# A PRELIMINARY ASSESSMENT OF MANITOBA'S OUTDOOR RECREATIONAL NEEDS

By

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Requirement for the Degree,
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## ABSTRACT

The major purpose of this thesis is to define areas of 'need' in the province of Manitoba with regard to outdoor recreational facilities and to project the 'supply' and 'demand' for outdoor recreational facilities into the future. 'Need' is defined as the difference between the amount of a resource or facility demanded and the amount supplied. To determine the current 'need' for outdoor recreational facilities it is necessary to determine the current 'supply' and the current 'demand' for those facilities.

This study presents an inventory of facilities for various outdoor recreational activities. This study also presents current 'demand' information in the form of participation rates and the frequency of participation as determined through a telephone survey of approximately 2,000 Manitobans. Through various participation rate factors and facility standards, the participation information is transformed into the volume of resources demanded which is then compared to the volume of resources supplied thus revealing a deficit or a surplus of facilities. The surplus or deficit ('need') is then projected to the years 1990 and 2030.

This study also attempts to measure latent demand via the telephone survey but because of a poor response rate the attempt was unsuccessful. Facility adequateness is also examined through the survey along with campsite preference.

Many irregularities appear in the final 'need' figures which indicate problems with the participation rate factors and facility standards. Even with the indicated data limitations and project limitations, an order of priority of 'need' can be determined. With all factors considered, the activities of camping, golfing, and downhill skiing indicate the greatest deficits with regard to the facilities ranking first, second and third respectively on the priority list. These same activities rank fourth, eleventh, and first respectively on a priority list based on levels of registered inadequateness of facilities.

The study recommends that, (a) further work be carried out in the area of participation rates and standards, (b) the precise nature of the facility inadequacies be determined, and (c) emphasis be placed on the facilities which indicate the highest amount of deficit and the highest amount of facility inadequateness.

ACKNOWLEDGEMENTS

A Preliminary Assessment of Manitoba's Recreational Needs has been the result of a vast number of individuals responsible for supplying information for the purposes of doing an inventory of the outdoor recreational facilities in the province. I wish to acknowledge the Research and Planning staff of the Department of Natural Resources, Parks Branch who gave much direction to the project. A special thanks goes to Messrs. R. Wilson and D. Wang of the Parks Branch who contributed much of their valuable time.

I wish to gratefully acknowledge Mr. P. Spevack of the Department of Economic Development and Tourism who provided much of the expertise in the development of the computer program used to analyse the results of the questionnaire. A special thanks also goes to Mrs. J. Creamer who typed the majority of the tables and the final copy and to Miss P. Misko who typed the draft version of this thesis.

I would like to thank the respondents of the questionnaire especially those who gave added information in the form of comments. Suggestions were passed along by Dr. J. Romanowski of the University of Manitoba. Finally, I wish to acknowledge the assistance and encouragement of my wife, Emily, who had to endure many hours of preoccupation with the writing of this thesis and all that it involved.

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# CHAPTER ONE

# INTRODUCTION

"A Preliminary Assessment of Manitoba's Outdoor Recreational Needs" is an analysis of the relationship between recreation supply and demand as a part of the Manitoba Provincial Park Systems Plan. The study will link the participation rates in various service regions to the supply of recreation resources, and project recreation demand and supply into the future.

## 1. Purpose

The major purpose of this thesis is to define areas of need in the province of Manitoba with regard to outdoor recreational facilities. In order to define the need for facilities one must define the demand for the facilities and also define the existing supply of facilities. It is also the purpose of this thesis therefore to define and update the estimate of demand for and the supply of outdoor recreational facilities in the province of Manitoba.

Second to the major purpose, this study will attempt to project the supply and demand for outdoor recreational facilities into the future. The results of such a projection will, it is hoped, be used in planning future facilities.

Third, this study will also attempt to determine the 'latent' demand for outdoor recreational facilities. This will, it is hoped, give the reader an indication of the recreational preferences of Manitobans.

A fourth and minor purpose of this thesis is to determine the outdoor recreationists' view toward the adequacy of outdoor recreational facilities.

## 2. Scope

This study encompasses the entire province of Manitoba in regard to the supply of and the demand for outdoor recreational facilities. The study deals with the province as a whole along with rural-urban and regional breakdowns. Most of the information presented in this thesis is also available by municipality in the Appendices.

## 3. Sources and Methods of Collecting Data

The sources of data for this study have been many and varied. On the supply side of the study the major sources are: The 1971 Facilities Inventory as created by the Department of Tourism, Recreation and Cultural Affairs which has been updated in part to varying degrees each year since its creation; the 1979-80 Manitoba Vacation Guide published by the Government of Manitoba under the supervision of the Department of Tourism and Cultural Affairs; and various documents obtained from federal, provincial, municipal and city agencies. Much of the information thus obtained was further updated through personal contacts with people in the various agencies, and contacts with people in the field who are directly responsible for the various facilities.

The information for determining the demand for outdoor recreational facilities was obtained from a survey designed and carried out by the author for the purpose of obtaining current participation rates and frequency of participation in various outdoor recreational activities.

4. Limitations

There are two main types of limitations encountered by this project. There are data limitations and project limitations. Under the former there are data limitations associated with each of the 'demand', 'supply' and 'need' data categories. Under the project limitations there are problems associated with the primary and secondary data, the participation rates, formulae promulgating errors, survey design, defining participation (demand) and 'need', and problems in identifying levels of facility inadequateness. Each of the above limitations is discussed in detail in Chapter 5 of this thesis.

5. Background Information

To put this study into an academic perspective, it represents work done in the field of Geography under the sub-discipline of research and planning with regards to our natural resources, specifically the outdoor recreational use of land and water.

The study posed a problem in itself because little has been done to date in the area of defining the need for outdoor recreational facilities. A study entitled "The Need and Associated Benefits of Recreation in the Souris River Basin" contains the basis for much of the methodology used in this report. The above study was completed in co-operation between the Parks Branch and the Research and Data Services Branch both of the Department of Tourism, Recreation and Cultural Affairs in March of 1978. This study represents only a portion of the Souris River Basin Study. The Souris River Basin Study Board was made up of members from the governments of Canada, Manitoba and Saskatchewan.

## 6. Plan of Presentation

This thesis will first present some recreation research and planning concepts necessary for determining the demand and supply of outdoor recreational facilities. The following chapter will cover the methodology used to determine recreation demand, supply and need. This section will be followed by an analysis of the data and a list of the data limitations. The final results will be evaluated and conclusions and recommendations made.

## CHAPTER TWO

## RECREATION RESEARCH AND PLANNING

It has been generally accepted by most people that the amount of leisure time available to the general population has been on an upswing for at least the past fifty years. This trend started much earlier but the most dramatic changes can be seen since the 1920's. Problems have arisen because of this increase in free time and many agencies have had to face these problems squarely. Various levels of government have had to cope with planning and administrative problems in order to deal with an increasing demand for active and passive recreational, entertainment and cultural facilities to mention a few. As indicated above, this thesis will deal mainly with the need for recreational facilities as they pertain to the out-of-doors type of recreation.

For the purposes of this study, outdoor recreation is defined as an activity or experience carried on out-of-doors, usually chosen voluntarily by the participant, either because of the immediate satisfaction to be derived from it, or because one perceives some personal or social values to be achieved by it. It is carried on in leisure time, and has no work connotations.

1. Forces Involved in the Growth of Recreational Activity

According to Thomas L. Burton there are three main forces which have caused a rapid growth in recreational activity. They are technological, institutional and socio-economic forces (Burton, 1970:14).

A. Technological Forces.—It appears that improvements in the methods of transportation and in the movement of information and ideas are the major technological forces which influence the growth of recreational activity.

(1) Transportation.—Mobility has and will probably always play a major role in the formation of recreational patterns. The development of the railroad was responsible for making accessible, areas normally out of reach for most people. Excursions to remote areas of the country developed. Seaside resorts were no longer available to only the higher income earners. The relative inexpensiveness of the railroad catered to all classes of society.

The family automobile soon replaced the train as the main form of transportation. With the coming of the automobile greater mobility resulted. People were no longer restricted by the routes and schedules set by the railroads. As the road network developed many formerly isolated places became havens for people pursuing recreational activities. "The way was literally paved for the automobile to become king of travel in America" (Jensen, 1973:39). The automobile has also played a major role in urban recreation especially in the large urban centres.

Air travel has also influenced the mobility of the general population as a whole but this form of travel is not as important as the family auto in terms of movement of people on a local or regional scale.

(2) Movement of Information.—Along with improvements in transportation there has also been a significant development of communication through radio, television, and the telephone. These developments have tended to introduce to people new ideas for leisure-time activity through information flow. In some cases they have become recreational pursuits in themselves (Burton, 1970:16).

B. Institutional Forces.—Changes in labor legislation have played an important role in the development of patterns of recreational activities. The law defines the maximum number of hours of work per week and also guarantees the right to each and every employee that they receive certain statutory holidays and a certain amount of annual leave all without loss of pay.

Trade unions are another institutional force which has shaped recreational patterns. The trade unions have been responsible for negotiating shorter working hours per week, longer periods of paid annual leave, and a general increase in wage rates.

Institutional forces have influenced the balance of time between work and recreation, and in the amount of discretionary income people have available for recreational and other pursuits.

C. Socio-Economic Forces.—According to Thomas L. Burton, the socio-economic forces have been of three main kinds: demographic factors, income and occupation, and education.

(1) Demographic Factors.—Of the demographic factors; age, sex and family structure are the most important. These factors are particularly significant in determining the nature and amount of recreational activities in which people take part. Past trends seem to indicate that participation in most outdoor recreational pursuits are at their highest

levels at ages below 25 years, and that participation rates decline with age thereafter (Burton, 1970:19). Family structure and sex factors affect the type of activity that people pursue, more so than the amount of activity.

(2) Income and Occupation.—Income has been steadily increasing along with the cost of living but C. R. Jensen suggests that "in terms of purchasing power per capita, today's consumer is more than two and one-half times as well off as the consumer in the mid 1930's" (1973:45). This statement was made in the early 1970's. As can be seen from Table 1, the total personal expenditure on recreation, sporting and camping equipment and recreational services in Canada has increased from less than a billion dollars in the late 1940's to over 6 billion in the late 1970's. Figure 1 illustrates this growth in constant (1971) dollars for each person based on population levels from Table 2. The amount of money spent on recreational equipment and services has increased by 384% during the period 1947 to 1978 (Table 3).

One may argue that the expenditure figures represent the Canadian average and not the average of Manitobans. The expenditure data is only available for a Canadian aggregate and is not broken down by province. As a result, a simple linear regression model was applied to find the amount of correlation between the average Canadian expenditure on recreational goods and services on the one part and the Manitoban average participation rate in park use on the second part with the latter being the dependent variable and the former being the independent variable.

The data (Table 4) was plotted and the "best fitting" line which minimizes the sum of squares of the deviations of the observed values of the dependent variable from those predicted was constructed

TABLE 1

TOTAL PERSONAL EXPENDITURE ON RECREATION, SPORTING AND CAMPING EQUIPMENT AND RECREATIONAL SERVICES IN CONSTANT (1971) DOLLARS (IN MILLIONS OF DOLLARS)

| Year | Recreation, Sporting & Camping Equipment | Recreational Services | Total |
|---|---|---|---|
| 1947 | 234 | 442 | 676 |
| 1948 | 241 | 444 | 685 |
| 1949 | 242 | 488 | 730 |
| 1950 | 249 | 519 | 768 |
| 1951 | 262 | 510 | 772 |
| 1952 | 275 | 551 | 826 |
| 1953 | 327 | 560 | 887 |
| 1954 | 362 | 543 | 905 |
| 1955 | 425 | 515 | 940 |
| 1956 | 498 | 479 | 977 |
| 1957 | 535 | 475 | 1,010 |
| 1958 | 570 | 481 | 1,051 |
| 1959 | 634 | 476 | 1,110 |
| 1960 | 668 | 475 | 1,143 |
| 1961 | 733 | 475 | 1,208 |
| 1962 | 801 | 481 | 1,282 |
| 1963 | 867 | 507 | 1,374 |
| 1964 | 974 | 541 | 1,515 |
| 1965 | 1,069 | 585 | 1,654 |
| 1966 | 1,193 | 646 | 1,839 |
| 1967 | 1,299 | 815 | 2,114 |
| 1968 | 1,394 | 767 | 2,161 |
| 1969 | 1,517 | 765 | 2,282 |
| 1970 | 1,568 | 820 | 2,388 |
| 1971 | 1,990 | 942 | 2,932 |
| 1972 | 2,524 | 1,023 | 3,547 |
| 1973 | 3,055 | 1,118 | 4,173 |
| 1974 | 3,524 | 1,346 | 4,870 |
| 1975 | 3,632 | 1,421 | 5,053 |
| 1976 | 4,008 | 1,574 | 5,582 |
| 1977 | 4,241 | 1,589 | 5,830 |
| 1978 | 4,454 | 1,650 | 6,104 |

Sources: Canada. Statistics Canada. 1975. National Income and Expenditures Accounts. No. 13-531 (1): 94,194,294. Ottawa: Queen's Printer.

Canada. Statistics Canada. 1979. National Income and Expenditures Accounts. No. 13-201 (1): Table A. Ottawa: Queen's Printer.

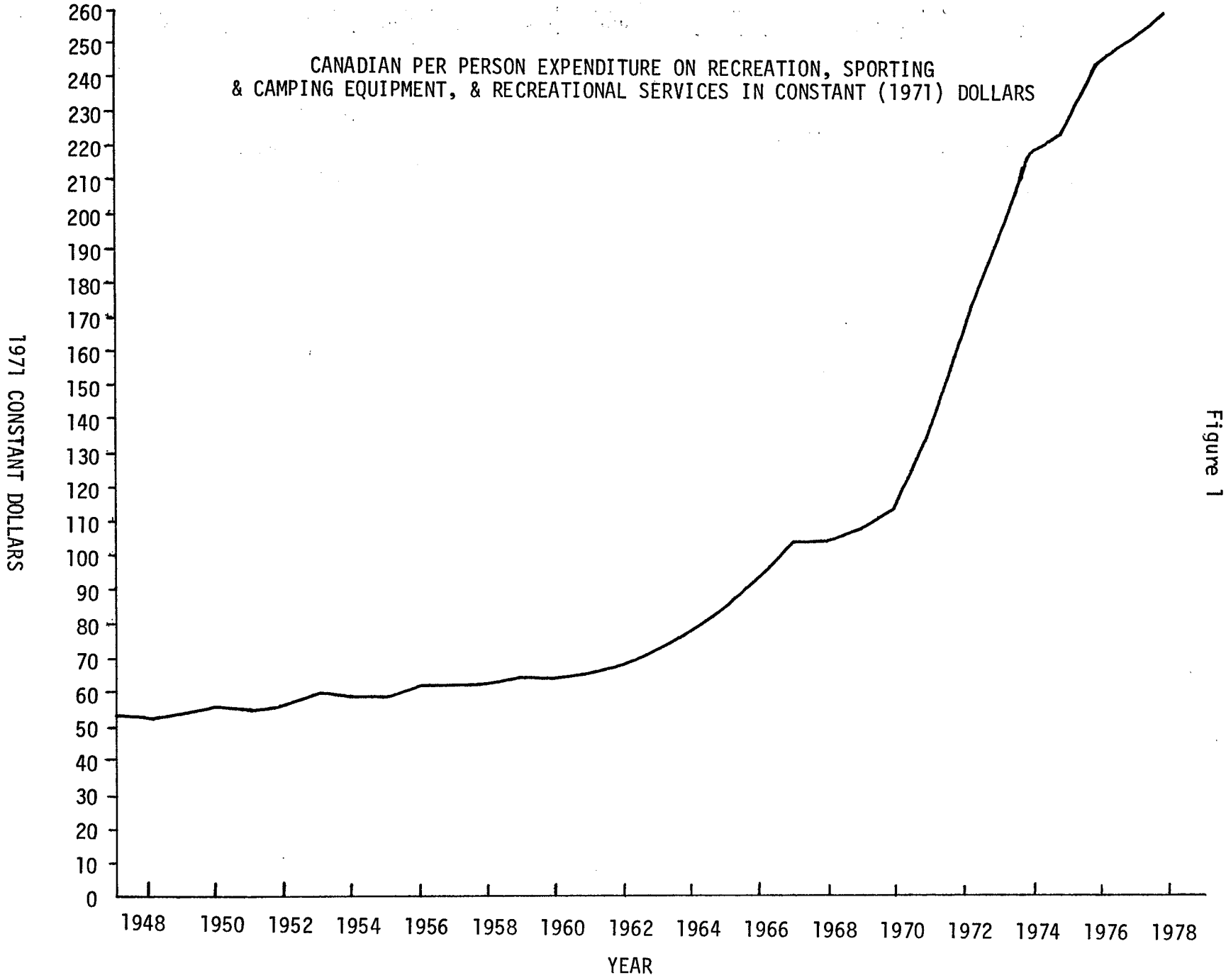

CANADIAN PER PERSON EXPENDITURE ON RECREATION, SPORTING
& CAMPING EQUIPMENT, & RECREATIONAL SERVICES IN CONSTANT (1971) DOLLARS
1971 CONSTANT DOLLARS
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1948
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
YEAR

Figure 1

TABLE 2

POPULATION OF CANADA (IN MILLIONS)

| Year | Population | Year | Population |
|---|---|---|---|
| 1947 | 12.6 | 1964 | 19.3 |
| 1948 | 12.8 | 1965 | 19.6 |
| 1949 | 13.4 | 1966 | 20.0 |
| 1950 | 13.7 | 1967 | 20.4 |
| 1951 | 14.0 | 1968 | 20.7 |
| 1952 | 14.6 | 1969 | 21.0 |
| 1953 | 14.8 | 1970 | 21.3 |
| 1954 | 15.3 | 1971 | 21.6 |
| 1955 | 15.7 | 1972 | 21.8 |
| 1956 | 16.1 | 1973 | 22.0 |
| 1957 | 16.6 | 1974 | 22.4 |
| 1958 | 17.1 | 1975 | 22.7 |
| 1959 | 17.5 | 1976 | 23.0 |
| 1960 | 17.9 | 1977 | 23.3 |
| 1961 | 18.2 | 1978 | 23.5 |
| 1962 | 18.6 | 1979 | 23.7 |
| 1963 | 18.9 | | |

Source: Canada. Statistics Canada. 1979. National Income and Expenditures Accounts. No. 13-201 (1): Table A. Ottawa: Queen's Printer.

