

THE UNIVERSITY OF CALGARY

PROFILE OF ENVIRONMENTAL GROUPS INVOLVED WITH NATURAL  
RESOURCE INDUSTRY IN ALBERTA

by

STEPHEN WILLIAM HOBBS

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

DEPARTMENT OF GEOGRAPHY

CALGARY, ALBERTA

OCTOBER, 1986

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ISBN 0-315-35977-3

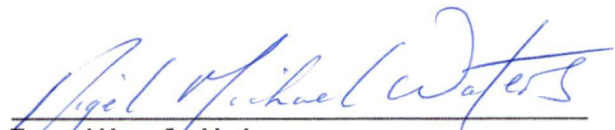
THE UNIVERSITY OF CALGARY

FACULTY OF GRADUATE STUDIES

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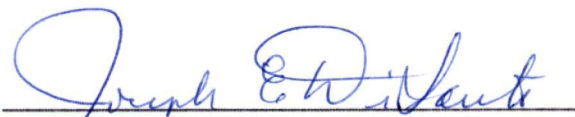
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## ABSTRACT

In the past three decades the environmental movement has impacted western society behaviours and attitudes toward the environment. As a collective indication and expression of the change in man's relationships with his surroundings, the environmental movement has been studied by several disciplines. The present study of the Alberta environmental movement uses an interdisciplinary approach to examine characteristics of Alberta environmental groups involved with natural resource development within Alberta. In addition to the sociological and political variables normally used in past studies, geographical variables are incorporated to offer another approach to the study and understanding of the environmental groups.

This thesis utilized frequency tables, crosstabulation analysis and a hierarchical Cluster Analysis algorithm to examine the responses of twenty-nine environmental groups. In addition, mental maps were used to ascertain the environmental groups perception of the geographic areas of their involvement and the areas they deem environmentally sensitive within Alberta. The study was initiated to collect information for the establishment of a computer accessed data base.

The study suggests the environmental groups are involved in the Alberta environmental movement. As a

result, the groups have the ability to interact with government and industry, but the research suggests that groups interact more with government. They identify water management, followed in descending order by fish and wildlife, and land management as the key activities in which they are involved. Geographically these activities centre on the Eastern Slopes, Southern Alberta and the Edmonton to Calgary corridor.

## ACKNOWLEDGEMENTS

Throughout the time it has taken to complete this thesis I have learnt so much about academic endeavours associated with research and the meaning of the words "patience and commitment". To this end I feel compelled to thank several people for their willingness to share their time, effort and thoughts.

I thank Dr. A. Limbird for his consideration of my thesis as a worthwhile project to collaborate on. His willingness to let me run with my ideas enabled me to develop in ways that go beyond the bounds of this thesis.

To Drs. N. Waters, J. DiSanto and S. Herrero thanks are extended for their acceptance to sit on my committee and to challenge my work.

To the numerous friends within the university community and outside of the confines of the academic walls, I wish them health and happiness as they pursue their dreams. Several people in particular unknowingly contributed to the final stages of the thesis, to John, Leslie, Claudie, Georgia, Bill, Marie, Al, Cliff, Norma and Yvonne - THANKS.

And finally to my family, especially my parents who gave me independence, understanding, and love - THIS WORK IS GIVEN.

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## Chapter One

### INTRODUCTION AND OBJECTIVES OF THE STUDY

#### 1.1 Introduction

A major human issue is the resolution of conflict between man and nature. Man's expression of anthropocentric (man-centered) and biocentric (nature-centered) environmental ethics polarize the conflict to the extent that some writers warn of Armageddon. Pronin and Schwarzmeier's (1980:1044) review of the environmental literature found "...warnings of pending doom" in a number of sources. Included in their list were Rachael Carson's Silent Spring (1962), Garrett Harding's Tragedy of the Commons (1968), Paul Ehrlich's The Population Bomb (1971), and the Club of Rome's report Limits to Growth by Donella H. Meadows, et.al. (1972). The embodiment of this man-nature conflict is found in the environmental movement.

The environmental movement is an indication and expression of changing behaviors and attitudes toward the environment in society (Lowe and Goyder, 1983). As one of the more important social movements co-opted by society, it reflects the values encouraged by the movement activists (Hunt, 1978 and Spalding, 1984). The environmental movement has gained momentum in the last two decades to the extent that "Already the environmental movement has grown into one

of the largest social movements in our history and its impacts are reflected in the political arena, in broad scale societal change, and on a more micro-level in individual life styles" (Albrecht, 1976:164). Examples of these impacts on each level are the creation of the Green Party in Europe (political); the attitude of preserving nature for future generations (social); and the recycling of paper and aluminum cans (individual).

The collectivity in which the impacts and changes are discussed consists of the media, education, attentive public, industry, government and environment groups. Within the collective itself, environmental groups predominantly express the concerns and issues of the public to government and industry. In countries such as Britain, the United States and Germany, environmental groups have achieved measurable successes such as emission requirements for industrial smoke stacks, the creation of national parks and wildlife preserves.

This thesis research is concerned with the involvement of voluntary environmental groups in the environmental movement specific to Alberta. In particular, the study focuses on groups that interact with natural resource industries within Alberta. Voluntary groups were chosen to "... distinguish them from commercial and statutory organizations" (Lowe and Goyder, 1983:1). This distinction was made in consideration of Hatch's (1980) comments that

environmental groups fall within a particular organizational category whereby the groups have members who freely associate with the group to further some purpose, without commercial motive. Therefore, as a collective they can be studied in sociological and political science terms to ascertain their role in society and their effects on the political system (Lowe and Goyder, 1983:2).

Within Canada, "Natural resource industry continues to play a central role in Canadian society and the economy as a whole" (Science Council of Canada, 1982:30). Both non-renewable resources (mining and energy) and renewable resources (forestry and agriculture) are important exports. For the period ending December 1982, the total national consolidated natural resources revenue from all sources was approximately \$7 billion (Statistics Canada, 1986). In addition, Mabaquinze's (1984:5) more encompassing view of natural resources addresses not only the industrial use of the natural environment, but it acknowledges the growing concern for natural environmental aesthetics and the role of the environment in recreation.

'Natural resources' is a concept that embraces all features of the natural environment that give pleasure and satisfaction to man, and not simply what can be used in human productive activities.

Within the province of Alberta natural resources are abundant both for export and recreation. The revenue derived from natural resources in Alberta for the period ending December, 1982 was \$5.3 billion dollars (Statistics

Canada, 1986). For the same period, British Columbia was second at \$600 million. More recent statistics from the Energy Resources Conservation Board, Alberta (1986:8) state that "Approximately 28% of the energy produced in Alberta in 1985 was used within the province, ...43% was delivered to other provinces and 29% was exported to other countries". These sales of "...energy resources generated total revenues of \$25.4 billion ..." (Energy Resources Conservation Board, 1986:21). From a recreational perspective, approximately \$2.3 billion in tourism revenues was attributed to direct spending in the Eastern Slopes (Anderson, 1985:7).

