are affected by the sum of past experiences, jointly affect one another and influence overt behavioral patterns as they relate to participation in selected outdoor recreational activities. Consequently, it was hypothesized that participation in water-related leisure activities and the hunting of various game species is a function of:

1. Age.
2. Race.
3. Sex.
4. Education.
5. Marital status.
6. Farm or nonfarm occupation.
7. Income.
8. Enrollment in a course in safe handling of firearms.
9. Previous military experience.

10. Participation in predator control.
11. Regularly reading conservation or outdoor sports magazines.
12. Urban-rural residence.
13. Attitudes towards hunting.
14. Attitudes towards hunters.
15. Attitudes towards game officials.
16. Attitudes towards game management.
17. Number of children living at home.
18. Membership in conservation or outdoor sports groups.
19. Participation in wildlife preservation programs.
20. Commitment to the dove hunting issue.

The sample of 474 heads of households, or 0.025 percent of the total population of households in South Dakota, was drawn and the interviews were conducted. The unit of analysis was the individual taxpayer.

Findings of the study were reported in three sections. The first part was a descriptive examination of participation by South Dakotans in the selected outdoor recreational activities. The second part examined the association of sociodemographic and socialization factors with participation in the selected activities. The results were cross-tabulated and analyzed using nonparametric statistical tests of association. The third part provided an analysis of sociodemographic, socialization and attitudinal variables with participation in outdoor recreational activities, using a stepwise multiple regression procedure. The specified level of significance was 0.05.

The descriptive analysis revealed fishing and lakeside camping or picnicking to be the water-related activities in which the most people participated. Conversely, over 80 percent of the individuals sampled had not participated in water-skiing, ice fishing, or snowmobiling during the preceding year. Analysis of the hunting activities showed that 72 percent of the sample had hunted at least one specie of game birds but 64 percent reported they had never hunted small game.

Analysis of the tests of association showed that each of the sociodemographic and socialization variables were significantly related to four or more of the selected outdoor recreational activities. Readership of conservation or outdoor sports magazines was significantly associated with all 11 activities studied. Age was significantly associated with all activities except game bird hunting. The younger age groups were more likely to participate in every activity studied.

Analysis using stepwise multiple regression indicated that 13 variables contributed significantly to explaining variant outdoor sports participation. Persons who participated more in outdoor sports recreation were:

1. Males.
2. Readers of greater numbers of conservation and outdoor sports magazines.
3. Younger.
4. Householders with more children living at home.
5. Urban residents.
6. Participants in predator control.

7. Persons with less favorable sentiments regarding present game management regulations.
8. Highly committed advocates or opponents of dove hunting.
9. Nonwhites.
10. Single persons or married persons dwelling together.
11. Persons with higher incomes.
12. Persons with less formal education.
13. Persons who had taken a course in safe handling of firearms.

Conclusions

The author of this study concludes:

1. Although the findings indicate hunting, fishing and lakeside camping or picnicking to be popular outdoor leisure activities among South Dakotans, there is no consistent pattern regarding the attributes of individuals most likely to participate in these or other activities studied.

2. Participation in the various outdoor recreational activities selected for study depends on the characteristics of the activities. For example, swimming and lakeside camping or picnicking tend to be family oriented activities and are most likely to be participated in by married couples with children living at home, those between 15 to 59 years of age and members with higher socioeconomic status.

Hunting and fishing predominantly attract males, especially younger men. Hunting and fishing participants are also more likely to be single or married, to have had past experiences and socialization that would orient them towards hunting and fishing, to

regularly read conservation or outdoor sports magazines, to have had military experience, be farm operators and past participants in a course in the safe handling of firearms.

Boating, water-skiing and snowmobiling are recreational activities that require a much larger investment in equipment than the other activities studied. Therefore, it is not surprising to find persons within the higher socioeconomic levels to participate more in these activities. The participants in boating, water-skiing and snowmobiling are also more likely to be young and have children living at home.

These differences support the idea that the extent of participation in specific outdoor recreational activities by various aggregates of South Dakotans is a function of the activities. This may be due to factors associated with each activity, such as investment costs, strenuousness of the sport, the predatory nature of the activity and the extent the activity is family-oriented.