TABLE 3

CANADIAN PER PERSON EXPENDITURE ON RECREATION, SPORTING AND CAMPING EQUIPMENT, AND RECREATIONAL SERVICES IN CONSTANT (1971) DOLLARS

| Year | Amount* |
|---|---|
| 1947 | $ 53.65 |
| 1948 | 53.52 |
| 1949 | 54.48 |
| 1950 | 56.06 |
| 1951 | 55.14 |
| 1952 | 56.58 |
| 1953 | 59.93 |
| 1954 | 59.15 |
| 1955 | 59.87 |
| 1956 | 60.68 |
| 1957 | 60.84 |
| 1958 | 61.46 |
| 1959 | 63.43 |
| 1960 | 63.85 |
| 1961 | 66.37 |
| 1962 | 68.92 |

| Year | Amount* |
|---|---|
| 1963 | $ 72.70 |
| 1964 | 78.50 |
| 1965 | 84.39 |
| 1966 | 91.95 |
| 1967 | 103.63 |
| 1968 | 104.40 |
| 1969 | 108.67 |
| 1970 | 112.11 |
| 1971 | 135.74 |
| 1972 | 162.71 |
| 1973 | 189.68 |
| 1974 | 217.41 |
| 1975 | 222.60 |
| 1976 | 242.70 |
| 1977 | 250.21 |
| 1978 | 259.75 |

*Calculation Formula: Totals from Table 1 divided by population figures from Table 2.

TABLE 4

SIMPLE REGRESSION DATA
PER FIGURE 2 (1964-1978)

| Year | Dependent Variable[1] Manitoba Park Use Participation Rate (Per Capita) | Independent Variable[2] Canadian Expenditure On Recreation Goods & Services (Per Capita) |
|---|---|---|
| 1964 | 1.47 | 78.50 |
| 1965 | 1.63 | 84.39 |
| 1966 | 1.60 | 91.95 |
| 1967 | 1.94 | 103.63 |
| 1968 | 1.83 | 104.40 |
| 1969 | 2.47 | 108.67 |
| 1970 | 2.70 | 112.11 |
| 1971 | 3.03 | 135.74 |
| 1972 | 3.26 | 162.71 |
| 1973 | 3.93 | 189.68 |
| 1974 | 3.68 | 217.41 |
| 1975 | 4.05 | 222.60 |
| 1976 | 4.18 | 242.70 |
| 1977 | 3.92 | 250.21 |
| 1978 | 3.94 | 259.75 |

Sources:

1. Manitoba. Department of Natural Resources. Parks Branch. 1978. "Manitoba Park Use - Participation Rate - Indexed. (Unpublished data). Winnipeg: Parks Branch.

2. From Table 3.

(Figure 2). The simplest functional form is the straight line which is constructed by the formula $Y = a + bX$.

Where: Y = dependent variable - park use

X = independent variable - expenditure

a = the value of Y at the Y axis when X = 0

b = the increase in Y for each unit increase in X

As a result of computing the data (Table 4) using the simple linear regression equation it was determined that there was a correlation coefficient (r) of 0.94. The correlation coefficient varies from zero (no correlation) to $\pm 1.0$ (perfect positive or negative correlation). A correlation coefficient of 0.94 is almost a perfect positive correlation. The square of the correlation coefficient yields the coefficient of determination ($r^2$) which may be defined as a measure of the extent to which the independent variable accounts for the variability in the dependent variable. The calculated coefficient of determination is 0.89. A test of significance (student's t-test) indicated that the Canadian per capita expenditure on recreational, sporting and camping equipment and recreational services explained 89% of the variation in the Manitoba per capita park use participation rate at the .05 significance level.

As a result of this highly significant correlation, this paper will assume that the recreational expenditure figures as calculated for the average Canadian will also apply to the average Manitoban.

It seems that after a certain point, people make a decision to "choose free time over increased production" (Jensen, 1973:45). In recent decades our productivity has improved greatly and now we have a choice between additional goods or increased leisure time. It is

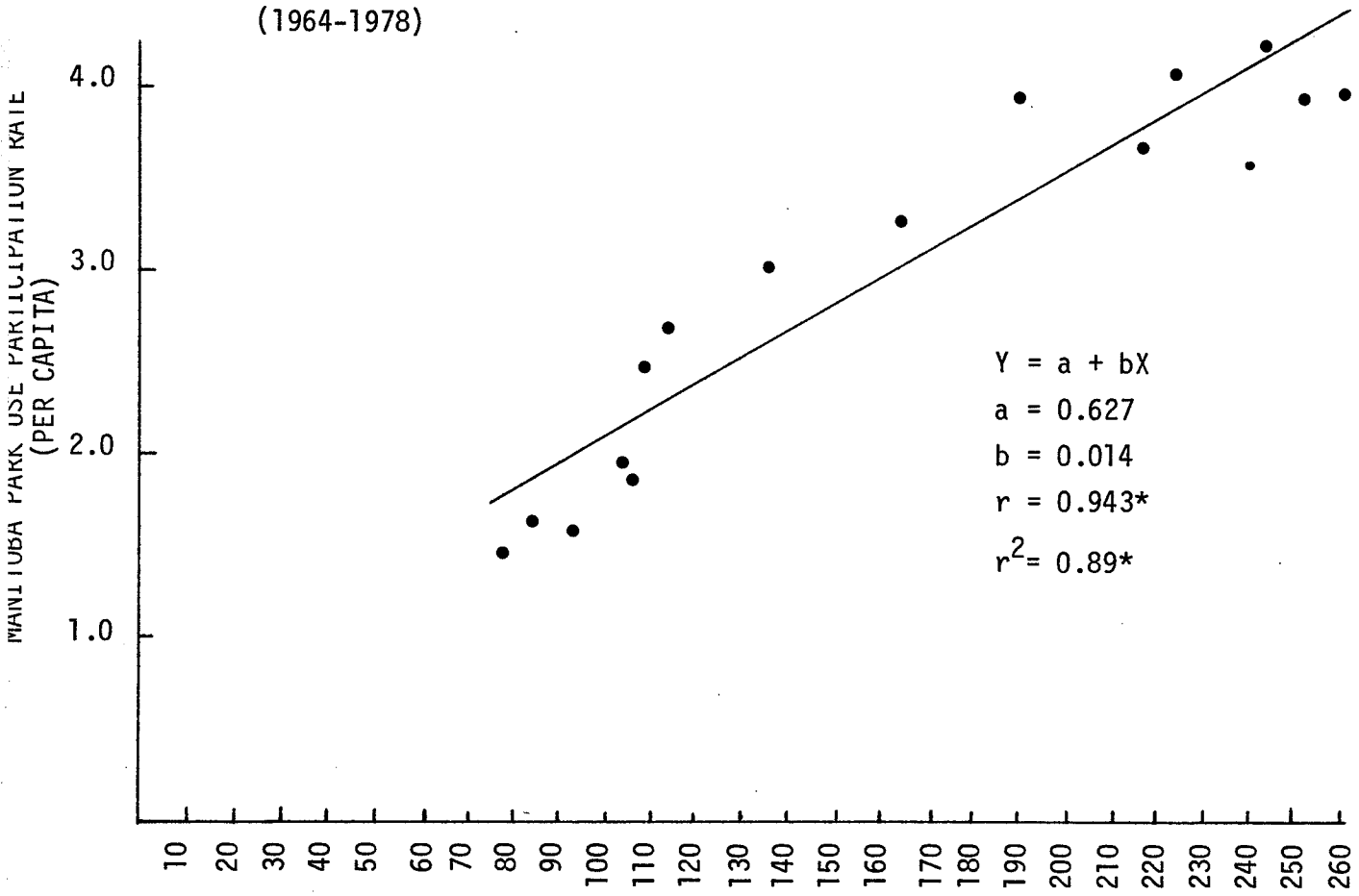
Figure 2

SIMPLE REGRESSION PLOT

INDEPENDENT VARIABLE: CANADIAN EXPENDITURE ON RECREATIONAL GOODS AND SERVICES

DEPENDENT VARIABLE: MANITOBA PARK USE PARTICIPATION RATE

(1964-1978)




CANADIAN EXPENDITURE ON RECREATIONAL, SPORTING AND CAMPING EQUIPMENT AND RECREATIONAL SERVICES IN CONSTANT (1971) DOLLARS (PER CAPITA)

*Statistically significant at the .05 level.

Source: Table 4.

this increased leisure time which has greatly influenced participation rates in outdoor recreation and thus has influenced the demand for outdoor recreational facilities.

Occupation has also been an influencing factor in the types of recreational activities pursued and also in the amounts of leisure time available and the amount of personal disposable income. Most studies show that there is a great deal of intercorrelation among the variables income, occupation and levels and types of recreational activities pursued.

(3) Education.—Education is usually a factor which plays a role in the level of personal income that can be achieved. Higher education usually means higher income; and higher income influences what people do for recreation and where they go to practice it. According to Jensen, "education's effect on recreation is due to the positive relationship between level of education and diversification of interests" (Jensen, 1973:50). He claims that as a result of higher education a person tends to broaden their horizon of interests, appreciations, and skills in recreational pursuits and, therefore, will have higher expectations for areas, facilities and programs in order to satisfy these increased interests. According to Burton, "people who have received formal education beyond the age of 15 years tend to participate more often in a wider range of activities than those who have not" (Burton, 1970:20).

## 2. Recreation Demand

Recreation demand is a concept which has definition problems. It is a concept which is influenced by many factors. It is in some ways a measurement of considerations other than demand.

A. Defining Recreation Demand.—Demand for recreation will be defined for the purpose of this study as the amount of a recreational facility that is requested by a population as determined by past use. The author is in agreement with J. L. Knetsch who states,

> "...so called 'demand' is not demand at all. The participation rate figures observed are taken under prevailing recreation opportunity conditions. This use or attendance is determined by both demand and the availability of supply" (1973:86).

It is true that past participation is not in itself a measurement of demand. Some people would rather term this application of the word 'demand' as "consumption" (Clawson and Knetsch, 1966:115). They write

> "Attendance or use figures are the net effect of the existing demand and the existing supply, and should be so recognized. Improper accounting of supply considerations leads to the assumption that people will demand increasing quantities of what they now have, and can perpetuate present imbalances" (1966:116).

It is very difficult to determine what level of demand there would be for future facilities. What people do for recreation depends for a large part on the opportunities (supply) available to them and where it is available to them. In an area where there is a large supply of suitable swimming water, the use (consumption) for such purposes as swimming, boating, water skiing and similar water-based activities will be high if the supply is located relatively close to the population centre. If an area is poorly supplied with such water either through the lack of water itself, the poor quality of water which may be available or the distance at which the water is located from the population centre, the use of such water for these activities will be low. If consumption is taken to be demand, care should be taken then

in this example of not providing more access and more facilities for water oriented activities in the area already well supplied but rather to provide suitable water in the area that lacks such an opportunity.

The major question that arises from the above deliberation deals with the concept of 'latent demand'. Latent demand can be defined as 'demand', or for the purpose of this paper, as 'participation' which is dormant. It is demand which is present but not visible or active. It is demand which has the 'potential' to develop into something active.

If we accept as given the factors of present motivation, and present time and money budgets, present latency is due to lack of supply. There is no real means of determining present latency except by drawing parallels between the particular problem situation being dealt with, and another comparable situation in which all variables are the same except for the factor of supply.

Latent demand can also be found in other forms. A person may participate in a substitute activity because there is no facility available for the preferred activity. It is very difficult to measure this form of latent demand.

Even though statistics on participation alone ignores the question of what the recreation choices would be if work-weeks were shorter, more facilities were available and if travel time and costs were reduced, 'participation' for the purposes of this thesis will be treated as synonymous with 'demand' because the concept "What would you do if...?", is extremely difficult to evaluate and qualify. Most studies neglect true demand and concentrate on participation. As used in this study, demand refers only to participation rates and number of recreation users.

B. Factors Affecting Demand.—There are many factors which influence the demand for outdoor recreational facilities. This study will attempt to examine a few.

(1) Available Recreation Time.—There are different periods of time available for recreation. There are evenings, half days, whole days, weekends and even longer periods which can be termed holidays. Total non-working time in a year is not a very good determinant as to the choice of activity pursued. More important is the length of each period of leisure time. The prevalence of shift working or the staggering of working hours affects the distribution of the working population's total opportunities for recreation.

(2) Cost.—The cost of recreating stems from different sources. There are costs associated with the use of the facilities, transportation to the facilities, and equipment required for the chosen activity. Some of the costs may be ongoing and some may be non-repetitive, such as the purchase of a tennis racquet. Some of the costs may be direct and some may be indirect. Indirect costs are involved when a person uses subsidized public transportation (urban), municipal tennis courts, provincial parks and related facilities. In most cases the cost to the user is not the true or total cost.

Cost plays an important role in the decision-making process as to what activity a person can afford to participate in. Cost is clearly related to disposable income. As the amount of disposable income decreases, the selection or range of choice of recreational activities available to a person also decrease.

(3) Education.—The level or the amount of education a person receives also influences the choice of activities pursued. As the

educational system broadens its horizons the students enrolled in that system are introduced to an increasing range of activities. Education affects participation much the same as income does; generally speaking, the more of it people have up to a certain point the more they are likely to participate (demand).

(4) Car Ownership.—The number of automobiles has greatly increased over the last few decades. Being mass produced mostly in this century the automobile has been adopted by almost every family in North America. It has become not only a source of transportation to recreation sites but also the basis of several forms of recreation itself. It has revolutionized society's use of leisure time. Some pursuits are more strongly influenced by car ownership than others. If a person does not have access to a vehicle it is difficult to reach most of the recreational areas, thus restricting participation, which in turn reflects upon demand.

(5) Life Styles.--Recreation patterns are also influenced by life styles and life cycles. The two are closely linked and, of course, subject to change. The social groupings within which an individual moves at different stages of his career draw him to styles of living which will have characteristic recreational activities. The particular life style will therefore be one means by which a person is introduced to an activity and, depending on the enjoyment and satisfaction achieved, regular participation may develop. Complementary to this, the development from single status, to marriage and various stages of raising a family, has a marked effect on recreation patterns. There are changes too within the marriage relationship which are affecting recreation patterns. Couples are increasingly

sharing their leisure time, where previously the wife was left at home to look after the family while the husband went out with the 'guys'. It is these changes in life styles and life cycles which influence the participation (demand) in (for) outdoor recreation.

(6) Demographic Factors.—Population size and growth rates, age and sex structure, family size, etc. all affect the demand for recreational facilities. Of these factors it seems that age has the sharpest influence. It seems that the older people become, the less they engage in outdoor activity. This decline is most noticeable in the more active pursuits. In some cases, the amount of activity increases with age, i.e. lawn bowling. But the general picture is one of declining activity with advancing years.

(7) Geographic Location.—This factor is closely linked to population size in the above demographic section. Demand for outdoor recreation is concentrated in areas where people are also concentrated, in metropolitan areas. The great bulk of the outdoor-recreation demand must be satisfied in the after-work and weekend hours; therefore, even though Canadians are highly mobile they seek most of their recreation close to home. Even on vacation trips the majority seek recreation only one or two days' travel away. This does not mean that the more distant areas are less desirable. They can provide a qualitative element that may be only rarely experienced but that can be very important, especially to people who live in cities. There is a certain amount of gratification received from just knowing that something exists and that maybe someday it will be personally utilized.