Because extraction and overuse results in environmental changes, there are individuals and groups who believe action must be taken to ensure that the principles of ecological threshold are adhered to or not exceeded. While the notion of ecological threshold explains the extent to which changes to the environment can be made without detrimental effects, there are those groups in society who believe the environment should be preserved and/or conserved in its original condition. As a result a diverse collection of groups make up the environmental movement in Alberta.

In addition to the organizational and political characteristics that usually constitute the variables studied, a third set of variables were included in this study. These geographic variables place the study in the realm of geography, but more importantly they offer another

approach to the study and understanding of the environmental movement and environmental groups. Using the technique of mind or cognitive mapping (Gould and White, 1974 and Downs and Stea, 1977), the researcher is able to ascertain the perceived location of environmentally sensitive areas. The basic premise of cognitive mapping is that individuals have a mental view of the world that allows them to know where to get things and to find people (Downs and Stea, 1977). Through an exercise such as drawing these views on paper, various interpretations of the results can be made. An example of this technique is explanatory research associated with route selection for recreational travel (Smith, 1983).

## 1.2 Objectives of the Study

The original intent of this thesis was to profile the environmental groups involved with natural resource industry in Alberta. The information was to be used in creating a computer information data base. The user groups included government, industry, education and non-government organizations (NGO). The inventory was to be coordinated through one NGO and a government department. However, prior to the implementation of the project the idea was withdrawn for further consideration. The planning group was unsure if the information, as it would be compiled in the original proposal, would meet the requirements of the user groups. The group wanted to review the concept further before



proceeding with the funding of the project. Therefore, this study had to be completed in a modified form, maintaining the same basic objectives of the earlier draft. It was thought the information gathered in the modified form could provide the basis of the information system. The study would result in decisions on how to construct the information system, both in information needs and cataloging for retrieval.

The main objectives of the study were:

- (1) to establish a profile of the Alberta environmental groups in context with organizational and political variables.
- (2) to verify environmental groups' involvement in the Alberta environmental movement.
- (3) to ascertain environmental groups' self perception of their involvement with government and industry in Alberta.
- (4) to identify the geographic areas in which the environmental groups operate within Alberta.
- (5) to identify the geographic areas within Alberta that the environmental groups perceive as environmentally sensitive.

From the objectives of the study the research hypotheses to be tested were:

- (a) the groups' perceived view of their political outlook is related to how they perceive government to perceive their political outlook.
- (b) the groups' perceived view of their political outlook is related to how they perceive industry to perceive their political outlook.
- (c) the groups' perceived view of their action orientation is related to how they perceive government to perceive their action orientation.

- (d) the groups' perceived view of their action orientation is related to how they perceive industry to perceive their action orientation.
- (e) the groups' perceived view of their geographic perspective is related to how they perceive government to perceive their geographic perspective.
- (f) the groups' perceived view of their geographic perspective is related to how they perceive industry to perceive their geographic perspective.
- (g) the groups' perception of the formation of coalitions is related to the groups' effectiveness in disseminating information.

The research for this study was based on three sources: the academic literature (Chapter Two); discussions with individuals knowledgeable of the environmental movement both in Alberta and Canada (Chapters Two and Three); and the mail questionnaire sent to environmental groups in Alberta (Chapter Four). Appendix 1 contains a list of the environmental groups involved in the study. Discussion of the study methodology is given in Chapter Three. Findings of the mail questionnaire are found in Chapter Four and concluding remarks with anticipated uses of the study are given in Chapter Five.

## Chapter Two

### LITERATURE REVIEW OF ENVIRONMENTAL MOVEMENT AND ENVIRONMENTAL GROUPS

#### 2.1 Introduction

Chapter Two contains a literature review pertaining, for the most part, to the North American environmental movement. From this review the socio-political and geographical variables selected for the analysis were chosen in context with the selection of parameters for a computer information system. Throughout the review particular reference is made to one of the main actors involved in the movement, environmental groups. Preceding the review are basic terms associated with defining environmental movement. These terms provide a base definition from which to understand the academic framework of the environmental movement. The chapter concludes with an overview of the Alberta environmental movement.

#### 2.2 Clarification of Terms

Central to a discussion of the environmental movement is the clarification of the terms used to describe the movement. For either the layman or professional to understand topic discussions, specific yet basic terms associated with the movement must be clearly defined.

Frequently terms are used in the literature, or in conversation, which upon reflection mean different things to different people. In this section terms such as social organization, collective behavior, social movements, environment, ecology and environmentalism are defined to provide a conceptual basis from which to understand the meaning of the term environmental movement.

Within sociology the terms social organization, collective behavior and social movements are defined. Because the environmental movement is an example of a social movement it is useful to start with the sociological terms. Broom and Selznick (1973:3) state the long-run aim of sociology is:

to discover the basic structure of human society, to identify the main forces that hold groups together or weaken them, and to learn what conditions transform social life.

In sociology, the term social organization is used to describe the patterns and processes involved in the day to day interaction of human relations. Organization connotes arrangement of parts similar to a business organization while the adjective social emphasizes individuals or group relations (Broom and Selznick 1973, Fletcher 1980, and Teeran 1982). Within the organization of society people interact on various levels: the social-order level; the interpersonal level; and the group level (Broom and Selznick, 1973:20-22). The group level is of particular interest to this study.

"A group always consists of people who are in interaction and whose interaction is affected by some sense that they constitute a unit" (Turner and Killian, 1972:5). A canoe club with its weekend trips and social outings is an example of a group. Yet, a group can be defined in terms of statistical aggregates which depend upon the purpose of the study. For example, all young people between the age of 16 and 18 and unemployed may be considered a group. While such a group may share a common problem, this is not enough to establish a social relation. However, their sense of plight does constitute a collective.

Considerable work has been dedicated to the study of groups within sociology. Included in the list of topics is: the dominance of one group over another; the aspect of assimilation and accommodation of groups; the vested interests of groups and how they relate to the purpose, function and survival of the groups; the communication network between groups; and the consideration of competition, rivalry and conflict within and between groups. Some groups are studied on the basis of their ephemeral nature and others on the social relation that brings the group together. For example, the canoe club may exist for a time, depending on the commitment of the members. On the other hand the plight of the unemployed young people, has long term implications. Therefore, in their perceived view, they will continue to exist.

Sociology also deals with the structured and unstructured aspects of social life. The distinction between the two aspects is the level of administrative structure and longevity associated with the groups (Broom and Selznick, 1973). An example of a structured group is an oil company with its fully organized bureaucracy. An oil company has goals and official ways of doing things which are directed toward some end. Without the structure the company's deployment of resources would lack direction and result in a failure to attain the company goals.

"The term collective behavior, on the other hand, designates the study of relatively unstructured social situations..." (Broom and Selznick, 1973:236). Perry and Pugh (1978) after review of the literature concluded that no single definition of collective behavior could be agreed upon. As a result, several products of unstructured social situations can be studied including crowds, fads and social movements. These products can vary in their organizational structure and longevity. For example, crowds can form for a special event, but once the event is completed the group disperses. In this case the collective action is specific and directed toward a short term aim. Collective action is called a social movement when it is unified, lasting and:

1. has a distinctive perspective and ideology;
2. a strong sense of solidarity and idealism; and
3. an orientation towards action (Broom and Selznick, 1973:262).