3. Varying participation in outdoor recreational activities in South Dakota partially supports previously posited theories and perspectives. Some generalizations can be made regarding participation by South Dakotans in outdoor activities and the theories or perspectives used in explaining participation patterns. Although age and socioeconomic status were not found to be significantly associated with each type of recreational activity studied, the analysis revealed that persons 60 years of age or older and persons in the lowest socioeconomic level were less likely to participate in any of the outdoor

activities. The only exception was between socioeconomic status and big game hunting, and here the extent of association was not significant. Consequently, old age and poverty, which tend to displace individuals from the mainstream of social and political activities, also act to remove them from the mainstream of outdoor leisure activities.

Attitudes towards hunting, hunters and game officials were found in a previous study⁵⁴ to be significantly associated with participation in hunting in South Dakota. However, when these attitudes were examined for their influence on participation in the larger domain of outdoor recreation, they did not contribute significantly to the explanation of variance in participation in the activities. The only attitudinal scale found to contribute significantly to the explanation was the one measuring attitudes towards game management. Thus, a general, positive attitude towards wildlife conservation was more likely to influence participation in a wider range of outdoor recreational activities than the more specific attitudes towards hunting, hunters and game management. The socioeconomic perspective, which states that participation in most recreational activities increases as income increases, was supported by this study. The argument that individuals in lower socioeconomic levels would use recreational facilities more if the facilities were more available and inexpensive was not supported.

⁵⁴Rosonke, op. cit., p. 93.

The more densely populated areas of South Dakota contain numerous lakes and park areas. For residents desiring to participate in lakeside camping or picnicking, a large investment in time or expense would not be necessary for the majority of South Dakotans. In other words, de facto opportunities do not vary greatly among socioeconomic levels. Nevertheless, analysis of findings show that persons in the middle and upper socioeconomic levels are more likely to participate in lakeside camping or picnicking.

Perspectives involving prior experiences or socialization experiences were supported in that readership of outdoor magazines and having taken a course in the safe handling of firearms were related to participation. However, in the multivariate analysis, previous military experience, membership in conservation or outdoor sports groups and participation in wildlife preservation programs were not significantly related to participation in outdoor recreational activities. Therefore, the perspectives dealing with socialization and past experiences were not supported to the extent anticipated. The opportunity approach, which states that urban residents will tend to be under-represented in outdoor recreation, was not supported. Residents of urban areas were more likely found to be participants in outdoor activities than residents of rural areas.

Regarding other perspectives or approaches previously mentioned in this study, the results of the analysis were inconclusive.

4. Sociodemographic, socialization and attitudinal variables are related to participation in the outdoor activities studied. The findings resulting from the regression analysis support this, and, indirectly, the theoretical framework.

Implications

The findings and conclusions pertinent to this study are seen by this researcher as having the following implications for policy formulation and practical application:

1. Most South Dakota residents do not maximize participation in outdoor recreational activities. Over two-thirds of the respondents reported that they had not been swimming, boating, water-skiing, ice fishing, snowmobiling or waterfowl hunting during the preceding year. One-half or more had not fished or participated in lakeside camping or picnicking. Thus, a large segment of South Dakotans are not enjoying the benefits of outdoor recreation at maximum levels. Although some activities have limited appeal due to the nature of the activities or the investment required to enjoy the sport, there are many activities of wide appeal that can presently be viewed as a state resource which many South Dakota residents seldom avail themselves. Programs providing education and encouragement may be areas of consideration to encourage greater participation.

2. Hunting and fishing are revenue producing sports in which only a small percentage of women participate. Because women comprise over half of the state's population, the relative nonparticipation of

women represents a large, untapped source of revenue through the sale of licenses and fees. Efforts towards promotional programs that enhance the appeal of these activities to South Dakota women may be desirable.

3. South Dakota residents over 60 years of age and those in the lowest socioeconomic level of the population are underrepresented in every outdoor activity examined. This may raise questions as to whether the needs of these groups in the area of outdoor leisure are presently being met. An examination of avenues by which the outdoor recreational needs of the aged and poor can be ascertained, and programs towards increasing involvement may be areas to examine.

4. Regarding hunting, a large majority of nonwhites have never hunted small game, and except for age group 15 to 29 over 71 percent have not hunted waterfowl the preceding year. In order to make better use of South Dakota's wildlife resources and increase revenues, programs designed to encourage increased participation in these hunting activities may be areas for consideration.

5. Businesses engaged in marketing equipment and supplies related to outdoor recreation activities may determine potential markets for their goods by using the information presented within this study. For instance, those most likely to engage in boating are middle-aged, have children living at home, reside in single dwellings in cities of 2,500 or more and of a middle socioeconomic level or higher. Conversely, persons who constitute the least potential for their products can be identified. Similar summaries can be made of other activities.