C. Other Considerations.—There are many other factors which influence participation in outdoor recreation. Two significant factors

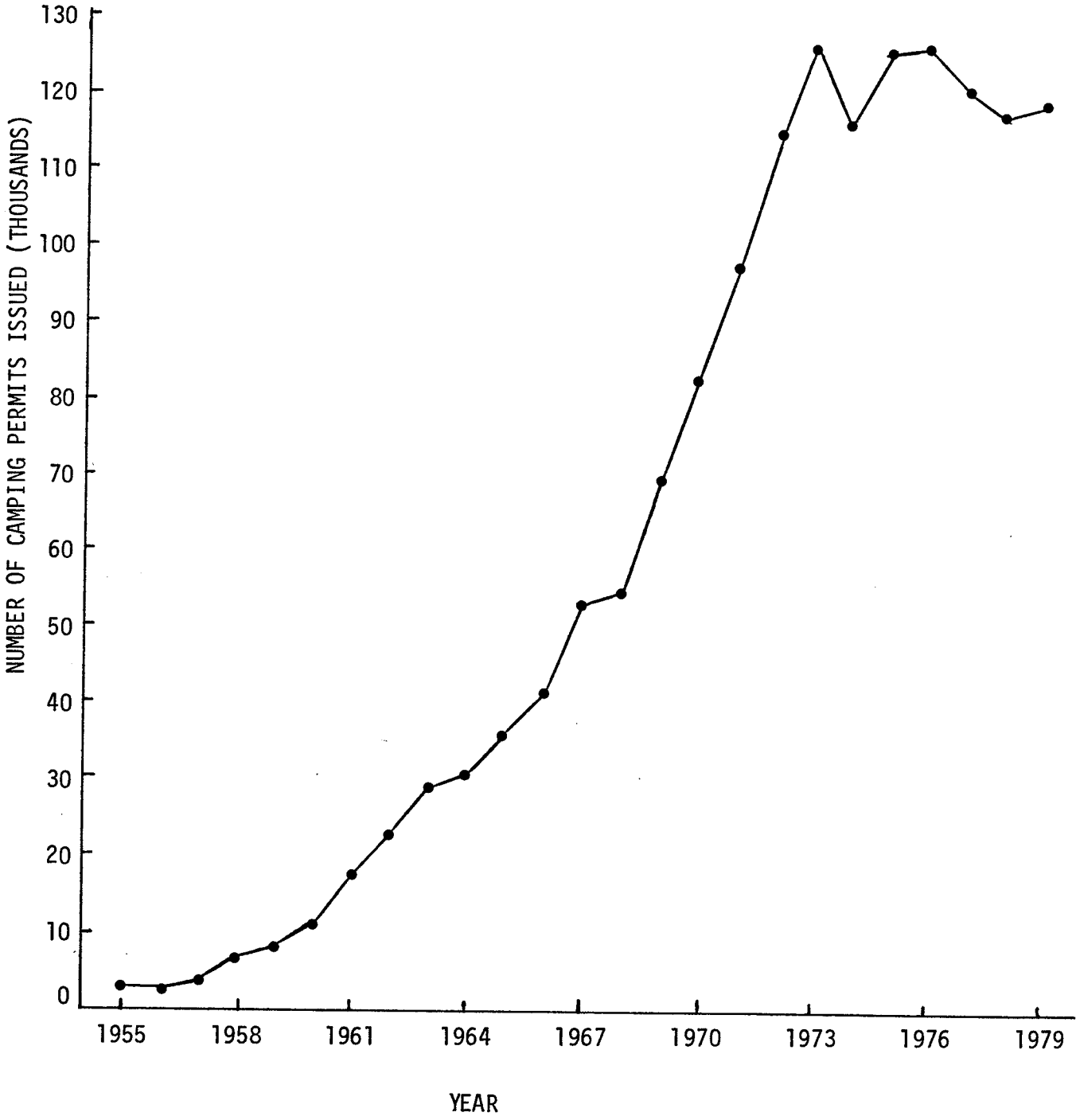
have added to demand. First, there is the popularity and diversity of new recreational equipment, such as motorbikes and snowmobiles. And second, there is the public awareness and concern for the natural environment, resulting in more persons desiring and participating in out-of-door experiences. The new developments in the mass media have been responsible in bringing information into our homes with regard to new recreational equipment. The mass media have also influenced attitudes towards the natural environment through public awareness programs and advertising.

3. Recreation Supply

It is generally accepted that participation in outdoor recreation has increased dramatically over the past few decades. There is not much in the way of participation data which measures only participation. Most participation figures are a composite of interaction between supply and demand. Nevertheless, the data gives an indication of the overall trend in outdoor recreation. For example, the number of camping permits sold in Manitoba gives an indication of how the participation rate in camping has increased over the past years (Figure 3). But camping permit sales are a function of demand and supply. In most cases the number of campsites available far exceeds the number of campsites demanded. There are a number of days each year when the opposite is true, and thus there is a certain amount of unfulfilled demand. Thus, part of the demand is made up of two components. First, there are those campers who are turned away from the full campgrounds and second, there are those who would have gone camping but did not attempt to do so because of the high probability of being turned away. There is also a possibility that some of the

Figure 3

CAMPING PERMIT SALES IN MANITOBA'S PROVINCIAL CAMPGROUNDS, 1955-1979



demand or participation is a direct result of the supply. Some people may go camping just because the facilities are present. Nonetheless, the trend indicated in Figure 3 reflects the direction that participation in camping is taking.

Because of these and other trends, the indications are that the demand for outdoor recreation has increased at a precipitous rate in recent years. If this trend continues even at a reduced rate, the problem will be one of supply keeping up with the demand.

A. Defining Recreation Supply.—Recreation supply for the purposes of this thesis is the amount or quantity of recreational facilities available for use at a particular time.

B. Problems in Determining Supply.—Any consideration of the supply of recreational facilities must consider their effectiveness as a resource. For the user exercising a choice, the effectiveness of a resource will be measured, consciously or subconsciously, by such factors as its location, accessibility, cost (including travel and payment for the use of the facility itself) and management policies. The management and administration of the recreational facilities themselves are also crucial factors in the effectiveness of the total supply of resources. Each recreational facility has a carrying capacity which can differ with various types of management policy. Pricing policies, which are part of management, may add to or limit supply effectiveness.

The complexity of the supply of and demand for recreation facilities is increased when it is recognized that patterns of recreation are constantly changing and that one is discussing problems in an area of community life where individual choice predominates.

C. Types of Recreational Supply.—There are several types of outdoor recreational resources. They can be classified into three types; user-oriented, intermediate, and resource-based recreational resources (Jensen, 1973:195).

(1) User-Oriented.—These are resources which are close at hand to the users. Urban parks, neighbourhood playgrounds, local tennis courts and golf courses are just a few of the user-oriented outdoor recreation resources.

(2) Intermediate.—Intermediate type resources consist of areas and facilities which are a little further away physically from the user. They tend to be located within a short driving distance from the user. They are usually larger in size or more numerous in quantity. Provincial parks and campgrounds, forest reserves, private recreational areas, and associated facilities such as campsites, picnic sites and tables are examples of intermediate supply of resources. A few of the larger urban parks may also fall into this category.

(3) Resource-Based.—These resources are usually areas and facilities which provide uniqueness in terms of recreational opportunities. They are usually areas which have a unique and natural outdoor quality. There is, as a rule, very little development associated with resource-based areas. Wilderness parks and some of the larger provincial parks and most of the national parks are examples of this classification. There may be nodes of user-orientated developments in these parks but strictly speaking most of the area involved is kept 'untouched' or in an "unmodified state" (Jensen, 1973:198). Resource based areas are generally located at greater distances than the intermediate areas and as a result are visited less frequently

but not necessarily by a smaller number of people. In some cases these parks draw people from great distances and from all directions. Jensen points out that "the trends toward increased leisure time, more income, and greater mobility point strongly toward a great escalation in the use of these areas" (1973:198). This increased use will probably be to the detriment of the delicate natural qualities of the area which are in themselves the main drawing card of the park.

D. Distribution of the Supply.—Most user-oriented areas are distributed quite evenly according to the population. This distribution becomes less even for intermediate areas and even less so for the resource-based areas. The resource-based parks are, as the name implies, located where the resource happens to be and as such are independent of proximity to populated areas.

4. Recreation Need

When the volume of demand and supply for recreational resources and facilities has been established the data must be converted to 'needs' for resources and facilities. 'Need' is a very subjective concept. It is not susceptible of completely objective determination. In fact, the word 'need' itself should be recognized as being of limited usefulness. One person's need is another's necessity. 'Need' might more properly be termed space or facility requirements necessary to meet projected demand.

Defining Recreation Need.—'Need', strictly speaking, means that there is a lack of something required. For the purpose of this thesis 'need' will be defined simply as the difference between the amount of a resource or facility demanded and the amount supplied.

## CHAPTER THREE

## METHODOLOGY

This section of the paper deals with problems associated with regional breakdowns of Manitoba and also with the methods used in determining the supply, demand and need for outdoor recreation in the province of Manitoba.

### 1. Scope of the Analysis

The data for determining supply, demand and need will be analyzed along three lines. First, the province as a whole will be analyzed, then the city of Winnipeg will be segregated for a rural-urban analysis. And thirdly, a regional breakdown of the province will be used to analyze the data.

A. Provincial Analysis.—The province of Manitoba will be analyzed in order to determine the need for outdoor recreational facilities on a provincial level. The data analyzed will be in the form of provincial totals. Comparisons with other provinces or with the country as a whole are then possible. Trend analysis can also be accomplished, using the provincial data.

B. Rural-Urban Analysis.—Approximately 55% of Manitoba's population is located in the city of Winnipeg. As a result it was deemed necessary to separate the city of Winnipeg from the provincial analysis in order to make rural-urban comparisons. It is acknowledged that there are other urban centres in the province of Manitoba but

for the purposes of this thesis the city of Winnipeg will be considered the urban sector of the province with the remainder being classed as the rural sector.

The rationale behind this decision is two-fold. First, there is not much information with regards to supply that is readily available for the small urban centres. Much of the information available is on a municipal level and as such is difficult to distinguish the urban supply from the rural supply within each municipality. And secondly, there is the problem of determining which population centres will be included as rural and which will be urban. Winnipeg consists of a densely-settled metropolitan type of population which is different enough from the rest of Manitoba's inhabitants to merit segregation. It should really be "metropolitan" vs "other" and not "urban" vs "rural", but for the purposes of this thesis the above decision will stand.

This study will attempt to find existing differences in participation rates on an outdoor recreational activity basis between the city of Winnipeg and the remainder of the province.

C. Regional Analysis.—As noted earlier it is one of the major purposes of this paper to analyze supply, demand and need for outdoor recreational facilities on a regional basis. There are several types of regional breakdowns used in the province of Manitoba. There does not appear to be any particular breakdown which is accepted or used to any great extent. It seems that many of the provincial government departments have adopted regions which are suited to their individual needs.

(1) Types of Regional Breakdowns.

a. Official regions for data collection.

The regions depicted in Figure 4 are the official data collection regions. Through the Rural Region Working Group, the Labour Force Survey Task Force and the Manitoba Bureau of Statistics, the three government departments of Agriculture, Health and Social Development, and Industry and Commerce in 1973 were able to agree on a set of regional boundaries to be used both by Statistics Canada and the Manitoba Government itself.

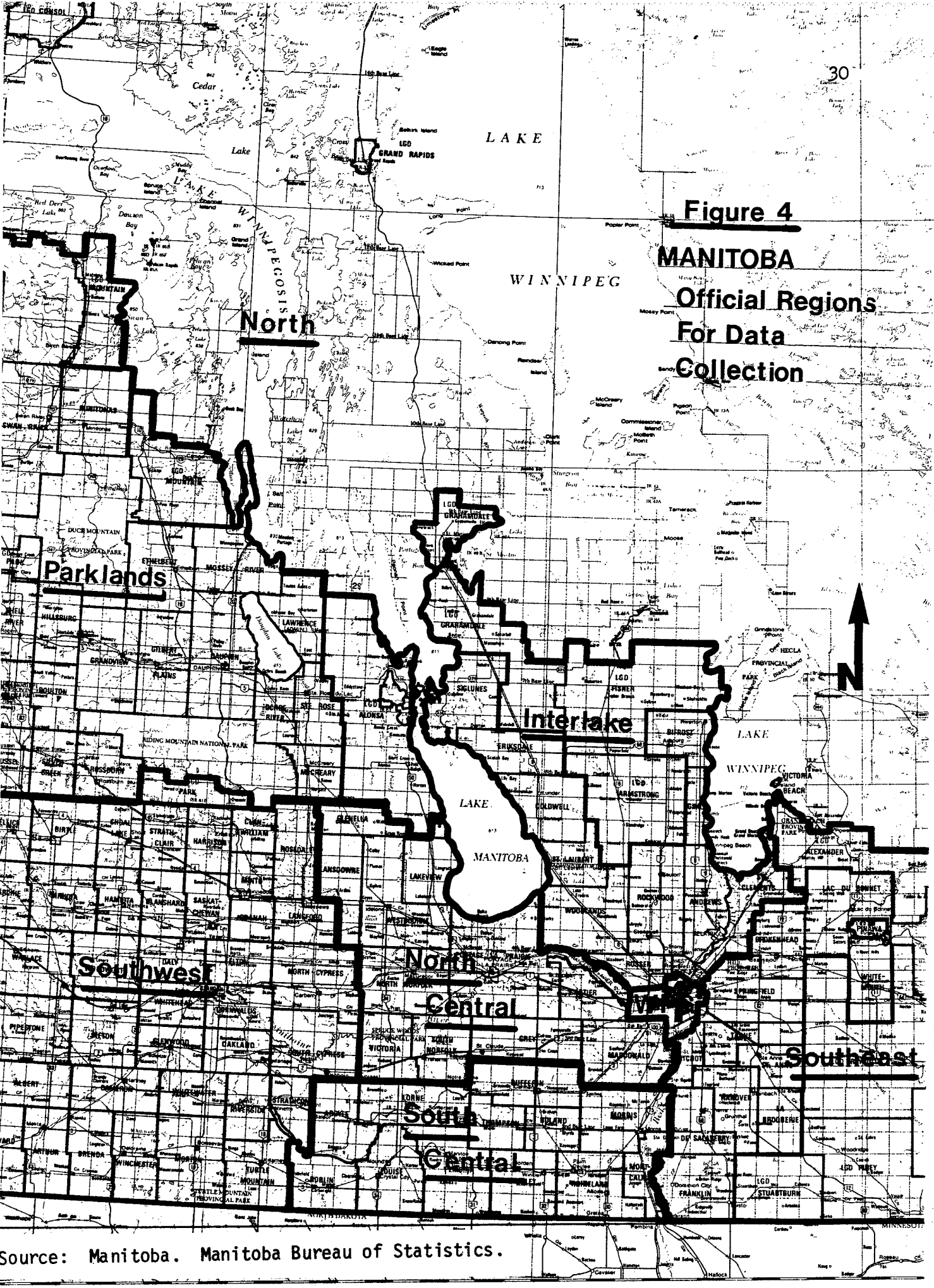
A major criterion in defining the regions was that municipal and Indian Reserve boundaries not be split and that the new regional boundaries follow census divisions. As a result, the official regions for data collection are a combination of legislated boundaries (Northern Affairs and the City of Winnipeg) and departmental administrative regions with an underlying attention given to functional relationships.

b. Parks Branch regions.