Therefore, "Social movements are characterized by greater

permanence and an intermediate level of organizational complexity" (Perry and Pugh, 1978:12). On the continuum between structured and unstructured aspects of social life, social movements "...are the midpoint between loosely organized crowds and fully organized bureaucracies" (Perry and Pugh, 1978:12).

Another form of social organization known as interest groups is associated with social movements. This type of group will form "...to achieve a fairly narrow purpose..." (Broom and Selznick, 1973:226). Because social movements are made up of a variety of groupings, a movement embraces several purposes depending on the ideology of the movement. Therefore, interest groups can belong to a social movement. For example, a community association which represents property owners at city council meetings can be considered under a much broader banner of urban development.

Similar to the study of groups in sociology, social movements have been reviewed in context to such aspects as the types of movements, their stages of development, and their ideology and perspectives (Perry and Pugh, 1978). Of interest to this thesis is ideology and perspectives of the social movement associated with environmental issues or the environmental movement.

Ideologies are "...relatively systematic doctrines that articulate group perspectives and provide a basis for collective action" (Broom and Selznick, 1973:257). In the

case of the environmental movement the collective action is directed toward the ideologies of conservation, preservation or a combination of the two. These ideologies are then articulated by the various perspectives of individuals and groups who constitute the movement.

With this sociological background in mind, other terms associated with the environmental movement can be defined. Morrison, Hornback and Warner (1972:259) provided one of the earliest definitions of the environment movemental when they stated:

The greatly increased level of general societal concern with problems in the relationship of man and his environment is known as the environmental movement.

Further, the authors clarify that:

...environment refers to the natural environment, man made environment and the relationship between the two.

Because the term "environment" implies environment of something it becomes evident that "Any particular phenomenon can be environment or envired according to the frame of reference..." (Hewitt and Hare, 1973:2) used at the time (eg. built environment or the environment of work or play). Whereas the term once meant the natural environment it now requires explicit interpretation (Hare and Jackson, 1972 and Downs and Stea, 1977). For the remainder of this chapter, the term environment encompasses the broader relationship of man and his surroundings. For the purpose of thesis data collection, however, the definition focused on the natural



environment.

The environmental movement as defined by the relationship between man and his environment, has come to be understood in ecological terms. Little and Morren (1976:1) state that "Ecology is the study of the interrelationships among organisms and their environment". The earliest studies of ecology, a branch of biology, centred on flora and fauna. As the discipline of ecology expanded, the human population was recognised as "...an integral part of most ecosystems" (Little and Morren, 1976:3). This focus on the man-environment interrelationships gave rise to the sub-discipline of human ecology. Now, the term ecology encompasses "...a broader conception of nature and of humanity's relationship with the natural world" (Bookchin, 1980:59).

The comprehensiveness of activities embraced by the environmental movement is an important consideration if the ideology of the movement is to be advanced and understood by layman and professionals. Every social movement is "...made up of values, beliefs, attitudes and perceptions that guide an individual's or group's outlook on life" (McAllister, 1982:20). A myriad of individual and group perspectives can be defined because the environmental movement embraces numerous specific movements. However, the concern for the environment in its totality (McAllister, 1982) is common to all groups and individuals. Table 2.1

TABLE 2.1: More Important Environmental Perspectives  
Associated with the North American Environmental  
Movement (Sources: Nash 1973, McAllister 1982,  
Lowe and Goyder 1983)

ENVIRONMENTAL MOVEMENT

1. WILDLIFE CONSERVATION (SPECIES AND HABITAT PROTECTION)
2. RESOURCE CONSERVATION (SOIL AND WATER)
3. AMENITY/OPEN SPACE (PARKS: INTERNATIONAL, NATIONAL,  
PROVINCIAL, MUNICIPAL)
4. RECREATION (ACCESS)
5. PREVENTION OF POLLUTION (NOISE, AIR, WATER, WASTE  
DISPOSAL)
6. PEACE
7. NUCLEAR ENERGY/WARFARE

NOTES:

Nash (1973) mentioned 1, 2, 3, 4.

McAllister (1982) mentioned 1, 2, 5, 6.

Lowe and Goyder (1983) mentioned 1, 2, 3, 4, 5, 6, 7.

outlines many of the more important perspectives associated with the movement (Nash 1973, McAllister 1982, and Lowe and Goyder 1983).

In discussions with people directly associated with the environmental movement they express their involvement in terms of environmentalism rather than referring to their involvement in the environmental movement. The use of this derivative term also is found extensively in the literature where at least three interpretations are found. O'Riordan (1981) views environmentalism as a philosophy, a code of conduct to understand man-environment interrelationships.

Environmentalism is emerging as a social movement of considerable depth and scope that has given a powerful new impetus to traditional, liberal, socialist rhetoric because of its persuasive talk of limits and the growing evidence that current life ways cannot be continued in an unchanged form. (O'Riordan, 1981:27)

Others such as Little and Morren (1976) and Bookchin (1980) view the term differently. Little and Morren equate environmentalism with environmental determinism, a theory that has met with disfavour. This theory in many ways overemphasizes the role of the environment in human affairs, yet, its influence is not inconsequential. Jordan and Rowntree (1982:17) explain "... the physical environment is only one of many forces affecting human culture and rarely the sole determinant of human behaviour and beliefs." Other forces include technology, economy, and political ideology. In recognition of these many other forces affecting man's interrelationships with the environment at least four

(Jordan and Rowntree, 1982:16) to as many as six (Haggett, 1975:591) broad schools of geographic thought developed.

Bookchin (1980:77) views environmentalism as a means "...to facilitate domination [of nature] by developing techniques for diminishing the hazards caused by domination." He believes environmentalism is the means to solve the problems rather than to find alternative solutions to the original problem. An example is Ehrlich's (1981) reference to cancer research. He points out that for the most part funding for cancer research is given to finding a cure for the disease instead of investigating and controlling the environmental causes of the disease.

From the viewpoint of a philosophy (O'Riordan, 1982), an explanation of man-environment interrelationships (Little and Morren, 1976) or a process to achieve a desired end result (Bookchin, 1980) it becomes evident that environmentalism must be clearly defined within the context of discussion of the environmental movement. Once defined, rational discussion of environmental issues and concerns can result.

An attempt was made in this section to define the terms associated with the environmental movement. While clearly defined nomenclature provides a standard from which to understand the environmental movement, it is equally important to seek new thought from several academic disciplines - an interdisciplinary approach. In this study

the environmental movement has been studied in the context of the three disciplines of sociology, political science and geography.

### 2.3 Environmental Movement

The environmental movement, as a general movement, is an amalgamation of many others (McCloskey, 1972:351-352). From this amalgamation many actors are identified such as politicians, civil servants, industrialists, educators, reporters, attentive public and environmental groups. The list is extensive, but so are the concerns and issues of the movement.

The actors exist within a framework of institutional and voluntary organizations (Morrison, Hornback, and Warner, 1972). Within this framework environmental groups and attentive public generally debate with politicians, civil servants and industrialists. Educators and reporters become communicators of the debate. However, the relationship between the actors is not always clear. In some cases the government and environmental groups debate against industry.