6. From a theoretical perspective, this study has shown the inappropriateness of examining variant patterns of participation in outdoor recreation using low level, monocausal theories or perspectives. Analysis of the findings and conclusions indicate the need to use a theoretical framework of a higher abstraction than has previously been employed in this field.

Limitations

The limitations of this study were:

1. The proportion of nonwhites in the sample was smaller than for the population. Consequently, the conclusions based on the findings regarding race as an influence on variant participation patterns in outdoor recreation must be interpreted in this light. On the other hand, the more homogenous composition presumed for the nonwhite population would lessen the need for larger sub-sample of that segment.
2. Attitudes measured in this study dealt only with hunting activities. Data on respondents' attitudes towards other areas of outdoor recreation would have enabled the researcher to make more comprehensive analysis as to the influence of attitudinal factors on patterns of participation in outdoor recreation.
3. The scales measuring the extent of participation in game bird, small game and big game hunting do not provide as precise a measure as to frequency of participation in these activities. The scales only provided discrete measures as to the number of species, if any, hunted.

Data based on continuous, interval measures would have met more adequately the assumptions of a multiple regression statistical analysis.

Recommendations For Further Research

Based upon the results of this research, this investigator suggests a number of questions for further research. They are:

1. Given a more comprehensive investigation of childhood socialization and attitudes, what is the interactive effect and relative importance of socialization experiences, structural variables and attitudes in explaining participation in outdoor recreational activities?

2. How does the individual's perceptions regarding the benefits of outdoor leisure activities influence the extent of participation in the various activities?

3. To what extent do the financial costs involved, including the costs of equipment, licenses, park fees, transportation and time, influence participation in outdoor recreation?

4. How do the perceived or desired benefits of outdoor recreational activities vary with the sociodemographic characteristics of participants?

REFERENCES CITED

1. Anderson, Nels. Work and Leisure. New York: The Free Press of Glencoe, 1962.
2. Bevens, Malcom, Robert S. Bond, Thomas J. Cochran, Kenneth D. McIntosh and Richard McNeil. Characteristics of Hunters and Fishermen in Six Northeastern States. Burlington, Vt., Agricultural Experiment Station, University of Vermont, Northeastern Region Research Bulletin, 1968.
3. Blood, Robert O. and Donald M. Wolfe. "The Power to Make Decisions." Sociological Analysis: An Empirical Approach Through Replication, Strauss and Nelson, Editors. New York: Harper and Row, Inc., 1968.
4. Blalock, Hubert M. Jr. Social Statistics. New York: McGraw-Hill Book Company, 1972.
5. Bogue, Donald J. Principles of Demography. New York: John Wiley and Sons, Inc., 1969.
6. Burdge, Rabel J. "Levels of Occupational Prestige and Leisure Activity." Journal of Leisure Research, 1:262-73, 1969.
7. _____. Occupational Influences On the Use of Outdoor Recreation, University Park, Unpublished Ph.D. dissertation, Pennsylvania State University, 1965.
8. _____, and Donald R. Field. "Methodological Perspectives for the Study of Outdoor Research." Journal of Leisure Research, 4:63-70, 1972.
9. Burch, William R. Jr. "The Social Circles of Leisure: Competing Explanations." Journal of Leisure Research, 1:125-148, 1969.
10. Carlson, John E. A Sociological Analysis of Factors Affecting Recreational Behavior. Pullman, Wa.: Unpublished Doctoral Dissertation, Washington State University, 1972.
11. Clark, Alfred C. "The Use of Leisure and Its Relation to Levels of Occupational Prestige." American Sociological Review, 21:301-312, 1956.
12. Clawson, M. and Jack Donetsch. "Outdoor Recreational Research: Some Concepts and Suggested Areas of Study." Natural Resources Journal, 3:250-275, 1963.