It is realized that a single set of regions cannot satisfy all needs. The Parks Branch of the Department of Tourism, Recreation and Cultural Affairs of 1973 decided to operate with regions that were designed toward the park system and its administration. As a result the official data collection regions would not serve any purpose and therefore the regional boundaries as illustrated in Figure 5 were maintained. In July of 1979 the three official regions were reorganized into seven regions (Figure 6). The regions were changed in order to enhance the administration of the divisions or branches within the Department of Mines, Natural Resources and Environment. The Parks Branch was one of seven resource branches within that department. Through an Order-in-Council on November 14, 1979, the Parks Branch

# Figure 4

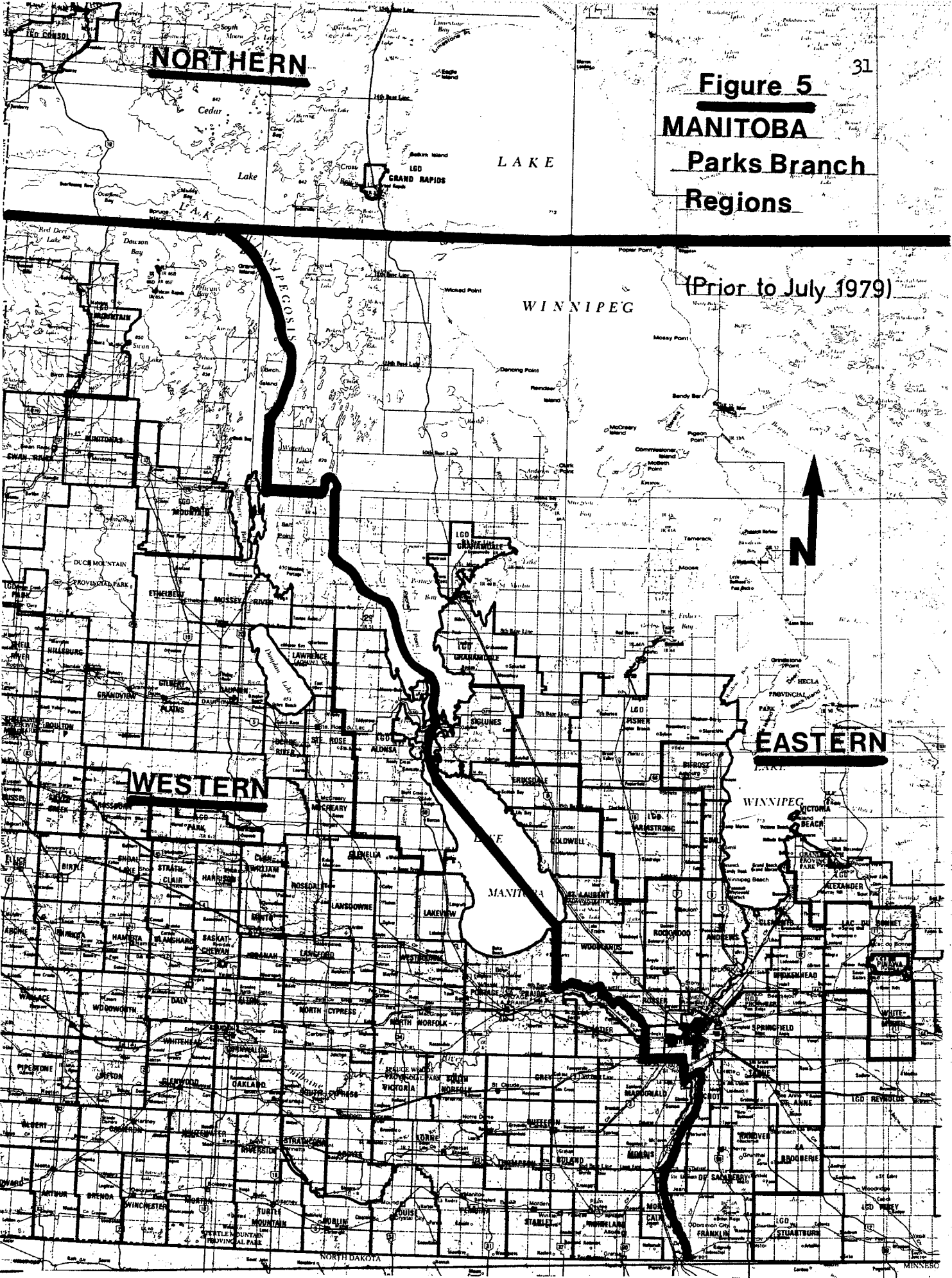
## MANITOBA
## Official Regions For Data Collection




Source: Manitoba. Manitoba Bureau of Statistics.

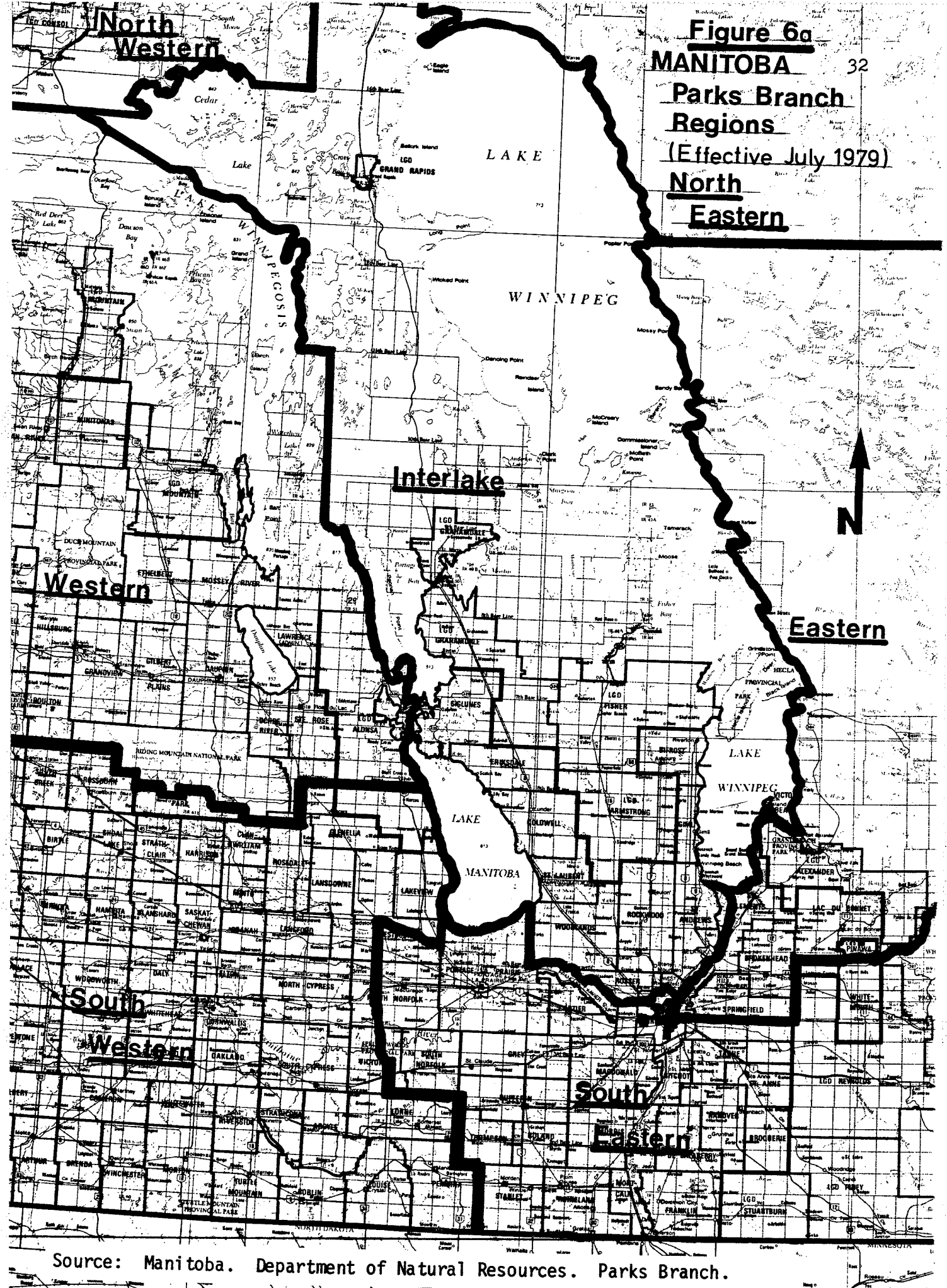
# Figure 5
## MANITOBA
## Parks Branch
## Regions

(Prior to July 1979)




Source: Manitoba. Department of Natural Resources. Parks Branch.

# Figure 6a
# MANITOBA
## Parks Branch Regions
(Effective July 1979)




Source: Manitoba. Department of Natural Resources. Parks Branch.

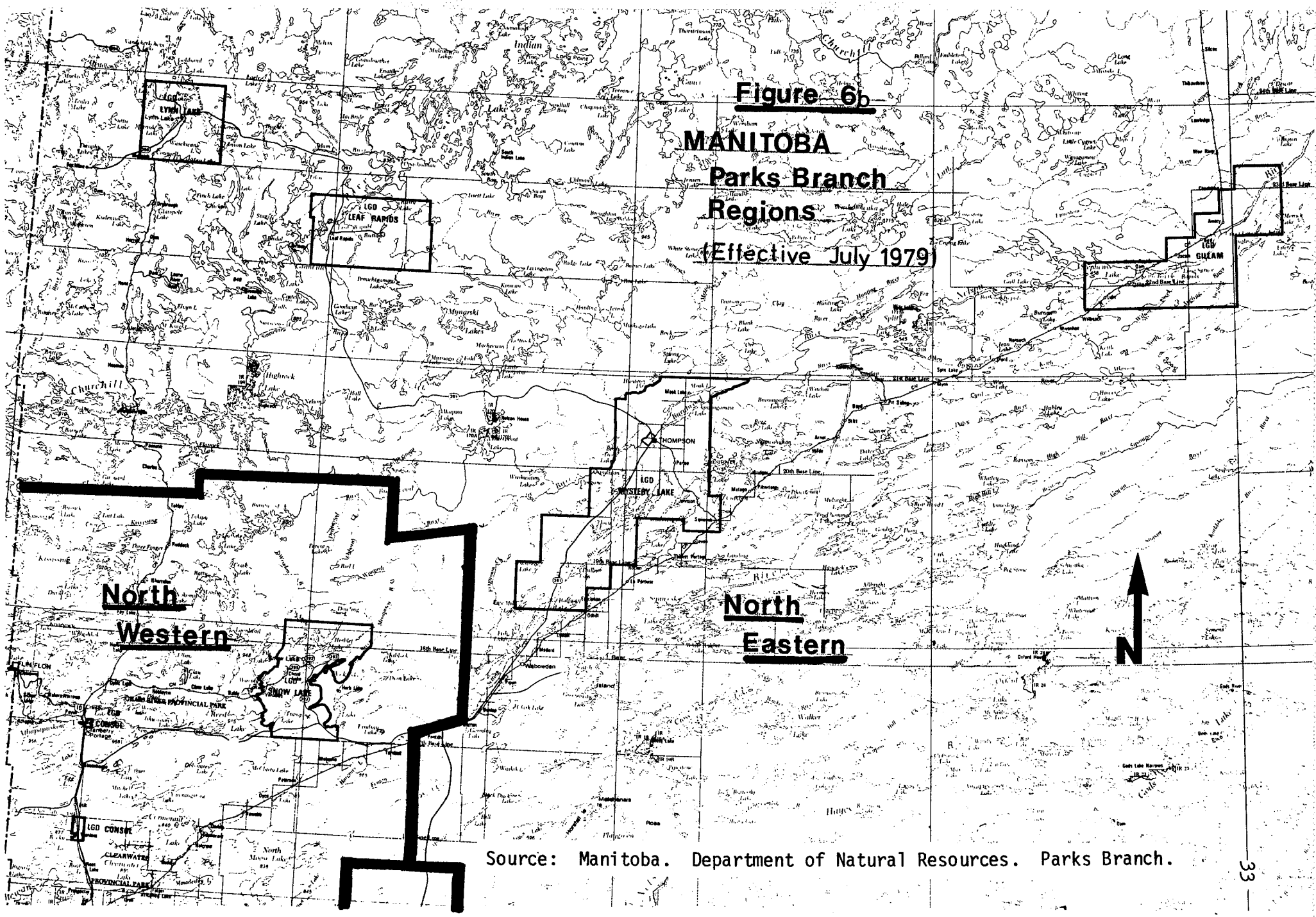


Figure 6b
MANITOBA
Parks Branch
Regions
(Effective July 1979)
North
Western
North
Eastern
N
LGD
LYNN LAKE
LGD
LEAF RAPIDS
LGD
GILLAM
THOMPSON
LGD
MYSTERY LAKE
LGD
SNOW LAKE
LGD
CONSUL
LGD CONSUL
CLEARWATER
PROVINCIAL PARK
FLIN FLON
Churchill
Source: Manitoba. Department of Natural Resources. Parks Branch.

became part of a new government department, the Department of Natural Resources. The newly formed department adopted the regional breakdown formulated in July 1979 (Figure 6).

c. Service regions.

The service region concept is based on a travel time decay function. An in-house document written by R. Wilson of the Parks Branch, Department of Natural Resources laid out eleven different regions based upon one and two hour service region maps. The main reasons for using a combined approach were that one hour service regions left large areas of the province unassigned and the two hour service regions generated a vast amount of overlap. In order to reduce the amount of overlap and still cover the province a combination map was produced (Figure 7). These service regions coincide closely with the study of the functional relationship of settlements and their spheres of influence as prepared by the Regional Analysis Program of the Department of Industry and Commerce (Carvalho - Page Group, 1971).

It was found that a regional approach which considered some function of outdoor recreation facility use was preferable to one which considered mainly administrative objectives. The service region concept considers the amount of time a recreationist is willing to travel in order to engage in an outdoor activity. A study done in New York State shows that seventy-eight percent of the camping, ninety-two percent of the day-use activities and one hundred percent of the community based recreation is pursued within a two-hour travel time radius. The one-hour time zone applies to thirty-five percent of the camping, sixty-three percent of the day-use activities and ninety-

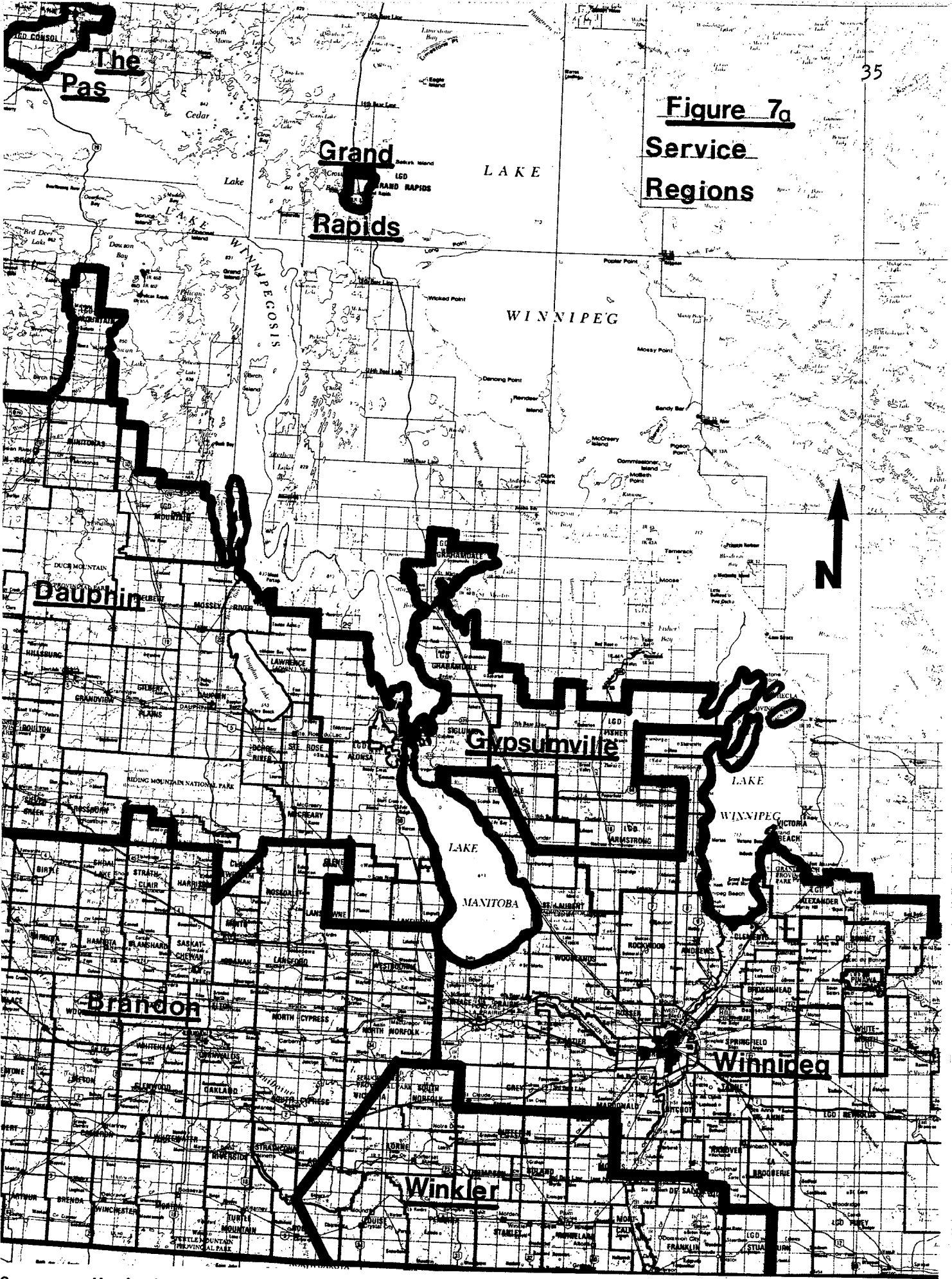



Figure 7a
Service Regions

Source: Manitoba. Department of Tourism, Recreation and Cultural Affairs. Parks Branch. 1976. "Manitoba Population Projections and Service Region Statistics". (Unpublished document prepared by R. Wilson). Winnipeg: Parks Branch.