While the relationships between actors may be unclear, the proponents of the movement have achieved successes. The list of these successes includes the establishment of aesthetics of the land as a viable argument in the courts of law, the establishment of environmental science and design courses at universities, and the focusing on the social cost

as well as economic costs of development projects (Gale 1972, Rakestraw 1972, Buttel 1975, Albrecht 1976, O'Riordan 1981, Lowe and Goyder 1983, Adams 1984, Duffy 1984, Ramage 1984). Sills (1975:6) provides a complementary, yet alternative view:

Even the well publicized setbacks of the environmental movement, particularly its failure to stop the nuclear detonation under the island of Amchitka,...the return to coal burning ...served to focus public attention on environmental issues and thus in the long run may turn out to have been successes.

Unfortunately, these successes are not an adequate measure of the effectiveness of the movement. The goals of the movement are long term in nature and therefore, "Their ultimate realization would be demonstrated by the absence of negative consequences..." (Sills, 1975:7).

In addition to the unpredictability of long term success, the establishment of countermovements has a negative impact on the environmental movement. Gale (1972) and Buttel (1975) explain that countermovements evolve because the peripheral members of the environmental groups and the non-committed public realize the economic loss resulting from environmental control. In some cases communities which are deprived economically encourage the building of waste hazard plants and nuclear power plants in or near their communities (Anonymous, Calgary Herald, 1984:B4). They hope the employment opportunities offset the ecological repercussions. Such an example is Swan Hills,

Alberta, where a hazardous waste disposal plant is nearing completion. Prior to its construction many of the townspeople were against the project. The work the plant now brings to the area is a welcome relief from the fluctuating oil prices that affect the Alberta economy (Lowey, 1986:A5).

The environmental movement has impacted industry, government and education. Because of the new rhetorical and tactical emphasis, the movement has achieved recognition to the extent that the environmental movement has become one of the major political-economic developments of the 20th century in America (Buttel 1975, Albrecht 1976 and O'Riordan 1981).

Industry and government have been viewed as the oppressors or adversaries in the environmental debate. While government is distinguishable by its departments' mandates, industry presents a different view. Shrouded in secrecy to avoid such evils as industrial espionage, industry can display corporate social responsibility under its concern for the environment. In the U.S. the Ford and Rockefeller foundations have funded several environmental concerns and issues, especially wildlife management, through the banner of social responsibility. The National Audubon Society (United States) reports "...that it has 80 corporate members that each contributed a minimum of \$1000 to the group..." (Marinelli, 1979:24). However, it is unclear if

this support is window dressing or a genuine commitment to the movement. Reasons and Perdue (1981:275) stated:

The environmental movement did not simply happen. Rather, it was at least partially created and heavily financed by individuals and organizations having a strong interest in the preservation of the existing order. The foe was pollution, or the isolated polluter... Unchallenged was the corporate economy and its imperative growth.

With an influx of institutional money the movement lost sight of the bigger concepts while working on the smaller realities. In other words the movement was channelled (in part) so as to right the wrongs of isolated problems such as the individual polluter rather than attack the basic principles of economic growth where the need is to switch from a consumer to conserver society.

The list of debatable concerns and issues such as energy conservation, water pollution, air pollution, waste disposal and open space (Duggan 1982 and Oscroft 1984) deserves equal attention locally, if not worldwide. Hay (1978) points out that the environmental movement must also question the basis of social organization. It requires a concerted effort on everyone's part to work toward improved environmental quality. Gone are the days when engineers and planners can establish societal and environmental goals. Because health and quality of life are being affected, people should have a say in what is being decided (Hay 1978 and Froehlich 1981). Revelle and Revelle (1981:735) state that:



Experts can only layout the choices; you must help make the decisions. No one is more qualified to decide social, moral and economic issues - than you, the individual citizen. This privilege and this burden are yours in a democratic society.

One means by which people can make choices is through the democratic process - their involvement, their vote. Another means is through environmental groups, collections of people who lobby and/or advise government and industry on concerns and issues. Similar to the myriad of specific movements within the environmental movement, there is an equally impressive number of environmental groups.

#### 2.4 Environmental Groups

The environmental literature expounds on the fact that environmental groups have been instrumental in raising environmental awareness and contesting environmental concerns and issues (Hunt, 1978). As one indicator of the strength of the movement, environmental groups are studied by various disciplines. Two disciplines, in particular, are sociology and political science. Variables such as membership and effectiveness of organizational structure are considered by sociologists while groups' successes and failures and the associated political mechanisms are of importance to political scientists. In some studies the social and political variables are combined. Communication studies, environmental education, environmental science and geography are other disciplines which frequently mention the

movement and the associated environmental groups.

Before reviewing a selection of studies on environmental groups it must be noted that the environmental movement no longer focuses on general issues (Bolle 1971 and Morrison, Hornback and Warner 1972). At one time preservation and conservation were the main foci of attention. With increased ecological understanding through mass communication people have focused their attention on more specific perspectives. Throughout the Seventies and Eighties the movement has become so diverse that different groups campaign for different concerns and issues via different approaches. For example, some groups focus on work programs to collect litter while others present researched briefs at environmental hearings.

#### 2.4.1 Studies and Observations of Environmental Groups

A veritable flood of sociological studies of environmental groups characterized the late 1960s and early 1970s (Morrison, Hornback and Warner 1974, Pronin and Schwarzmeier 1980, and Siehl 1980 and 1982). For the most part these studies reflected a period when the environmental movement flourished. During this period membership numbers and numbers of groups were increasing almost exponentially (Faich and Gale, 1971) as the public became aware of their environment (McEvoy 1972 and Stallings 1973). Harry, Gale and Hendee (1969), Devall (1970) and Hendee, Gale and Catton

(1971) studied several characteristics of the proponents of the movement such as socio-economic background and place of residence. Kronus (1974) sampled community organizations (eg. educational, religious and service) on their involvement in the environmental quality movement as defined by pollution. Buttel (1975:53) examined trends of "...the social bases of support for the environmental movement during its growth and decline (1968-1972) as a major issue among Wisconsin's public [U.S]."

Ertel (1979) undertook a four-year study of three water resource planning programs under the auspices of the New England River Basins Commission. The study evaluated "...the effectiveness of citizen advisory groups as a strategy of public participation" (Ertel, 1979:1515). The study methodology focused on the process of membership selection and the organizational structure the advisory groups used in their operation. Ertel found that citizen advisory groups are important to the citizen participation process, but "Their primary role must remain that of providing advice, not that of decision-making (Ertel, 1979:1523).

A similar observation of the role of citizen groups in citizen participation was made by Froehlich (1981). He believed specific citizen groups should be hired as consultants on particular issues. As a result of their involvement, an increased exposure of the issue is achieved

through the groups' network. Froehlich (1981) felt that involvement is supplementary, not substitutional, in the participatory process.

Political interest in environmental groups - as an environmental lobby - has expanded since the early Seventies. The movement activists have encouraged political parties to adopt strong statements on the use of the environment. Political parties expressing primarily an ecological platform have received support in some countries (Capra and Spretanek, 1984). Although unsuccessful, the Values Party of New Zealand was one of the first parties to challenge the system with a strong platform of social ecology. In Europe, the Green Party is represented in four European governments as well as the European Parliament (Green Party of Canada pamphlet, 1984).