13. DeGrazia, Sebastian. Of Time, Work and Leisure. New York: The Twentieth Century Fund, 1962.
14. Edwards, Allen L. Techniques of Attitude Scale Construction. New York: Appleton, Century, Crofts, Inc., 1957.
15. Gerstl, Joseph E. "Leisure, Tastes and Occupational Milieu." Social Problems, 9:56-68, 1968.
16. Gilbert, Bill. "Hunting is a Dirty Business." Saturday Evening Post, October 21, 1967.
17. Goode, William J. "Outdoor Recreation and the Family to the Year 2000." Trends in American Living and Outdoor Recreation, ORRRC Study Report No. 22. Washington: U. S. Government Printing Office, 1962.
18. Hendee, John C. "Rural-Urban Differences Reflected in Outdoor Recreation Participation." Journal of Leisure Research, 1:333-341, 1969.
19. Hodges, Harold M. Jr. Social Stratification: Class in America. Cambridge: Schenkman Publishing Company, Inc., 1964.
20. _____. "Peninsula People: Social Stratification in a Metropolitan Complex." Permanence and Change, Clayton Lane, editor. Cambridge: Schenkman Publishing Company, Inc., 1969.
21. Hendricks, Jon. "Leisure Participation as Influenced by Urban Residence Patterns." Sociology and Social Research, 55:412-419, 1971.
22. Knopp, Timothy B. "Environmental Determinants of Recreational Behavior." Journal of Leisure Research, 4:129-138, 1972.
23. Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, Inc., 1973.
24. _____, and Elazar J. Pehauser. Multiple Regression in Behavioral Research. New York: Holt, Rinehart and Winston, Inc., 1973.
25. Krech, David, Richard S. Crutchfield and Egerton L. Ballachey. Individual in Society: A Textbook in Social Psychology. New York: McGraw-Hill Book Company, 1963.
26. Linder, Raymond L., Robert T. Wagner, Robert M. Dimit and Robert B. Dahlgren. Attitudes of South Dakota Residents Towards Dove Hunting. A paper presented to the North American Wildlife and Natural Resources Conference, March, 1974.

27. Lindsay, John J. and Richard A. Ogle. "Socioeconomic Patterns of Outdoor Recreational Use Near Urban Areas." Journal of Leisure Research, 4:19-24, 1972.
28. Morris, G., R. Pacework and J. Schultz. "Occupational Level and Participation in Public Recreation." Journal of Leisure Research, 1:25-32, 1970.
29. Mueller, Eva and Gerald Guin. Participation in Outdoor Recreation: Factors Affecting Demand Among American Adults, ORRRC Study Report No. 20. Ann Arbor: University of Michigan Survey Research Center, 1962.
30. Neulinger, John and Miranda Breit. "Attitude Dimensions of Leisure." Journal of Leisure Research, 1:255-261, 1969.
31. Newcomb, Theodore M., Ralph Turner and Philip Converse. Social Psychology: The Study of Human Interaction. New York: Holt, Rinehart and Winston, Inc., 1965.
32. Nie, Norman H. and C. Hadlai Hull. Statistical Package for the Social Sciences. New York: McGraw-Hill Book Company, 1970.
33. Noe, John. "Leisure Life Styles and Social Class: A Trend Analysis, 1900-1980." Sociology and Social Research, 49:76-84, 1964.
34. Peterle, Tony J. "Characteristics of Some Ohio Hunters." Journal of Wildlife Management, 37:375-389, 1967.
35. Rosonke, Jerome R. A Study of Attitudes of South Dakota Residents Towards Selected Aspects of Hunting, Hunters, and Game Officials. Brookings, S. D.: An Unpublished Doctoral Dissertation, South Dakota State University, 1974.
36. _____, Robert T. Wagner, Robert M. Dimit and Raymond Linder. Attitudes of South Dakota Residents Towards Hunting, Hunters, and Game Officials. A paper presented to the Midwest Sociological Society, April, 1974.
37. Roscoe, John T. Fundamental Research Statistics for the Behavioral Sciences. New York: Holt, Rinehart and Winston, Inc., 1975.
38. Seigel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

39. Sofranko, Andrea J. and Michael F. Nolan. Selected Characteristics, Participation Patterns, and Attitudes of Hunters and Fishermen in Pennsylvania. University Park, Pa., Agricultural Experiment Station Research Bulletin, Pennsylvania State University, 1970.
40. _____, and Michael Nolan. "Early Life Experiences and Adult Sports Participation." Journal of Leisure Research, 4:6-18, 1972.
41. Wilt, Peter and Daryle Bishop. "Situational Antecedents to Leisure Behavior." Journal of Leisure Research, 4:64-77, 1970.
42. Yoesting, Dean R. and Dan Burkhead. "Significance of Childhood Recreational Experience on Adult Leisure Behavior: An Exploratory Analysis." Journal of Leisure Research, 4:25-36, 1973.