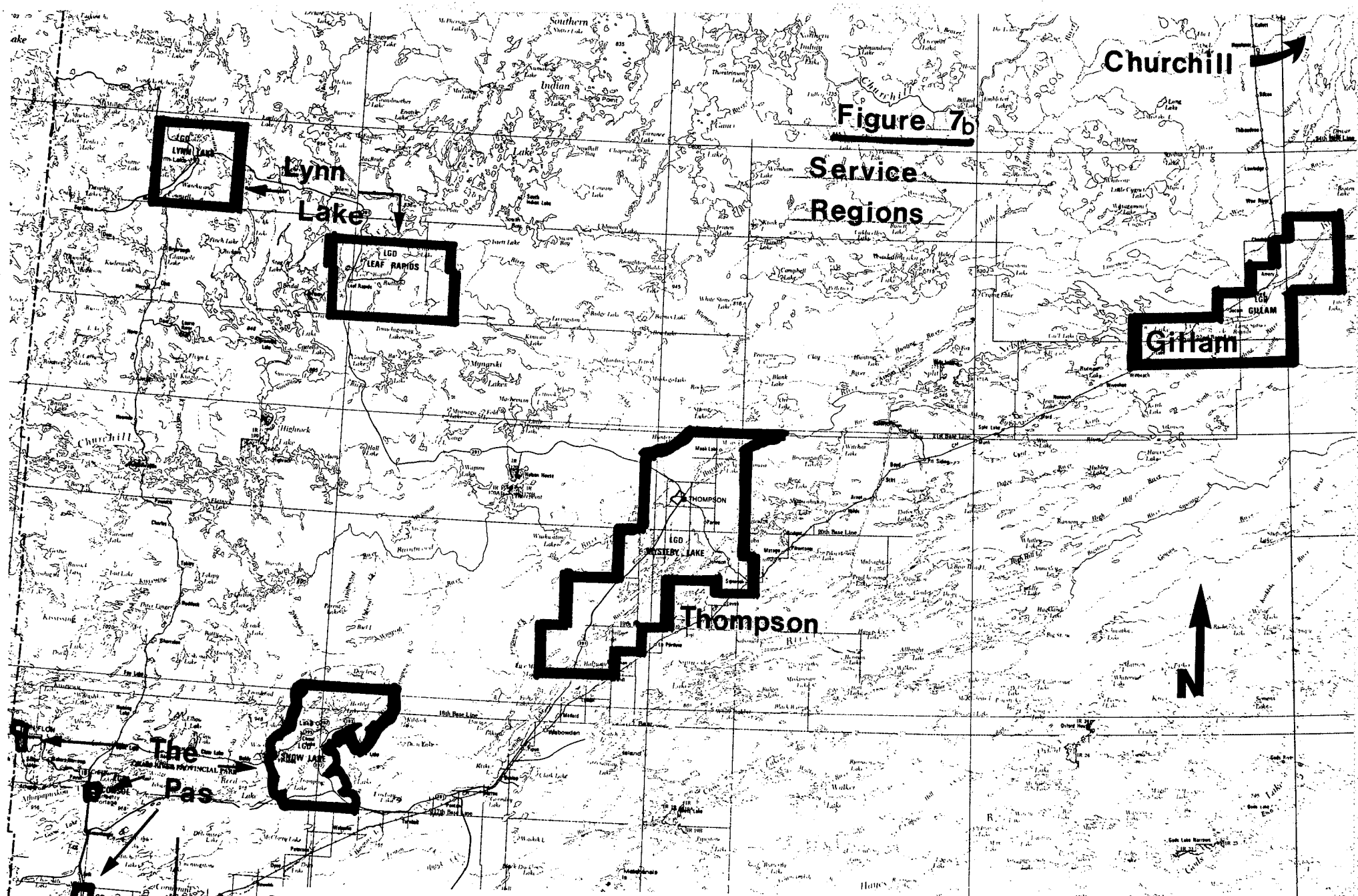



Figure 7b
Service Regions

Source: Manitoba. Department of Tourism, Recreation and Cultural Affairs. Parks Branch. 1976. "Manitoba Population Projections and Service Region Statistics". (Unpublished document prepared by R. Wilson). Winnipeg: Parks Branch.

four percent of the community-based recreation. (New York State Parks and Recreation, 1972:82).

From the above study it appears that the duration of the activity is positively related to travel time.

> "People will generally travel further for the full day outing usually associated with 'day-use' activities than for the hour or two associated with sports such as games or skating, and they will travel even further for the overnight stays associated with camping. The distribution of supply generally reflects these attitudes and, in turn, affects the observed 'decay' patterns" (New York State Parks and Recreation, 1972:82).

There are exceptions where people seek a unique environment or wish to avoid crowds and will therefore travel greater distances.

(2) Regional Breakdown Modification.

a. Regional breakdown chosen.

Based upon the above studies it was decided that travel time is a good basis upon which the province could be divided regionally for the purposes of analyzing recreational facility use and facility supply. As pointed out earlier, most regional breakdowns and associated boundaries are arbitrarily set for purposes of administering government departments. The main reason for subjectively selecting most government regional layouts is to equalize work loads amongst regional managers. This method is not acceptable for the purposes of this paper. A more sophisticated method, one which forms the basis for which recreationists view their physical space, is more applicable.

The regional breakdown as presented by R. Wilson is objective in nature and considers population centres or nodes and travel patterns (Manitoba. Department of Tourism, Recreation and Cultural Affairs. Parks Branch, 1976). A form of this regional layout will be used in this paper.

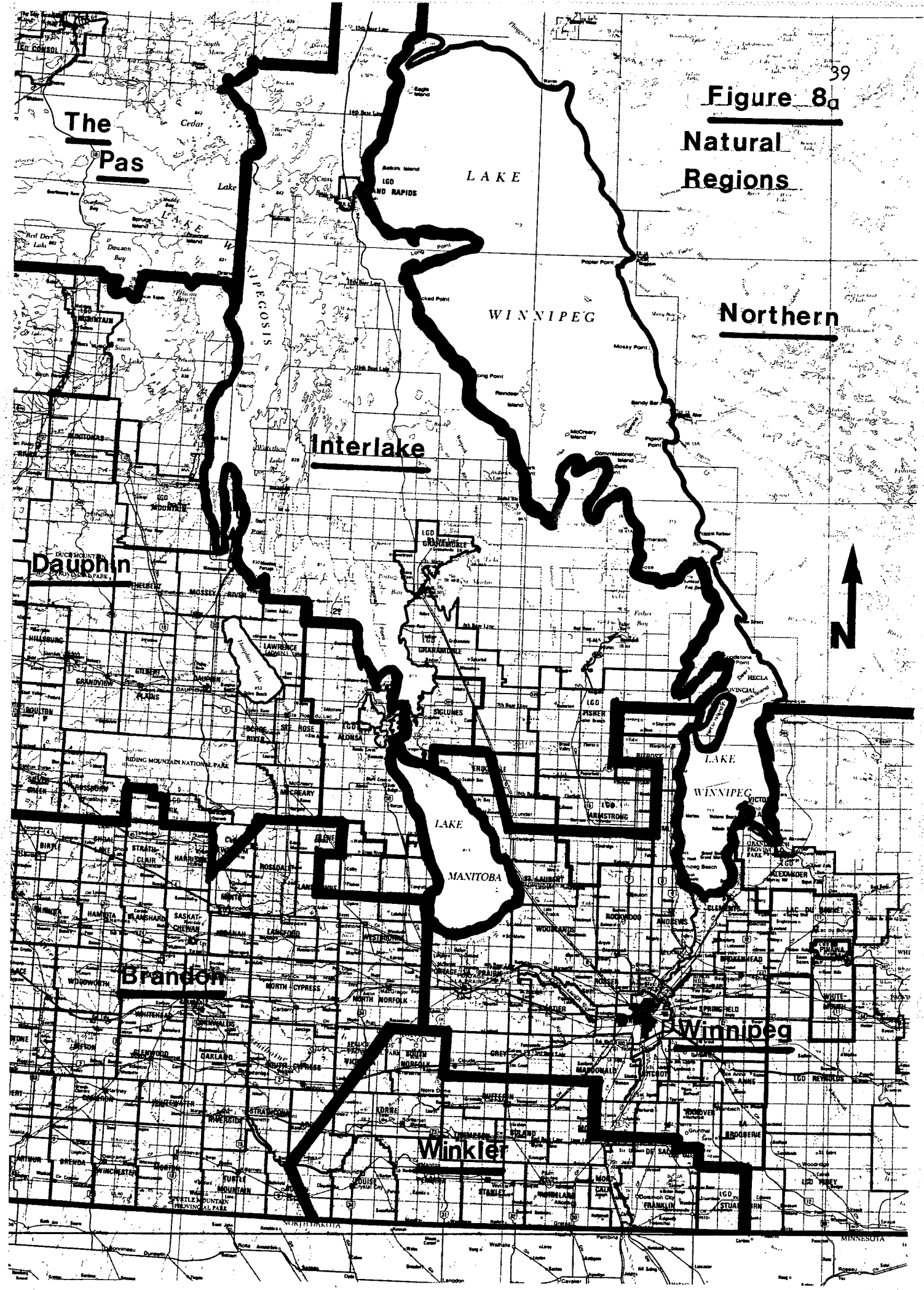
b. Modifications to the service regions.

It was found that the number of regions Wilson used in his service region approach were too numerous for the purposes of this thesis. The service region approach was comprised of six northern regions which contained less than five percent of Manitoba's population and five southern regions which contained all the rest. It was therefore decided that the service regions of Churchill, Gillam, Lynn Lake and Thompson would be combined for the purpose of this thesis in a "Northern" region (Figure 8). The service regions of Gypsumville and Grand Rapids were amalgamated into an "Interlake" region. The remainder of the service regions (Brandon, Dauphin, The Pas, Winkler and Winnipeg) remained intact.

There exist areas of overlap between the regions. It can be reasoned that the people living in these areas do not associate themselves on a regional basis in terms of outdoor recreational pursuits. They may be halfway between two regional centres and therefore may choose either region to participate in outdoor activities. The regional boundaries are along municipal lines. The regions of overlap are depicted in Figure 9 by municipalities which have diagonal lines through them. Half of the participation and half of the supply of facilities of these municipalities is assigned to the adjacent regions.

In order to keep the two time-travel region approaches separate, the revised service regions will be called 'Natural Regions'. It is upon these regions that all further regional analysis in this thesis will be based on. Most information is presented on a rural municipal level in appendix form except for participation rates and frequencies which, because of the volume has not been reproduced but are available

# Figure 8a
# Natural Regions



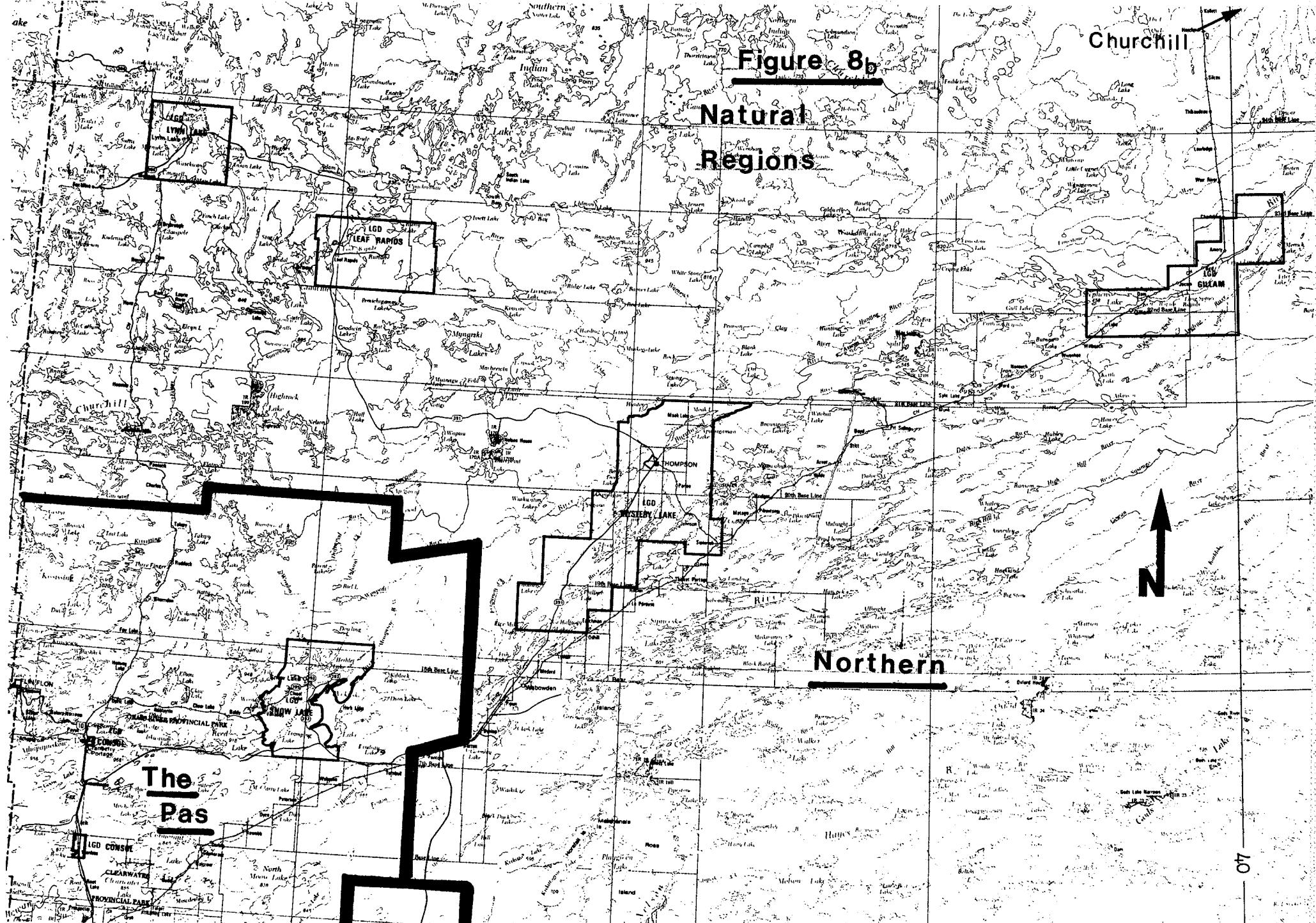
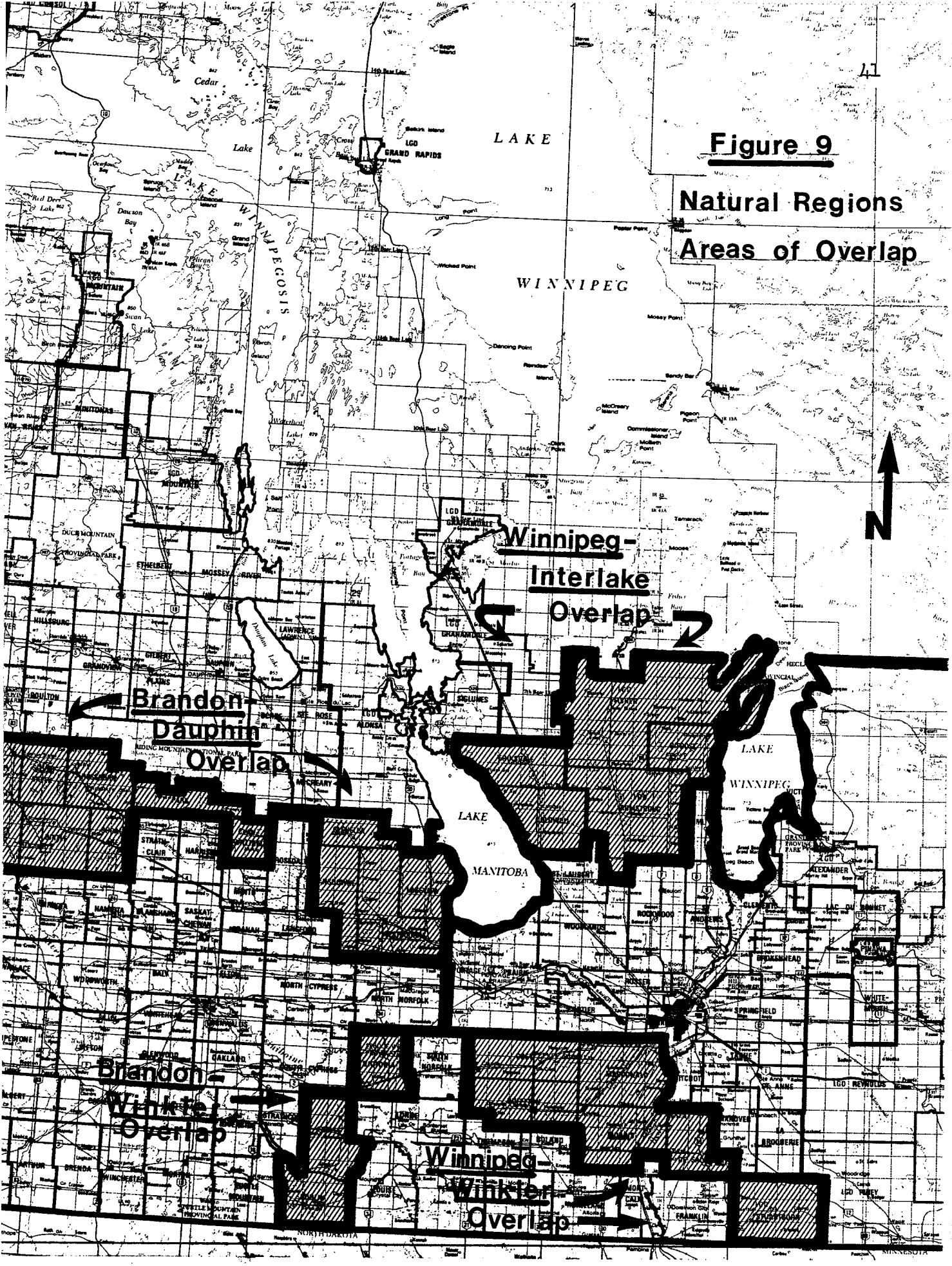


Figure 8b
Natural
Regions
Churchill
LGD LYNN LAKE
LGD LEAF RAPIDS
LGD GILLAM
THOMPSON
LGD MYSTERY LAKE
SNOW LAKE
LGD
CONSUL
LGD CONSUL
CLEARWATER PROVINCIAL PARK
GRASS RIVER PROVINCIAL PARK
FLIN FLON
The Pas
Northern
N

# Figure 9

## Natural Regions Areas of Overlap




Source: Manitoba. Department of Tourism, Recreation and Cultural Affairs. Parks Branch. 1976. "Manitoba Population Projections and Service Region Statistics". (Unpublished document prepared by R. Wilson). Winnipeg: Parks Branch.

on magnetic tape through the Systems Section of Administrative Services of the Department of Natural Resources. Because supply and demand information is available at the municipal level, the need for outdoor recreational facilities can be calculated for any regional breakdown of the province.