In the United States, fourteen major groups constitute the environmental lobby in Washington. "Today, these groups total membership of more than five million members...makes the environmentalists an imposing force" (Symonds, 1982:138). Friendly candidates to Congress receive support from the League of Conservation Voters - "...by far the largest of the five environmental political action committees" (Symonds, 1982:141) - both in money and campaign worker support. Since the late Sixties, the total of environmental lobbyists registered in Washington has increased from two to eighty (Symonds, 1982).

In recent Canadian federal elections (1984) the voters were given the choice to vote for an ecological party. Maintaining the European name, the Green Party of Canada nominated sixty candidates across Canada. They campaigned on the platform that "...recognizes the need for alternatives to nuclear war and environmentally destructive developments" (Green Party of Canada pamphlet, 1984). During their first federal campaign the party attracted a small portion of the vote. With this poor showing in mind the Green Party is soliciting support in the provinces. For example, an active chapter in Edmonton, Alberta, has started a signature campaign allowing for registration as a provincial party.

Lowe and Goyder's (1983) thorough study of 77 national environmental groups of Britain is one of the most comprehensive studies available which combines socio-political variables. The groups were questioned on their aims, membership, income, staff expertise, organizational effectiveness and political relationships with local and national politics. In addition to the collective analysis, the authors chose five notable groups to undertake case studies. Significant to their study was the determination of two types of groups. The first, emphasis groups, have a close relationship with a particular government body or industrial department, benefit from financial assistance and are consulted by civil servants or

industrialists. The second, promotional groups, challenge the existing policies and procedures and are in contact with politicians, industrialists and the media. Similiar terms, advisory and advocacy, are used in this thesis to conform to North American terminology.

While the future of the environmental movement appears to be one of continuation (McConnell, 1971 and Sniatynski, 1984), the role of the environmental groups will change. The environmental groups will maintain their "watchdog" role to ensure laws are enforced and to monitor any potential consequences of policies that harm the environment (O'Riordan, 1981 and Duggan, 1982). However, the means by which they reach their short and long term goals will differ. Groups will assume many roles - advisory, advocacy, adversary, educational - often adding and deleting them depending on the support and cyclical importance of environmental concerns and issues at the time. Lowe and Goyder (1983:182) observe that "...more immediate material and physical concerns of finding employment and housing, devising long term solutions to the ailing economy and combating social disorder and crime" will sometimes override ecological awareness.

## 2.5 Development of the Alberta Movement

This section of the chapter provides an overview of the development of the Alberta movement. However, the

provincial movement cannot be studied in isolation. Twentieth century events such as the two World Wars focused attention on the systematic use of natural resources; the 1972 U.N. Conference on the Environment in Stockholm, Sweden, emphasized the one earth perspective; the election of representatives from the environmental Green Party to various government posts in Europe forewarns of increased political action by environmental proponents; and more recently the New Zealand/French negotiations over the sinking of the Greenpeace ship Rainbow Warrior by French agents have influenced the dialogue and work of the provincial movement. The influence is seen primarily in the continuation of the pursuit of the basic environmental values that the environmental groups strive toward. Those values include preservation, conservation, public participation, health, and elimination of pollution to name a few.

People and events in the United States have greatly influenced the Canadian movement. Early environmental writers such as Muir, Pinchot, Olstead, Emerson and Thoreau (Nash, 1973) expounded on the virtues of environmental values of conservation and preservation. These people were effective as newspapers and books became available more easily to the public (Lowe and Goyder, 1983). Their writings influenced the creation and directions associated with the United States National Parks and Forestry Services,

and environmental groups such as the Sierra Club.

More recently environmentalists such as Leopold (1966) and Ehrlich and Ehrlich (1972) wrote of the importance of ecology and Carson (1962) identified pollution as a major twentieth century issue. This later group was effective because of the heightened public interest during a time when social protest and activism were prevalent. Today, environmentalists like Canadian David Suzuki are attempting to broaden the ecological understanding of people through extensive television and radio programming. Suzuki's programs The Nature of Things (television) and Discovery (radio) reveal the need for commitment to an ecological understanding of world events.

Major events such as the passing of the Wilderness Act (U.S.) and Earth Day strengthened the environmental movement during the Sixties and Seventies. The passing of the Wilderness Act (1964) "... did more to solidify and strengthen the movement than any other effort" (Nash, 1972:351). Previous to this enactment the movement was defending its earlier values such as "... limiting resource development and preservation of public lands made prior to WWII" (Rakestraw, 1972:273). After the adoption of the Act the movement was able to take a stronger offensive line especially through judicial intervention.

On April 22nd, 1970 the first Earth Day was held in the United States. This event is credited with providing a



focus for the environmental movement. Nash (1972:378) observed that Earth Day "...officially heralded the beginnings of the decade and bestowed national recognition on the environmental movement."

In Canada, the 1972 Man and His Resources Project was praised for its public participation and awareness on environmental issues. The 1974-1978 Berger Commission and the Mackenzie Valley pipeline proved that citizen groups could alter "...the timing and nature of the inquiry process" (Hunt, 1978:39). As a result of this inquiry, the federal and provincial governments established what is known as the environmental assessment process.

Precedents for environmental group involvement in major projects have been the result of such efforts as the Royal Commission of the Northern Environment (Ontario) and Cluff Lake Inquiry (Saskatchewan) (Hunt, 1978). Further acknowledgement of environmental groups on the federal level takes the form of ENGO (Environmental Non-Governmental Organizations). In 1977 two meetings were held between representatives of national and provincial environmental groups and members of the Canadian Environmental Advisory Council (CEAC). The CEAC is under the auspices of the federal Department of the Environment. Stazenski (1984:3) found "these meetings were extremely valuable in clarifying the situation for both the voluntary associations and the Council, and in establishing a foundation of collaboration."

The situation under discussion was how the groups were to become more effective in meeting among themselves and also with government (Stazenski, 1984). Subsequent meetings have broadened the scope of discussions to include such topics as an evaluation of the provision of information and the funding of non-governmental organizations, and the examination of specific environmental issues (Canadian Environmental Advisory Council, 1981).

Canada continues its global commitment to the environment. In 1986, three international conferences were held in Ottawa:

The World Commission on Environment and Development (WCED), the World Conservation Strategy Conference and the Third Biennial Conference on the Fate of the Earth brought together over 2000 delegates from across Canada and around the world (Torrie, 1986:8).

With this overview in mind the situation in Alberta can be outlined. The province of Alberta is biogeographically diverse. Mountains, foothills, forests, prairies, lakes and rivers are contained within the provincial boundaries. These areas support an abundance of natural resources for agriculture, forestry, energy, mining and recreation industries. The result of this diversity is a growing number of environmental concerns and issues which vary in type, intensity and location.

Using a broad four part division of the province [west, north, south and central] a number of the key issues can be discerned. There are a number of regional classifications

used by government departments and agencies on an ongoing basis. Usually the classification is based on the work focus of the department/agency or according to the subject under study. For example, if the major waterways of the province are under scrutiny then the researcher can use the river basin system. If political boundaries are referenced, then the regional planning commission classification can be used. In the present study the four part classification was used merely to illustrate several of the main issues facing Albertans.

Within the western region of the province, resource and recreation development are exerting heavy pressures in the provincially and federally managed sections of the Eastern Slopes. As a result, multiple use planning is required if not demanded. For example, "More than 80% of all the water in the Canadian Prairies originates in the Eastern Slopes" and "Of all the coniferous timber allocated to Alberta's forest industry, 43% is in the four forest divisions of the Eastern Slopes" (Anderson, 1985:6-7).

In the north, the area's abundant petro-chemical resources are useful to service the worldwide needs for energy. Major deposits of gas and oil sands are found in this region of the province. With the associated exploration, Alberta's "last frontier" has been exposed quickly to advanced-technology development rather than the early labor-intensive technology (Mayse, 1981:36). As a

result, cities like Ft. McMurray have affected the environment (pollution and erosion). Another concern facing this area of the province is the environmental damage exerted on the surface and ground water. To extract oil, a great deal of water is required to create steam for transporting and processing oil. After processing, the effects of huge tailing ponds on groundwater and their possible overflow into rivers must be monitored continually.

In the south the issues focus on agriculture and energy resources. With the area facing annual drought conditions, irrigation becomes important to the farmer. However, agreements between provinces limit the amount of water the farmers can use. "At least half the water of east-flowing rivers must be left to provide for Saskatchewan's and Manitoba's needs..." (Adams, 1981:8). With regard to energy development the continuous discussions surrounding sour gas and its effects on populated centres such as Pincher Creek remain a controversy. After the 1982 Lodgepole incident "Significant improvements in the practices and procedures for drilling sour gas wells have come into force in Alberta..." (Energy Resources Conservation Board, 1986:41). However, it still remains unclear when all of the ERCB's Lodgepole Inquiry Panel recommendations will be implemented to safeguard against such incidents in the future.

The Calgary to Edmonton corridor constitutes the central region of this study's review of main issues in

Alberta. Within the last two decades these centres have experienced tremendous population growth (see Table 2.2) which has resulted in the annexation of the surrounding prime agricultural land. In 1981, Calgary was forced by the provincial government to remove phosphorous from its effluent. Not only were there problems in the Bow River around Calgary, but the effects also were seen downstream in Medicine Hat. The area between the two major centres also is under considerable pressure. Concerns for the development of coal deposits and lakeshore subdivisions have resulted in the presentation of several briefs to government.

TABLE 2.2: Population of Calgary and Edmonton for 1971, 1976, 1981 (Source: Statistics Canada, 1979 and 1982)

Centre	1971	1976	1981
Calgary	403,343	471,397	592,743
Edmonton	438,565	461,594	532,246

Note: These figures as they are recorded by Statistics Canada are adjusted due to boundary changes.

Various governmental departments oversee the natural resources and address the issues. In particular, the Department of the Environment (or Alberta Environment) was formed in 1969 as a result of the rising awareness of the environmental issues and public pressures brought to bear on

the government. "Responsibility for environmental issues was shifted from a number of departments to this new department" (Adams, 1984:22). The move to establish the department was an acknowledgement of the mega projects from below ground to above ground (eg. oil sands development by Suncor and Syncrude near Ft. McMurray) and the transition from agriculture to oil and gas industry (Sniatynski, 1984:8). Through the Seventies the small scale below ground projects began to surface for everyone to see (Plesuk, 1984). The transition to resource industries not only meant the loss of agricultural land but the side effects of oil and gas (sour gas) industry on the surrounding countryside became far reaching in its negative effects.

One of the first agencies set up by Alberta Environment was the Environmental Conservation Authority (1970) which underwent a slow political change into the present day Environmental Council of Alberta (ECA)(1977). The change was questioned by many people in Alberta because instead of acting as environmental ombudsmen, the council became "...a skeletal agency to be supplied with ad hoc panels at the government's initiative" (Hunt, 1978:39). The mandate of this government agency is to review policies and programs of the government and its agencies in matters pertaining to environment conservation and to hold public hearings on matters which fall under several acts such as the Clean Air Act, Clean Water Act and Wilderness Areas Act (Environment

Council of Alberta, 1985).

Another government agency authorized to administer several energy related acts such as the Oil and Gas Conservation Act and Coal Conservation Act is the Energy Resources Conservation Board. Enacted under the Energy Resources Conservation Act (1971) this board deals with issues, regulations and orders pertaining to oil, gas, coal, pipeline and other energy industries (Energy Resources Conservation Board, 1986). Similar to the ECA board there is an organized public hearing process through which energy related submissions are made.

Somewhat offsetting the decried loss of the ombudsmen role of the ECA was the autonomous establishment in Edmonton of the Environmental Law Centre (1981). The centre is dedicated to "...the enforcement of existing [environmental] standards and laws and [provide] access to information" (Oscroft, 1984:19). Several proponents of the Alberta movement believe the courts are the most effective arena in which to debate environmental concerns and issues.

Indications of growth in the Alberta movement are documented in transcripts of environmental assessment hearings, the bills passed in the legislative assembly and by newspaper reporters specializing in environmental issues. Within Alberta, the two major daily papers, the Calgary Herald and the Edmonton Journal employ environmental reporters. The magazine Environmental Views is another

means by which information is distributed successfully over a wide area. This bimonthly publication, published by Alberta Environment, dedicates issues to relevant topics of importance to Albertans. The magazine "...is directed by an independent board with representation from environmental groups, government and industry" (excerpt from the editorial policy found on the inside cover of the magazine). This magazine has a wide distribution throughout Canada and the United States and has been praised for its journalistic values (Vicars, 1984 - editor of Environmental Views and Johannesson, 1984 - past member of the editorial board). Recent issues - January/February 1984 and March/April 1984 - summarized the history of the environmental movement on three geographical levels - international, national and provincial.

Historical records of Alberta's environmental groups show several of them were formed prior to the 1940s. For example, the Alpine Club established in 1906 produced "...the National Parks Association in 1923, a forerunner of the present National and Provincial Parks Association of Canada" (Spalding, 1984:11). The Alberta Fish and Game Association formed from the linkage of scattered hunting and fishing groups in 1928 (Spalding, 1984).

During the Sixties, Seventies and Eighties a variety of other groups formed. A partial list is included in Appendix 2. While their goals and objectives are diverse, they are



linked in recognition of environmental values. Among the larger and more active groups are the Alberta Wilderness Association, STOP (Save Tomorrow, Oppose Pollution: formerly active but now defunct), Federation of Alberta Naturalists and Alberta Fish and Game Association. "Other groups were also active ...[but] many of their efforts were unheeded" (Sniatynski, 1984:11).

By the end of the 1970's the environmental movement "...had a presence in Alberta; but, its presence was extremely ineffective" (Sniatynski, 1984:11). In discussion with people knowledgeable of the Alberta movement they concurred with Sniatynski's observation. As a result, several environmentalists maintain a network to keep environmental proponents in touch through the auspices of such environmental organizations as the Alberta Wilderness Association (Calgary) and Environmental Resource Centre (Edmonton). This network provides "...a strong informed leadership ready to step in during crisis" (Sniatynski, 1984:11) and therefore, assists the movement in becoming more effective.