2. Determining Recreation Demand

This portion of the paper will deal with the problems and methods used in determining the demand of outdoor recreational facilities.

A. Participation vs. Demand.--As noted earlier, most people consider participation rates as a measure of consumption rather than demand. But because demand as such is very difficult to measure in terms of recreational facilities it was decided that past participation would be a good indicator as to how much of a recreational facility is demanded by the population. Since there were no current statistics with regards to participation rates and frequencies and also since participation rates in various activities seemed to have changed quite drastically in the past few years, it was decided that a telephone survey would be the most economical and quickest method of obtaining current figures.

B. The Survey Design.—The survey was designed to obtain the maximum amount of information in the shortest possible time. It had been determined that a telephone survey would be the fastest and least costly method of obtaining the information. Because of the nature of the telephone it was decided that a short survey would be required.

The first objective of the survey was to obtain current participation and frequency rates in selected outdoor recreational activities. Secondly, some measurement of latent demand was required. A third

objective was to determine the interviewee's feeling about the adequacy of various facilities associated with each of the selected activities. A final and minor objective was to determine why the respondents thought the facilities inadequate.

In response to these objectives, the survey in Appendix A was designed. Section 'A' deals with the questions of participation rate and frequencies in the various selected activities. Section 'B' deals with the 'adequacy question' of facilities and the reasons for an 'inadequate response'. Section 'C' allows the respondent to add to the list of outdoor activities and offer information on frequency rates and adequacy of associated facilities. Section 'D' is in response to the question of latent demand. Respondents were able to mention any activities they would participate in if the facilities were provided. And finally, Section 'E' was aimed at obtaining visitation rates for Manitoba's Provincial Parks.

(1) Survey Sample Selection.—The sample was selected from the Winnipeg and Manitoba Provincial Exchange Telephone Directories in the following manner:

a. Urban Manitoba.

The last name and telephone number was selected from each column of the Winnipeg directory except the last column of the odd numbered pages. This method of selection resulted in 1,760 names and telephone numbers being identified.

b. Rural Manitoba.

The last name and telephone number of each column of the Provincial directory was selected to be part of the sample. As a result, 1,414 names and telephone numbers were identified.

It should also be mentioned that if the last number in a column was associated with anything other than a private residence the number was not selected as part of the sample.

c. Rural-Urban Split.

The rural-urban split which resulted from this method of selection was 44.5% and 55.5% respectively. The actual split as calculated from the Manitoba Health Services Commission population figures is 44.8% and 55.2% for the rural and urban respectively.

(2) Method of Conducting the Survey.—A government contract was signed with a Winnipeg based telephone service agency to make the necessary calls in order to survey the sample selected. The telephone interviewers were instructed to survey only persons 18 years of age and older. This was deemed necessary in order to avoid meaningless responses from young children. Each telephone number selected was called. If there were three unsuccessful attempts to make contact with the number, it was abandoned. Another number was not selected to replace it. If contact was made and the respondent was willing to participate in the survey, the interviewer would ask questions in Section 'A', and subsequently would only ask the Section 'B' questions for those activities of Section 'A' in which a positive response was given. For example, if a person did not participate in camping there would be no use in determining that person's feelings about the adequacy of campsites and sanitary facilities.

The interviewers were also instructed to vary the order in which the questions under each section were asked in order to avoid any order bias. It has been shown in many studies that people give more of their undivided attention to the first part of a questionnaire

and become less enthusiastic as the questionnaire progresses.

If a questionnaire was completed, the telephone exchange number (the first three numbers of a seven digit telephone number) or the N,X,X. code was written on the top right-hand corner of the first page of the questionnaire. This code was later used in identifying the area of the province from which the questionnaire was obtained (Appendix B).

C. The Programm (SPSS).—The completed questionnaires were keyed to magnetic tape which was later retrieved and analyzed by a computer program specifically designed for extracting information from the questionnaires. The questionnaire was designed to facilitate the keying of the data. Alongside each response on the questionnaire are the associated card columns (Appendix A). This technique eliminated much of the coding of the information. Only Sections 'C' and 'D' had to be coded by activity. The format in which the data was keyed is better visualized by Figure 10.

The Statistical Package for the Social Sciences (SPSS) is a system of computer programs (Nie, et al, 1975). This system enables the user to perform many different types of data analysis. It provides the user with a comprehensive set of procedures for data transformation and file manipulation.

A computer program was written utilizing SPSS to extract participation rates and frequencies for each of the selected outdoor recreational activities. The data file was recoded along telephone exchange codes and then aggregated into various groups in order to apply various statistical routines. Three computer runs using the aggregate routine were applied to the activities of Section 'A'.

Figure 10

KEY TO TAPE FORMAT

| I.D. CODE | EXC. NO. | CAMPING | PICNICKING | VISITING HISTORIC SITES | DRIVING | WALKING HIKING BACKPACKING | CYCLING | HORSE-BACK RIDING | BEACH SWIMMING | FISHING | HUNTING | SAILING | CANOEING | BOATING & WATER SKIING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 7 | 16 | 21 | 27 | 31 | 39 | 43 | 47 | 52 | 56 | 58 | 62 | 66 | 72 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Figure 10

| X-COUNTRY SKIING SNOWSHOEING | DOWN-HILL SKIING | SNOW-SLED-DING | ICE SKATING | SNOW-MOBILING | OFF-ROAD VEHICLE DRIVING | GOLFING | TENNIS | COT-TAG-ING | OTHERS (WITH FACILITIES) | | | OTHERS (WITHOUT FACILITIES) | PARK VISITATIONS ↓ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | 85 | 88 | 92 | 97 | 105 | 109 | 112 | 115 | 120 | 125 | 130 | 139 | 140 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

The data were analyzed by regions, rural-urban, and by provincial totals. The results of the aggregate run yielded participation rates and frequencies of participation for each region, for rural Manitoba, for Winnipeg, and for the province as a whole.

The SPSS BREAKDOWN routine was used to extract participation rates and frequencies of participation for Sections 'C' and 'D' dealing with "other" outdoor activities. Breakdown was also used to calculate the preference for the various types of campsites available. As in the aggregate runs, breakdown was applied in the same manner with respect to regions, rural-urban sectors, and the province as a whole.

The CROSSTAB routine of SPSS was used to analyze Section 'B' of the questionnaire which deals with the adequacy of available facilities. The results of the crosstab analysis yield percentages of respondents who feel the facilities are adequate, inadequate and also percentages of those who are indifferent towards the adequacy of the facilities. The calculations were again done for the same three data files.

D. Calculations for Determining Demand.—In order to determine the demand for outdoor recreational resources, the participation rates have to be determined as outlined above.

(1) The Demand Equations.—Once the participation rates are calculated, the volume of resources demanded are obtained through the following equations:

$$a \cdot b = c \qquad c \cdot d = e \qquad e \cdot f = g$$

$$g/h = i \qquad i/j = k \qquad k/l = m \qquad m \cdot n = D$$

Where:

a = participation rate determined from the primary data
b = population of the area
c = number of participants
d = average frequency of participation as determined from the primary data
e = number of participant days or number of person visits
f = peaking factor
g = number of person visits during peak period
h = number of days during peak period
i = number of visits per day during peak period
j = average party size
k = number of party visits per day during peak period
l = turnover rate
m = number of units of supply demanded per day
n = standard
D = volume of resources demanded per day (Souris River Basin Study Board, 1978:II-18).

The variables f, h, j, i and n were obtained from Table 5. They are the participation rate factors which deserve further attention.

(2) Participation Rate Factors.

a. Peaking factor (f).

Peaking is a concept in recreational jargon which refers to the fact that the use patterns of most recreational facilities exhibit periods during which the facilities are overcrowded and periods during which they are grossly underutilized. For example, if one was to examine the use of campsites, one would be most likely to find that the campsites would be fully utilized on most summer weekends and probably overcrowded during the summer long weekends. During the week (Monday through Thursday) during the summer, one would find under-utilization of campsites. One could see little or no use at all during the winter months.

TABLE 5

PARTICIPATION RATE FACTORS BY ACTIVITY

| Activity | Turnover Rate | Average Party Size | Seasonal Activity Days | Peak Days | Peaking Factor | Standard |
|---|---|---|---|---|---|---|
| Camping | 0.5/Day | 3.50 | 108 | 30.9 | 0.5 | 1 Site |
| Picnicking | 1.65/Day | 3.75 | 114 | 32.6 | 0.5 | 1 Table |
| Visiting Historic Sites | 16/0.5 hr. | 4.00 | 90 | 25.7 | 0.5 | 1 Party/0.2 Centres |
| Driving for Pleasure | 4/Day | 4.00 | 240 | 68.6 | 0.5 | 1 Car/0.4 km. |
| Walking or Hiking | 40/0.25 hr. | 4.00 | 114 | 32.6 | 0.5 | 1 Party/0.5 km. |
| Back Packing | 2/Day | 4.00 | 114 | 32.6 | 0.5 | 1 Party/0.4 km. |
| Bicycling | 5/Day | 2.00 | 160 | 45.7 | 0.45 | 1 Party/0.03 km. |
| Horseback Riding | 2/Day | 4.00 | 160 | 45.7 | 0.45 | 1 Party/0.8 km. |
| Swimming | 2/Day | 4.00 | 74 | 21.0 | 0.45 | 1 Party/0.61 m.* |
| Fishing | 2/Day | 2.00 | 124 | 35.4 | 0.45 | 1 Boat/3.24 ha. |
| Hunting | 2/Day | 2.00 | 240 | 35.4 | 0.45 | 1 Party/5 ha. |
| Sailing | 2/Day | 2.50 | 108 | 30.9 | 0.5 | 1 Boat/6.1 ha. |
| Canoeing | 2/Day | 2.00 | 108 | 30.9 | 0.5 | 1 Canoe/0.8 km. |
| Power Boating | 4/Day | 2.50 | 108 | 30.9 | 0.5 | 1 Boat/16.2 ha. |
| Water Skiing | 4/Day | 3.00 | 74 | 21.0 | 0.5 | 1 Boat/16.2 ha. |
| Cross-country Skiing | 2/Day | 3.00 | 82 | 23.4 | 0.45 | 1 Party/0.3 km. |
| Snowshoeing | 1/Day | 4.00 | 82 | 23.4 | 0.5 | 1 Party/0.4 km. |

*Metres of Beach Front.

TABLE 5 - Continued

| Activity | Turnover Rate | Average Party Size | Seasonal Activity Days | Peak Days | Peaking Factor | Standard |
|---|---|---|---|---|---|---|
| Downhill Skiing | 1/Day | 4.00 | 82 | 23.4 | 0.5 | 1 Party/0.05 runs |
| Snowsledding-Tobogganing | 2/Day | 4.00 | 82 | 23.4 | 0.45 | 1 Party/0.08 runs |
| Outdoor Ice Skating | 16/Day | 3.00 | 82 | 23.4 | 0.5 | 1 Party/0.2 Rink |
| Snowmobiling | 2/Day | 4.00 | 82 | 23.4 | 0.45 | 1 Snowmobile/1.6 km. |
| Trail Biking | 2/Day | 4.00 | 160 | 45.7 | 0.45 | 1 Party/0.8 km. |
| Cross-country Biking | 2/Day | 2.00 | 160 | 45.7 | 0.45 | 1 Party/5 ha. |
| Off-road Four Wheel Driving | 2/Day | 2.00 | 160 | 45.7 | 0.45 | 1 Party/5 ha. |
| Golfing | 108.26/Day | 3.00 | 114 | 32.6 | 0.45 | 18 Holes/Golf Course |
| Tennis | 16/Day | 3.00 | 114 | 32.6 | 0.45 | 1 Party/Court |
| Cottaging | 1/Day | 4.00 | 240 | 68.6 | 0.5 | Cottages |
| Visiting Provincial Parks | 4/Day | 3.75 | 240 | 68.6 | 0.5 | 1 Party |

Source: Souris River Basin Study Board. 1978. The Souris River Basin Study - The Need and Associated Benefits of Recreation in the Souris River Basin. Supplement 5. Vol. 2. (Table IIi): II-6. Regina: Saskatchewan Government Printing Co.

Peaking is a major problem for planning agencies. It is not economically feasible to develop facilities to cater to peak use since the amount of overcrowding does not necessarily justify the idleness of facilities that results for the rest of the year.

In order to consider the peaking factor in determining demand the planner must not examine the weekend with the highest use but rather the third highest peaking weekend.

> "The third highest peak day is a reasonable selection since it represents a peak period that is reached on more than 70% of Saturdays and Sundays. Therefore the third highest peak Saturday or Sunday was selected, based on Provincial Parks Campground statistics from the Western Administrative Region of the Provincial Parks Branch. The total use that occurred on the 7 days which included the third peak Saturday and Sunday was then calculated; the amount of use occurring on Saturday and Sunday was then calculated; the ratio expressed in percentage terms determined was 45 and represented the 'Peaking Factor'," (Souris River Basin Study Board, 1978:II-11 and 12).

A final peaking factor of 50% was chosen by the study based upon comparisons with other Parks Branch studies. A peaking factor of 45% was assigned to those activities which were more accessible due to the relative closeness of the facilities. A peaking factor of 45% was also given to activities which because of their nature do not require the need for extensive facilities (Table 5).

b. Number of days during peak period (h).

The number of days which are involved in the peak period is determined by dividing the number of seasonal activity days by the number of days within that period which are considered to be at a peaking level. If weekends are considered to be the peak period during the week then two-sevenths or 28.57% of the seasonal activity

days can be considered the peak days in Table 5 or the 'number of days during the peak period' (variable h) in the above equation.

The seasonal activity days refers to the number of days in a year in which an activity will likely take place, other factors considered. Temperature, precipitation, ice-cover duration are the main factors considered (Manitoba. Department of Tourism, Recreation and Cultural Affairs. Research and Data Services Branch, 1975). The seasonal activity days are based upon 30 year averages for the climatic factors above.

c. Average party size (j).

The average number of people pursuing the same activity together as a group is considered to be the average party size. Actual facility capacities would create a false impression in terms of demand for recreational resources. For example, even though a picnic table is 3.75 persons (Table 5). "If the figure 8 were to be used, the area set aside for picnicking would be larger than necessary, and the number of picnic areas and tables established would be fewer than required" (Souris River Basin Study Board, 1978:II-8).

d. Turnover Rate (i).

Turnover rate refers to the ability of a facility to handle more than one person or group of persons in a specified time frame. This concept is influenced by the capacity of a facility. For example, it has been determined that an 18 hole golf course can handle 108.26 golfing parties per day of 3 people per party (Table 5).

e. Standards (n).

Standards are guides which transform number of users into number of facilities. Determining the demand for outdoor recreational

facilities is the major objective of this paper. Determining activity levels in outdoor recreation is a minor objective. There is a major factor which influences standards.

> "A factor included in the standard is a measure of area involved. This simply refers to the area needed for the activity to take place considering comfort levels, the physical carrying capacity of the resource and required infrastructures such as roads, parking areas and washrooms" (Souris River Basin Study Board, 1978:II-13).

This factor allows 'need' comparisons to be made with resources available in a constant unit measure (Souris River Basin Study Board, 1978:II-13).

The Study Board set their standards according to established standards set by agencies responsible for areas which are geographically and demographically similar to Manitoba.

3. Determining Recreation Supply

The supply of facilities for the selected outdoor recreational activities is the second part of the equation for determining 'need'.

A. Listing the Inventory.—The majority of the inventory or supply of facilities is listed in four forms.

(1) Rural Municipalities and Local Government Districts.—

The first form is a provincial listing by rural municipalities and local government districts. Some of the facilities inventory information lends itself to a detailed presentation by community within the rural municipality or local government district. For a listing of rural municipalities and local government districts the reader is referred to Appendix C. Maps of the rural municipalities and local government districts are in Appendix D. The purpose for supplying

the detailed inventory by community and/or municipalities is threefold.

a. Locating facilities.

The first purpose is to allow the reader to readily locate specific sites by community within municipalities.

b. Specific data.

The second purpose is to allow the reader to obtain detailed information with regards to an outdoor recreational facility. The listing is meant to be a source of information for the reader.

c. Regional formulations.