The literature review did not yield any single extensive study on Alberta environmental groups. Subsequent discussions with various people associated with the Alberta movement (including government, industry, and environmental groups) felt the need for collective information on the groups. Several attempts were made in the past to bring the

groups together (Stazenski, 1984). As a result, the computer information system project to which this thesis was aligned was seen as one of the first large scale endeavours to collect information on the Alberta environmental groups.

## 2.6 Summary

The environmental movement has gained momentum from its early beginnings to the Eighties. Part of the reason for this growth is the promotion of the concepts of ecology. Mass media has given the movement progressively more attention. In education, academic disciplines such as geography refer both to human ecology and biophysical ecology (Krueger, 1972). Mabaquinze (1984) went so far as to state that geography was a bridge between the social and natural sciences in studying and solving environmental problems.

The environmental values have become more specific with the increase in the level of ecological understanding. This specificity is a reflection not only of the increased knowledge but of improved lobbying and intervention tactics used by the movement activists. As a result many proponents of the movement argue that the movement is here to stay. However, as Bookchin (1980:43) states "If the ecology [environmental] movement stops at mere reforms in pollution and conservation control ... without dealing radically with the need for an expanded concept of revolution, it will

merely serve as a safety valve for the existing system of natural and human exploitation." It is not enough to rest on past successes - the Canadian movement must continue to be visible and viable. Issues such as law enforcement, acid rain and urban renewal require constant attention and monitoring. One means to ascertain if the movement is alive is to make periodic assessments of the actors involved. Therefore, studies such as this can continue to provide information for both the layman and the professional.

During the literature review several studies were referenced to select the socio-political variables useful in determining the parameters for the computer information system. The geographic variables suggested for the project, in part, resulted from the academic discipline in which the project was initiated. More importantly they provide another dimension for understanding the environmental movement and create alternate variables for the computer information system. These points are discussed in more detail in the next chapter.

## Chapter Three

### DISCUSSION OF STUDY METHODOLOGY

#### 3.1 Introduction

The research methodology examined in this chapter includes a discussion of the criteria used to select the groups studied, data collection techniques, questionnaire design and analysis techniques. It is not an objective of this discussion to provide a comprehensive review of social survey techniques although these procedures are justified in the present context.

#### 3.2 Data Collection

The original list of eighty-four groups considered for the study was obtained from the mailing lists of the Alberta Wilderness Association (AWA) and the Energy Resource Centre (ERC). Both of these organizations maintain current mailing lists as part of their information exchange role in the Alberta environmental group network. A list of the groups involved in the study is found in the Appendix 1. Because many of the groups had multiple contacts or no formal mailing address, staff members from the AWA and ERC were asked to identify key names on the lists. This request was made to avoid wasting time mailing to incorrect addresses and/or people no longer involved.

From the list it was impossible to determine if all the groups met the project selection criteria and consequently all groups were included in the initial mailing of introductory letters. The criteria used to select the environmental groups were: (1) the group is voluntary in organisational structure; (2) it is involved with natural resource development within Alberta; and (3) it has an Alberta mailing address. National and international environmental groups were included if they maintained a chapter in the province and met the selection criteria.

The introductory letters sent during the initial mailing outlined the intent of the study and requested that a representative (and alternate) be chosen to act as the group contact to fill out the questionnaire. To maintain consistency between the respondents the groups were asked to submit the name of an executive member or a senior paid staff member who had two years active participation in the group's activities. The interpretation of active was left to the group.

The respondent selection criteria used in this study differs slightly from previous studies of a similar intent. Lowe and Goyder (1983) chose primarily the presidents of groups and when the groups were large other executive members were interviewed. Selection of the president of the group presupposes the president is the most knowledgeable member of the group. Kronus (1974:34) interviewed "...each

organization's current top officer" available at the time of the interview. In Kronus' selection of respondents, time and place determined who participated. For this project, the decision of which executive member would act as the respondent was left to the group. Using this technique presumes the person chosen provides the most accurate assessment of the group. However, there is no guarantee that the respondent was chosen by the group. It is possible that the person contacted by the initial mailing is the same person who completed the questionnaire and further it is not known if the respondent is the most knowledgeable member of the group. In any case the response obtained must be considered modal. Stallings (1973) concludes that the respondent of the group usually will provide a modal response to outside sources for displaying outward unanimity.

Upon return of the introductory letters, the representatives were contacted to confirm their participation in the study. They also were queried on their position in the group to confirm adherence to the criteria of respondent selection. Each respondent was asked also for their mailing address. In some cases, the questionnaire was forwarded to the respondent's home while the rest were sent to the group's mailing address. Personal attention to this detail was seen as a means to expedite the return of the questionnaire. Within 2-3 weeks after the initial

forwarding a follow-up call and/or mail reminder was initiated. The 2-3 weeks delay was given to allow respondents time to collect information. Also, most respondents are volunteers and to expect a quick return in light of other personal commitments would be impractical. Babbie (1973) and Dixon and Leach (1978b) emphasize the importance of multiple contacts - that is, a respondent may have to be sent a number of reminders before an answer is obtained. The researcher chose to initiate two additional contacts with all groups who did not respond.

### 3.3 Questionnaire Design

A number of articles and books on the subject of designing postal questionnaires were referenced in preparation for the study questionnaire (Champion and Spear 1969, Dixon and Leach 1978a and 1978b, Brady 1980, Henderson, Morris and Fitz-Gibbon 1980, Kidder 1982). A copy of the questionnaire is included as Appendix 2.

Lowe and Goyder's 1983 study provided the impetus for the selection of socio-political variables in the questionnaire. Personal correspondence with Lowe (1984) indicated the need to reduce the number of questions from his original list. In addition, many of his questions were specific to the situation and government system in England and therefore were not appropriate to this study. Other studies and articles were referenced (Stallings 1973, Kronus

1974, Buttel 1975, and Spearman 1979) to confirm, select or create the socio-political variables. Also personal interviews with several people knowledgeable of the Alberta movement suggested variables (Kelba, 1984 and Stazenski, 1984). As a result five of the variables used in the data analysis were taken directly from Lowe and Goyder's (1983) study. These five variables are similar to those used in the other studies as well. Eleven variables were adapted from discussions in the literature. The remaining seven variables are unique to this study. The list of twenty-three variables and their origin are found in Table 3.1.