The third purpose is to enable the reader to arrange the supply of information according to any regional formation with ease. All that is necessary is a list of communities and/or municipalities within a new regional breakdown and a tally of facilities which fall within the new regions.

(2) Urban Inventory.--Some of the urban outdoor recreational facilities inventory information, when available, comprises the second form of listing the inventory. This portion of supply is very important especially when one considers that this supply services more than half of the population of the province. The urban listings of facilities are also located in Appendix G of this paper as is their rural counterparts.

(3) Natural Regions.--The third form of listing the facilities inventory is by the natural regions which are discussed above. The main purpose for supplying the inventory information in this form is to facilitate regional analysis of the data which is in itself a purpose of this thesis. Most of the detailed information by natural regions is also available in the Appendix portion of this thesis. For a listing

of the rural municipalities and local government districts by natural regions, the reader is referred to Appendix E. For a map of the natural regions the reader is referred to Figure 6 above.

(4) Provincial Summaries.— The fourth major form of presenting the outdoor recreational facilities inventory is a provincial summary. The provincial summaries are broken down by natural regions. All of these tables are located within the text.

The only form of presentation of facilities which does not fall into one of the above three categories is that of Parks Branch regional listings. The listings associated with picnicking and camping facilities and those associated with size of provincial parks are presented by the Parks Branch regional breakdown along with the above three forms of presentation. These tables will only be presented in the Appendix portion of this thesis. The major function of these listings is to assist park planners in locating facilities according to the Parks Branch regions.

B. Source of Supply Information.—The supply information with regards to outdoor recreational facilities has various sources.

(1) Rural Information.—The facilities for outdoor recreation associated with the rural portion of the province are derived from a number of sources. They are:

Canada. Department of Indian and Northern Affairs. Parks Canada. 1976. Cross-country Skiing and Snowshoeing - Riding Mountain National Park. INA Publication No. QA-R049-000-BB-A1. Ottawa: Queen's Printer.

Canada. Department of Indian and Northern Affairs. Parks Canada. 1978. Trail Guide - Riding Mountain National Park. INA Publication No. QA-R078-000-EE-A1. Ottawa: Queen's Printer.

Canada. Department of Indian and Northern Affairs. Parks Canada. 1979. "Campground and Picnic Area Statistics". (unpublished data). Winnipeg: Parks Canada.

Manitoba. Department of Economic Development and Tourism. 1971. "Facilities Inventory". (Computer printout). Winnipeg: Manitoba Bureau of Statistics.

Manitoba. Department of Mines, Natural Resources and the Environment. Parks Branch. 1979. "Manitoba Trails Guide". (Unpublished manuscript compiled by W. M. Nanka, April 1976, updated by F. A. Merkl, April 1979). Winnipeg: Parks Branch.

Manitoba. Department of Tourism, Recreation and Cultural Affairs. Tourist Branch. 1979. 1979-1980 Manitoba Vacation Guide. Winnipeg: Queen's Printer.

(2) Urban Information.—The major sources for the urban sector of outdoor recreational facilities are:

Manitoba. Department of Economic Development and Tourism. 1971. "Facilities Inventory". (Computer printout). Winnipeg: Manitoba Bureau of Statistics.

Manitoba. Department of Tourism, Recreation and Cultural Affairs. Tourist Branch. 1979. 1979-1980 Manitoba Vacation Guide. Winnipeg: Queen's Printer.

(3) Parks Branch Information.—Much of the Parks Branch information related to outdoor recreational facilities is in the form of unpublished material. The major source of published statistics is:

Manitoba. Department of Mines, Natural Resources and the Environment. Parks Branch. 1979. Manitoba Parks Statistics 1978. Winnipeg: Queen's Printer.

This manual is published on a very limited basis and is available for reference purposes only at the Parks Branch.

For unpublished material the main source is:

Manitoba. Department of Mines, Natural Resources and the Environment. Parks Branch. 1979. "Parklands Compilation". (An unpublished dossier intended for general references only). Winnipeg: Parks Branch.

C. Updating the Inventory.—In most instances the above sources of facility information had to be updated to current levels. Updating the information on the supply of outdoor recreational facilities took the following form.

(1) Rural Supply.—Updates for the rural portion of the supply were received from:

a. Department of Tourism and Cultural Affairs.

The staff responsible for updating the Manitoba Vacation Guide provided much information with regard to deletions and additions of recreational facilities.

b. Municipal Offices.

When in question, the information pertaining to facilities was clarified with staff in the municipal offices.

c. Department of Cultural Affairs and Historical Resources.

Additions and deletions with regards to historical sites and museums in the province were supplied by the Historic Resources Branch.

d. Parks Canada.

The public relations personnel of the Department of Indian and Northern Affairs, Parks Canada supplied further information in the form of pamphlets and in telephone conversations which helped to update data on outdoor recreational facilities within Riding Mountain National Park.

(2) Urban Supply.—The urban supply data were updated with the help of information supplied by:

a. Department of Tourism and Cultural Affairs.

The 1980/81 Manitoba Vacation Guide was in the process of being updated at the time the facility information was being collected for

this thesis. The use of their pre-publication data sheets proved invaluable in updating the outdoor recreational facilities inventory.

b. City of Winnipeg.

The Parks and Recreation Department of the City of Winnipeg was another source of update information. The unpublished "Inventory and Analysis Sheets and Summary Sheets" were a source for added information and changes with regard to facilities within the city's parkland.

c. Department of Cultural Affairs and Historical Resources.

The Historic Resources Branch provided information which updated the historical sites and museums data for the City of Winnipeg.

(3) Provincial Parks Branch.--Where necessary, the data on outdoor recreational facilities within the provincial parks were updated from:

a. Facilities inventory update sheets.

The facilities inventory update sheets are sent out to each provincial campground office on an annual basis. The information on these sheets was used to update the Manitoba Parks Statistics manual for the 1979/80 fiscal year.

b. Regional managers.

Statistics with regard to facilities at provincial wayside parks was not available in the Manitoba Parks Statistics manual. The regional managers of the Parks Branch submitted information concerning numbers, sizes and locations of the wayside parks, new and old, and also listed the facilities located at each site. When necessary, data were confirmed with the field staff (park rangers) via telephone.

c. Parks Branch personnel.

Many people within the main office and the regional offices of the Provincial Parks Branch of the new department of Natural Resources provided information which allowed the information on facilities to be further updated.

D. Calculations for Determining Supply.—The calculations for determining the supply of outdoor recreational facilities are basically very simple. In most cases the statistics generated from the inventory were in a form which related directly to 'volume of resources'. A few facilities had to be transformed by the 'standards' discussed above.

4. Determining Recreation Need

Recreation 'need' is determined by subtracting the demand from the effective supply in order to derive a surplus or deficit of outdoor recreational facilities in the province. A (S) before the 'need' figure represents a surplus of supply over demand or in effect no 'need'; (D) indicates that the demand for the facility exceeds the supply and therefore, represents a deficit.

# CHAPTER FOUR

# DATA ANALYSIS

The data analysis portion of this thesis will examine the results of the survey sample. It will also examine the results of determining supply and demand, and ultimately the 'need' for outdoor recreational facilities.

## 1. Survey Sampling Results

As a result of the sampling technique used, there were 2,089 telephone questionnaires completed from the possible 3,174 telephone numbers selected. Information with regard to the actual number of calls placed is not known. These questionnaires represent 0.19% of the population. There were 206 questionnaires which did not have a telephone exchange code in the allotted space or if they did, it was a code which did not match up with a currently used exchange code. Because the exchange code on these 206 questionnaires did not match the list used in Appendix B, the questionnaires could only be used in determining provincial totals. Of the remaining 1,883 questionnaires, there were 926 associated with urban (city of Winnipeg) telephone exchange codes and 957 with rural exchange codes. This represented an urban-rural split of 49.2 - 50.8% which is reasonably close to the actual split of 55.2 - 44.8%. The difference between the received and the actual split is only 6%. For the purpose of this study, this difference will be considered negligible.

The percentage of the total population within each region is very close to the percentage of the total sample within the region (Table 6). But it is questionable whether or not the regional samples taken are significant. For example, the Interlake region has a population of 15,050 and a 0.14% sample size of 21 questionnaires. The percent sample size is similar to the 0.19% obtained for the province but the actual number of questionnaires is much lower. The significance of the provincial sample is also questionable. This is one of the major limitations of the data which is discussed in Chapter Five.

2. Analysis of Demand (Participation)

The data and data analysis for this portion of the thesis is presented in Appendix F in order to keep the factual presentation from obscuring the text.

3. Analysis of Supply (Inventory)

As with the analysis of demand (participation) the analysis of supply (inventory) is presented in appendix form (Appendix G).

4. Analysis of Need

The amount of resources needed is the difference between the amount supplied and the amount demanded. The portion of this thesis that deals with the resources demanded and supplied at the various levels is presented in summarized form in Appendix H, thus restricting this section for the presentation and analysis of the resources needed in the province.

Resources Needed.—As pointed out above, the amount of resources needed is the difference between the amount supplied and the amount

TABLE 6

REGIONAL SURVEY SAMPLE

| Regions | Population[1] | % Of Total Population | Sample | % Of Total Sample | % Sample Of Population |
|---|---|---|---|---|---|
| Winnipeg | 756,447 | 68.8 | 1262 | 67.0 | 0.17 |
| Winkler | 55,896 | 5.1 | 98 | 5.2 | 0.18 |
| Brandon | 119,739 | 10.9 | 269 | 14.3 | 0.22 |
| Dauphin | 58,971 | 5.3 | 111 | 5.9 | 0.19 |
| Interlake | 15,050 | 1.4 | 21 | 1.1 | 0.14 |
| The Pas | 23,837 | 2.2 | 43 | 2.3 | 0.18 |
| Northern | 68,964 | 6.3 | 79 | 4.2 | 0.11 |
| Manitoba SUB-TOTAL: | 1,098,904 | 100.0 | 1883* | 100.0 | 0.17* |
| Manitoba TOTAL: | 1,098,904 | 100.0 | 2089 | 100.0 | 0.19 |

*These figures do not include the 206 questionnaires which have missing telephone exchange codes.

1. Manitoba. Department of Health and Community Services. Manitoba Health Services Commission. 1979. "Manitoba Population Statistics - June 1979". (Unpublished data sheets). Winnipeg: Manitoba Health Services Commission.

demanded. Table 7 shows all three amounts. A (S) sign in the need column indicates that there is an excess of supply in terms of outdoor recreational facilities by the amount indicated. A (D) sign indicates a deficit.

(1) Camping.—On the whole, for the province of Manitoba, there is a need for an additional 6,229 campsites (Table 7). There are no urban camping facilities. The camping facilities inventory is totally rural (Table 8).

On a regional basis, the Winnipeg region's supply of campsites does not meet the demand by 7,279 campsites (Table 9). This figure is higher than the provincial total demand mainly because the Winkler, Brandon, Dauphin, and Interlake regions combined are oversupplied by 2,775 campsites. The Pas and Northern regions are short by a total of 1,723 campsites (Table 9).

(2) Picnicking.—The province is short of picnicking facilities by the amount of 228 picnic tables (Table 7). The amount of facilities supplied by the urban sector is not available, therefore, any discussion is applicable to only the rural sector (Table 8).

Deficits in picnicking facilities are associated with the Winnipeg, Winkler, Northern and The Pas regions (Table 9). The Northern and Winnipeg regions have the greatest deficits with a shortage of 340 and 295 picnic tables respectively. The Brandon region is oversupplied by 405 tables.

(3) Visiting Historic Sites.—Historic sites and museums in the province are generally in abundance except for the urban sector which is undersupplied by ten museums. The Brandon and Northern regions are also undersupplied by four historic sites and two museums respectively.

TABLE 7

CURRENT NEED OF RECREATIONAL FACILITIES FOR MANITOBA (TOTAL SUPPLY - TOTAL DEMAND)

| Activity | Demand[1] | Supply[2] | Need |
|---|---|---|---|
| Camping | 22,347 Sites | 16,118 Sites | D 6,229 Sites |
| Picnicking | 6,153 Sites | 5,925 Sites | D 228 Sites |
| Visiting Historic Sites | 52 Historic Sites | 91 Historic Sites | S 39 Historic Sites |
| | 52 Museums | 105 Museums | S 53 Museums |
| Driving for Pleasure | 1,150 km. | 4,151 km. | S 3,001 km. |
| Walking or Hiking | 425 km. | 583 km. | S 158 km. |
| Back Packing | 146 km. | 200 km. | S 54 km. |
| Bicycling | 112 km. | N/A | N/A |
| Horseback Riding | 565 km. | 684 km. | S 119 km. |
| Swimming | 8,226 metres | 30,996 metres | S 22,770 metres |
| Fishing | 24,219 ha. | N/A | N/A |
| Hunting | 12,022 ha. | N/A | N/A |
| Sailing | 3,009 ha. | N/A | N/A |
| Canoeing | 2,957 km. | 10,005 km. | S 7,049 km. |
| Power Boating | 25,137 ha. | N/A | N/A |
| Water Skiing | 15,714 ha. | N/A | N/A |
| Cross-country Skiing | 2,179 km. | 443 km. | D 1,736 km. |
| Snowshoeing | 308 km. | 59 km. | D 249 km. |

D: Deficit.
S: Surplus.

TABLE 7 - Continued

| Activity | Demand[1] | Supply[2] | Need | |
|---|---|---|---|---|
| Downhill Skiing | 136 Runs | 101 Runs | D | 35 Runs |
| Snowsledding-Tobogganing | 261 Runs | 21 Runs | D | 240 Runs |
| Outdoor Ice Skating | 202 Rinks | 515 Rinks | S | 313 Rinks |
| Snowmobiling | 8,280 km. | 932 km. | D | 7,348 km. |
| Trail Biking | 119 km. | N/A | | N/A |
| Cross-country Biking | 792 ha. | N/A | | N/A |
| Off-road Four Wheel Driving | 730 ha. | N/A | | N/A |
| Golfing | 1,519 Holes | 1,008 Holes | D | 511 Holes |
| Tennis | 389 Courts | 415 Courts | S | 26 Courts |
| Cottaging | 3,725 Cottages | 18,061 Cottages | S | 14,336 Cottages |
| Visiting Provincial Parks | Unknown | 1,325,496 ha. | | Unknown |

D: Deficit.
S: Surplus.

Source: 1. Table 83.
2. Table 86.

TABLE 8

CURRENT NEED OF RESOURCES PER ACTIVITY (RURAL-URBAN BREAKDOWN)

| Activity | | Resources Needed | | | | | |
|---|---|---|---|---|---|---|---|
| | | Provincial[1] | | Urban[2] | | Rural[2] | |
| Camping | (Sites) | D | 6,229 | N/A | | D | 6,229 |
| Picnicking | (Sites) | D | 228 | Unknown | | D | 228 |
| Visiting Historic Sites | (Historic Sites) | S | 39 | 0 | | S | 39 |
| | (Museums) | S | 53 | D | 10 | S | 63 |
| Driving for Pleasure | (km.) | S | 3,001 | Unknown | | S | 3,001 |
| Walking or Hiking | (km.) | S | 158 | Unknown | | S | 158 |
| Back Packing | (km.) | S | 128 | N/A | | S | 128 |
| Bicycling | (km.) | | N/A | N/A | | | N/A |
| Horseback Riding | (km.) | S | 119 | Unknown | | S | 119 |
| Swimming | (metres of beach) | S | 22,770 | N/A | | S | 22,770 |
| Fishing | (ha.) | | N/A | N/A | | | N/A |
| Hunting | (ha.) | | N/A | N/A | | | N/A |
| Sailing | (ha.) | | N/A | N/A | | | N/A |
| Canoeing | (km.) | S | 7,049 | Unknown | | S | 7,049 |
| Power Boating | (ha.) | | N/A | N/A | | | N/A |
| Water Skiing | (ha.) | | N/A | N/A | | | N/A |
| Cross-country Skiing | (km.) | D | 1,736 | Unknown | | D | 1,736 |
| Snowshoeing | (km.) | D | 249 | Unknown | | D | 249 |

D: Deficit.
S: Surplus.

TABLE 8 - Continued

| Activity | | Resources Needed | | | | | |
|---|---|---|---|---|---|---|---|
| | | Provincial[1] | | Urban[2] | | Rural[2] | |
| Downhill Skiing | (Runs) | D | 35 | | N/A | D | 35 |
| Snowsledding-Tobogganing | (Runs) | D | 240 | D | 136 | D | 104 |
| Outdoor Ice Skating | (rinks) | S | 313 | S | 178 | S | 134 |
| Snowmobiling | (km.) | D | 7,348 | | N/A | D | 7,348 |
| Trail Biking | (km.) | | N/A | | N/A | | N/A |
| Cross-country Biking | (ha.) | | N/A | | N/A | | N/A |
| Off-road Four Wheel Driving | (ha.) | | N/A | | N/A | | N/A |
| Golfing | (holes) | D | 511 | D | 616 | S | 105 |
| Tennis | (courts) | S | 26 | S | 133 | D | 107 |
| Cottaging | ) | S | 14,336 | | N/A | S | 14,336 |
| Visiting Provincial Parks | (ha.) | | Unknown | | Unknown | | Unknown |

D: Deficit.
S: Surplus.

Source: 1. Table 7.
2. Table 87 Minus Table 84.

TABLE 9

CURRENT NEED OF RESOURCES PER ACTIVITY (REGIONAL BREAKDOWN)

| Activity | | Winnipeg Region | Winkler Region | Brandon Region | Dauphin Region | Interlake Region | The Pas Region | Northern Region |
|---|---|---|---|---|---|---|---|---|
| Camping | (Sites) | D 7,279 | S 319 | S 733 | S 1,146 | S 578 | D 260 | D 1,463 |
| Picnicking | (Sites) | D 295 | D 15 | S 405 | S 15 | S 90 | D 68 | D 340 |
| Visiting Historic Sites | (Historic Sites) | S 17 | S 9 | D 4 | S 5 | S 1 | S 2 | S 2 |
| | (Museums) | S 8 | S 13 | S 21 | S 11 | S 2 | 0 | D 2 |
| Driving for Pleasure | (km.) | S 673 | S 202 | S 812 | S 640 | S 86 | S 414 | S 174 |
| Walking or Hiking | (km.) | D 119 | D 25 | S 142 | S 185 | S 6 | D 12 | D 20 |
| Back Packing | (km.) | D 34 | 0 | S 65 | S 104 | 0 | D 1 | D 6 |
| Bicycling | (km.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Horseback Riding | (km.) | D 138 | D 34 | S 164 | S 147 | D 17 | 0 | D 7 |
| Swimming | (metres of beach) | S 13,480 | S 278 | S 2,377 | S 3,672 | S 2,163 | S 888 | D 88 |
| Fishing | (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Hunting | (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Sailing | (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Canoeing | (km.) | S 506 | D 11 | S 12 | D 92 | 0 | S 621 | S 6,013 |
| Power Boating | (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Water Skiing | (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Cross-country Skiing | (km.) | D 1,392 | D 115 | D 75 | S 3 | D 18 | D 26 | D 112 |
| Snowshoeing | (km.) | D 189 | D 1 | 0 | D 2 | S 7 | D 2 | D 61 |

D: Deficit.
S: Surplus.

TABLE 9 - Continued

| Activity | Winnipeg Region | Winkler Region | Brandon Region | Dauphin Region | Interlake Region | The Pas Region | Northern Region |
|---|---|---|---|---|---|---|---|
| Downhill Skiing (Runs) | D 133 | S 15 | S 10 | S 20 | 0 | S 1 | D 2 |
| Snowsledding-Tobogganing (Runs) | 174 | 11 | 24 | 10 | 1 | 6 | 17 |
| Outdoor Ice Skating (rinks) | S 217 | S 30 | S 19 | S 22 | S 6 | S 17 | S 2 |
| Snowmobiling (km.) | D 3,520 | D 810 | D 1,273 | D 632 | D 294 | D 184 | D 635 |
| Trail Biking (km.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Cross-country Biking (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-road Four Wheel Driving (ha.) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Golfing (holes) | D 565 | S 73 | S 120 | S 55 | S 27 | D 30 | D 191 |
| Tennis (courts) | S 24 | D 20 | S 35 | S 7 | S 2 | 0 | D 21 |
| Cottaging (Cottages) | S 10,605 | S 73 | S 1,379 | S 633 | S 718 | S 935 | D 7 |
| Visiting Provincial Parks | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

D: Deficit.

S: Surplus.

Source: Table 88 Minus Table 85.

(4) Driving for Pleasure.—There are a total of 3,000 kilometers of designated driving tours in the province which are surplus (Table 7). The rural portion makes up the majority of the inventory (Table 8). Every region is in a state of oversupply with the Brandon and Winnipeg regions having the most excess (Table 9).

(5) Walking or Hiking.—The inventory of walking trails within the city of Winnipeg is not known but in the province there is an oversupply of walking and hiking trails by 158 kilometers. The Brandon, Dauphin and Interlake regions exhibit surpluses totalling more than 330 kilometers. The remaining regions exhibit a deficit totalling more than 175 kilometers. The Dauphin region has the highest number of kilometers of trails in oversupply. The Winnipeg region has the most need for additional trails (Table 9).

(6) Back Packing.—There is an excess of 127.91 kilometers over that of demand of back packing or long hiking trails (over 20 km. in length) (Table 7). The supply is totally within the rural sector and the oversupply is associated mainly with the Riding Mountain National Park area. The Brandon and Dauphin regions reflect this fact in their combined total of oversupply of almost 170 kilometers. The Winnipeg region exhibits a deficit of 34 kilometers, the highest deficit (Table 9).

(7) Bicycling.—The current need for bicycle paths, routes or trails could not be calculated because the supply of such was not available. Only the demand figures are available as they were determined from the questionnaire.

(8) Horseback Riding.—Horseback riding is strictly a rural based activity with a surplus of trails in the province of almost 120

kilometers (Table 7). Even though this surplus exists, it is localized in the Brandon and Dauphin regions. All the other regions show a deficit with the Winnipeg region needing more than 130 kilometers of horseback riding trails (Table 9).

(9) Swimming.—There is in the province of Manitoba an over-abundance of serviced beaches according to the factors used to determine supply and demand. There exists a surplus in every region except the Northern region where they are short of less than a 100 metres of serviced beaches.

(10) Fishing.—As mentioned above, the supply of fishing waters in the province is difficult to inventory and as a result the current need for fishing waters could not be calculated.

(11) Hunting.—An inventory on hunting lands in the province was not readily available, therefore, the 'need' for hunting lands could not be obtained.

(12) Sailing.—The inventory on sailing waters was not available and as a result the current need for sailing waters was not assessed.

(13) Canoeing.—Canoeing is the only water-based activity aside from swimming for which an inventory was obtained. Most of the water-based activities are concerned with the square area of water which is difficult to assess whereas canoeing is concerned with the length of designated canoe routes which are more readily obtainable.

There appears to be an excess of canoe routes in the province (Table 7). The urban portion of the canoe routes is incorporated with the rural inventory (Table 8). The greatest excess is located in the Northern region which has 85% of the oversupply (Table 9). The Pas and Winnipeg regions are second and third with 8.8% and 7.2% respectively.

The deficits associated with the Dauphin and Winkler regions are negligible. The demand for these facilities is low (Table 85).

(14) Power Boating.—Power boating is one of the water-based activities for which the area of water has to be known in order to be inventoried and used in a 'need' analysis. Because the area of boating waters is unknown, a 'need' analysis is impossible.

(15) Water Skiing.—The hectares of water skiing waters is not known, therefore, a 'need' analysis can not be undertaken.

(16) Cross-country Skiing.—According to the 'demand' and 'supply' calculations there is a total provincial 'need' for an additional 1,736 kilometers of designated cross-country ski trails (Table 7). There is a generous supply of trails in the urban sector which has not been inventoried and would affect the need for rural supplies of trails in the Winnipeg region close to the city of Winnipeg (Table 8).

The Winnipeg region shows a deficit of almost 1,400 kilometers of cross-country ski trails (Table 9). That is more than three times as much as the current supply in the whole province. The amount of urban inventory may reduce the 'need' figure somewhat but probably not to the 'no need' level. The Winkler and Northern regions each show a 'need' of just over a hundred kilometers of trails each (Table 9). The Dauphin region is the only region which has a surplus but it is not of a great amount.

(17) Snowshoeing.—There is a need for almost 250 kilometers of designated snowshoeing trails in the province of Manitoba (Table 7). There are no known trails within the defined urban sector (Table 8). Most of the deficit is associated with the Winnipeg region (75.9%) (Table 9). The second most deficient region is the Northern region

which shows a deficit of 61 kilometers or 24.7% of the total provincial deficit.

(18) Downhill Skiing.—In the province of Manitoba there is a deficit of 35 ski runs (Table 7). There are no substantial downhill ski runs in the urban sector (Table 8). The Winnipeg region exhibits the greatest deficit which is almost 4 times as great as the deficit for the whole province. This stems from the fact that the Winkler, Brandon, Dauphin and The Pas regions all show a surplus which in effect lessens the severity of the provincial deficit.

(19) Snowsledding-Tobogganing.—There is a demand for 261 tobogganing runs but there are only 21 designated runs supplied (Table 7). The runs are supplied by the city of Winnipeg and are man-made tobogganing tracks which take up very little land as opposed to the open area sledding associated with natural runs. There exists a need for an additional 240 runs in the province.

(20) Outdoor Ice Skating.—As far as outdoor ice skating rinks are concerned, there appears to be a surplus. The urban sector has 57% of the total provincial surplus (Table 8). The Winnipeg region has the most surplus of all the regions with 69.5% of the total excess (Table 9). None of the regions show a deficit.

(21) Snowmobiling.—According to the demand for snowmobiling facilities and the supply of same, there is a need for an additional 7,350 kilometers of designated snowmobile trails (Table 7). That is to say, there would be a need for these trails if one was assuming that the demand was in fact related to designated trails. Much of the current use takes place in areas other than those designated. If snowmobile use was banded to only designated trails then it would be

safe to say that such a 'need' existed. The figures may not show actual 'need' but they can be used to show where the most need exists in regional comparisons.

Almost 50% of the total deficit is associated with the Winnipeg region, 17% with the Brandon region, and 11% with the Winkler region (Table 9). All regions show a deficit.

(22) Trail Biking.—The inventory on trail biking facilities was not available, therefore, the 'need' could not be calculated (Table 7). If one assumes that there are no trail bike trails in the province then the demand figures as calculated from the telephone survey and the participation rate factors would apply as the 'need' figures. In that situation there would be 119 kilometers of trails needed in the province with 84.3% of the trails needed in the Winnipeg region (Table 85).

(23) Cross-country Biking.—As in trail hiking, the inventory is not available. Based on participation in non-designated areas there is a need for almost 800 hectares of cross-country biking areas in the province (Table 7). The need is split 60/40 between the Winnipeg and Northern regions respectively.

(24) Off-road Four Wheel Driving.—Only the demand figures are known for this activity. If there is no 'supply' then the 'demand' becomes the 'need'. Based on this assumption there is a 'need' for 730 hectares of land for off-road four wheel driving. The Dauphin, Northern and Winnipeg regions are the only regions which show a 'need' (demand). The 'need' shown is 51.7%, 37.8%, and 10.5% of the total provincial 'need' respectively.

(25) Golfing.—For the outdoor recreational activity of golfing there is a need of an additional 511 holes in the province (Table 7).

The problem is worsened when one realizes that there exists a surplus in the rural sector thus leaving the urban sector with a deficit which is greater than the provincial deficit.

The Winnipeg regional deficit is 565 golfing holes. The Northern region is short of almost 200 holes whereas the Brandon, Winkler and Dauphin regions are oversupplied by a combined total of 275 holes.

(26) Tennis.—On a provincial total basis there is a surplus of tennis courts but this surplus is associated with only the rural sector. The urban sector is short of 133 tennis courts (Table 8). There are many surplus tennis courts in the Winnipeg region outside the city of Winnipeg because the region ends up with a surplus of 24 courts even with the urban deficit of 133 courts. The Winkler and Northern regions are each short 20 courts and the Brandon region has an excess of 34 courts.

(27) Cottaging.—It appears that there is a surplus of over 14,000 cottages in the province of Manitoba. The participation rate factors as pertaining to cottaging in Table 5 must not be accurate. There could not possibly be an oversupply of that magnitude.

On a regional basis there is a surplus in all regions except for the Northern region. They are only short of approximately 7 cottages. The Winnipeg region has 74% of the surplus using the factors listed in Table 15. The Brandon, The Pas, Interlake and Dauphin regions have 9.6%, 6.5% 5.0% and 4.4% of the provincial surplus.

(28) Visiting Provincial Parks.—In the case of visiting provincial parks or for that matter, any park, there are no clear cut standards and participation rate factors which could be used to establish the amount of land needed to satisfy the demand. The amount of

supply or inventory is known but the demand is not. What is known is that there are some 642 thousand participants who visit provincial parks at an average rate of 6.8 times per year for a total of 4.3 million person visits or participant days per year (Table 84). On the supply side there are over 1.3 million hectares of urban, provincial and federal parkland (Tables 78 and 81). The problem lies in relating this supply with the demand in order to calculate the need for more or less parkland.

Priorities can be set according to participation rates and by need. Table 10 ranks the outdoor activities according to participation by person visits and according to need by person visits. The current need figures were converted from a measurement of resources to one of person days or visits using the 'need table' (Table 7) and the participation rate factors of average party size, turnover rate, and standards (Table 5). For example, camping shows a need for an additional 6,229 campsites (Table 7). This figure is converted to person visits by multiplying it by the average party size (3.5), the turnover rate (0.5) and the standard (1) as determined from Table 5 resulting in the demand for campsites being greater than the supply by over 10,900 person visits.

Bicycling would be at the top of the 'need' list if there were no facilities. Snowmobiling would be second only if the users snowmobiled on designated trails. This high ranking is probably largely due to the pursuit of snowmobiling on farms, and general open space areas. The next activity on the 'need' list is cross-country skiing. As suggested earlier, the main causes for the high deficit are the lack of information from the urban sector, the high number of urban parti-

cipants [58.9% of the provincial total, (Table 27)], and the high 'need', associated with the Winnipeg region [80.29% of the province's total 'need', (Table 9)]. The point is that there are many urban participants and the urban supply of cross-country ski trails has not been inventoried.

Fishing is fourth on the need list but once again, the need was calculated without the inventory information. Snowsledding-tobogganing, power boating and water skiing have either an inadequate inventory or no inventory of facilities (Table 10).

Camping is the first activity on the 'need' list which has a fairly accurate inventory. There is a deficit of more than 10,000 person visits or in terms of facilities, there is a deficit of more than 6,000 campsites.

Golfing is the second activity on the 'need' list which also has a more or less accurate inventory. There is a deficit of more than 9,000 person visits or an equivalent of over 500 holes. Golfing is thirteenth on the participation list whereas camping is in seventh place (Table 10). Golfing is therefore second to camping, both in terms of 'need' and in the number of participants.

Downhill skiing and snowshoeing are the next activities on the 'need' list which have a complete inventory. They both show fewer participant days than camping or golfing. But picnicking which has almost half the deficit in terms of person visits than downhill skiing or snowshoeing has almost 5 times as many participants in terms of person visits (Table 10). As a result it is suggested that the deficit in picnicking have a higher priority than either downhill skiing or snowshoeing.

TABLE 10

ACTIVITIES RANKED ACCORDING TO PARTICIPATION AND NEEDS

| Participation | | Need | | |
|---|---|---|---|---|
| Activity | Person Visits[1] | Activity | | Person Visits |
| Walking or Hiking | 8,868,320 | *Bicycling | D | 37,382 |
| Driving for Pleasure | 6,310,258 | Snowmobiling | D | 36,738 |
| Swimming | 5,034.442 | Cross-country Skiing | D | 34,714 |
| Visiting Provincial Parks | 4,374,137 | *Fishing | D | 29,900 |
| Bicycling | 3,796,335 | Snowsledding-Tobogganing | D | 26,056 |
| Picnicking | 2,482,193 | *Power Boating | D | 15,516 |
| Camping | 2,416.792 | *Water Skiing | D | 11,640 |
| Fishing | 2,352,145 | Camping | D | 10,900 |
| Outdoor Ice Skating | 2,271,725 | *Hunting | D | 9,618 |
| Snowmobiling | 2,152,674 | Golfing | D | 9,227 |
| Cottaging | 2,044,377 | Downhill Skiing | D | 2,802 |
| Cross-country Skiing | 2,039,238 | Snowshoeing | D | 2,489 |
| Golfing | 1,986.115 | *Sailing | D | 2,467 |
| Snowsledding-Tobogganing | 1,354,920 | Picnicking | D | 1,423 |
| Tennis | 1,353,653 | *Trail Biking | D | 1,191 |
| Power Boating | 958,912 | *Cross-country Biking | D | 633 |
| Canoeing | 913,558 | *Off-road Four Wheel Driving | D | 584 |
| Visiting Historic Sites | 854,213 | Horseback Riding | S | 1,189 |
| Hunting | 756,595 | Tennis | S | 1,235 |
| Horseback Riding | 573,896 | Back Packing | S | 2,558 |
| Downhill Skiing | 509,924 | Visiting Historic Sites | S | 12,503 |
| Water Skiing | 488,878 | Canoeing | S | 35,243 |
| Back Packing | 190,243 | Walking or Hiking | S | 50,636 |
| Sailing | 152,433 | Cottaging | S | 57,344 |
| Snowshoeing | 144,064 | Outdoor Ice Skating | S | 75,062 |

*Need based on 'No Supply' or 'Supply Not Inventoried'.
D: Deficit. S: Surplus.

TABLE 10 - Continued

| Participation | | Need | |
|---|---|---|---|
| Activity | Person Visits[1] | Activity | Person Visits |
| Trail Biking | 121,003 | Driving for Pleasure | S 120,047 |
| Cross-country Biking | 64,308 | Swimming | S 298,623 |
| Off-road Four Wheel Driving | 59,341 | Visiting Provincial Parks | Unknown |

D: Deficit.

S: Surplus.

[1]Source: Table 22.