In addition to the socio-political variables several geographic variables were included; three of which are listed in Table 3.1. These three variables are useful in constructing one of the possible parameters for the computer information system. Two other geographic questions utilized a mental map technique. Mental maps are a "...systematic way of describing and explaining how people interpret environmental and spatial information" (Smith, 1983:120). In the geographical literature sample studies include what people believe are important features of their neighbourhood and where people go for holidays (Smith, 1983). The mental map technique was chosen for the project to confirm where the groups direct most of their work. The technique was chosen to add another dimension to the study. The researcher was unable to ascertain from the literature if



TABLE 3.1: Variables Used in the Study

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1. Date of Establishment
2. Total Group Membership
3. Total of Active Group Membership
4. Percentage Category of Active Group Membership
5. Definition of Active Membership
6. Membership Trend
7. Involvement in Environmental Movement
8. Group Aims
9. Sources of Funding
10. Definition of Environmental Movement
11. Position of Respondent
12. Group Political Outlook
13. Perceived Political Outlook of Government
14. Perceived Political Outlook of Industry
15. Group Action Orientation
16. Perceived Action Orientation of Government
17. Perceived Action Orientation of Industry
18. Group Geographic Perspective
19. Perceived Geographic Perspective of Government
20. Perceived Geographic Perspective of Industry
21. Formation of Coalition
22. Effectiveness in Presenting Group Views to Public
23. Mailing Address of Group

- NOTES:
- a) 1, 2, 3, 11 and 23 are taken from Lowe and Goyder (1983).
  - b) 13, 14, 16, 17, 18, 19, and 20 created by the researcher for this study.
  - c) 4, 5, 6, 7, 8, 9, 10, 12, 15, 21, and 22 are discussed in the literature and were adapted by the researcher for this study.

the technique had been applied to a study of the same kind.

In this study the respondents were provided with a base map and asked to respond to questions on this map. In this way the "whereness" - the knowledge of the spatial location of the environmental issues and the "whatness" - the knowledge of the issues at the particular location are discerned (Downs and Stea, 1977). However, some problems exist with the technique. Gould and White (1974), Downs and Stea (1977) and Smith (1983) point out the following problems with mental maps (a) exaggeration is involved through emotional interpretation; (b) the information is difficult to measure; and (c) accuracy is not required by the respondents. However, the method does allow common characteristics to be drawn from the data. For example, the frequency that an issue is drawn and labelled on the map. For the scope of this study the use of mental maps was an adequate technique to gather general information.

The choice of variables was derived from the literature review. In the case of the socio-political variables the choice was made easy by the frequency of use. The geographic variables were chosen to add another dimension to the study. A more important reason for the choice of both types of variables was for the selection of variables useful to construct the parameters for the computer information system. For example, if a person wanted a list of those groups who work on a provincial basis on water management

issues, they could type in the specific codes and the list would be provided.

In preparation of the questionnaire both open and closed questions were included. Several people involved with environmental groups were asked to determine the questions' appropriateness. Further, several fellow graduate students and professors were asked to comment on the questionnaire structure. Some inadequacies were found and corrected. Because of the small size of the sample it was determined that a pretest would not be implemented.

In consideration of the questionnaire mailing, the time of the week (Scott, 1957) was not important to the study because of the initial phone contact. Price's (1950) suggestion to include a return postage envelope was used.

### 3.4 Statistical Analysis

Several statistical procedures were used in analyzing the data. They include frequency tables, contingency (crosstabulation) analysis and cluster analysis. Each procedure is described in brief detail.

Frequency tables provide "...the basic distribution of characteristics of each of the variables to be used in the statistical analysis" (Nie, 1975:181). These tables provide information on the distribution and variability of the data. In some cases special tables were created by the researcher to summarize the data.

The SPSS program CROSSTABS was used to determine if a relationship existed between selected variables. "A crosstabulation is a joint frequency distribution of cases according to one or more classificatory variables" (Nie, 1975:218). In the sampling frame of this study only two variables were analyzed at any one time. The hypotheses that were tested are listed in Chapter One and are found in the discussion of the findings in Chapter Four. Both a measure of association and test of statistical significance statistics were used to summarize the relationships between variables. The measure of association "...describe[s] the degree to which the values of one variable predict or vary with those of another" (Nie, 1975:218-219). The tests of significance "...determine whether or not the variables are statistically independent" (Nie, 1975:218). Because the data was measured at the nominal level the *contingency coefficient C* was chosen as the measure of association while *Chi-square* was chosen as the test of significance.

One of the problems encountered in the study was the small number of questionnaires returned. For most tests a sample size greater than thirty is desired to analyze the relationships that exist between the variables. As a result most statistical tests can not be used. However, several statistics are available that consider an  $N < 30$  where  $2 \times 2$  tables are used. They are *Fisher's exact probability test* and *Yates corrected Chi-square* (both tests of significance),

and the *tetrachoric correlation coefficient* (a measure of association) (Dixon and Brown, 1979:261).

The third analytical technique used in the study is CLUSTER ANALYSIS. "Cluster Analysis has been used extensively by numerical taxonomists and also by researchers in several branches of geography" (Waters and Barr, 1980:82). This multivariate technique places objects into groups based on the variables used to study the objects (Davis 1973 and Dixon and Brown 1979). "Clustering is a good technique to use in early data analysis when you suspect that the data may not be homogeneous and you want to classify or reduce the data into groups" (Dixon and Brown, 1979:21). In this study the clustering was used to examine the similarity of survey responses between groups.

Cluster Analysis algorithms can be differentiated according to whether they are agglomerative or divisive:

Agglomerative algorithms build up classes from a set of individuals whereas divisive methods split a number of individuals into successively more and more groups. Agglomerative methods are used more commonly since they are computationally faster. (Waters and Barr, 1980:82)

Waters (1986) advised the use of an agglomerative algorithm in this study - a modified version of CLUSTER in Davis (1973:476).

The agglomerative algorithms can be subdivided further into algorithms which are hierarchical or non-hierarchical. CLUSTER is an example of the hierarchical algorithm where "... groups which are formed at lower levels must become

part of larger groups at subsequent steps in the analysis" (Waters and Barr, 1980:82). The CLUSTER program uses a weighted pair group averaging procedure "... which is commonly felt to guarantee the highest cophenetic correlations (Davis, 1973)" (Waters and Barr, 1980:84). Cophenetic correlations are the "...apparent correlations contained within the dendrogram" (Davis, 1973). These correlations, when plotted against the similarity correlations, examine the distortion which results from clustering the data. Subsequently, a measure of correlation ( $r$ ) can be computed between the matrix of correlations and matrix of cophenetic correlations to determine the distortion (Davis, 1973).

Gower's (1971) coefficient of similarity was used to compute the measure of similarity between the clustering of groups. Gower's coefficient of similarity ( $S_g$ ) was chosen because "... binary (yes/no), qualitative and quantitative answers can be included" (Barr, Waters and Matthews, 1984:123) in the analysis. For binary or yes/no data the coefficient may be defined as

$$S_g = \frac{\sum_{i=1}^N W_{j k} S_{i j k}}{\sum_{i=1}^N W_{i j k}}$$

where groups  $j$  and  $k$  are being compared over the answers to the  $i^{\text{th}}$  question

$S_{ijk}$  has a range between 0 and 1

$W_{ijk}$  is 1 when comparison between  $j$  and  $k$  for the  $i^{\text{th}}$  question is possible and 0 when the  $i^{\text{th}}$  question was not answered or the response is not known for either the  $j^{\text{th}}$  or  $k^{\text{th}}$  group.

Several other clustering algorithms were investigated (CLUSTAN and BMDP Cluster). After discussions with Waters (1986), the researcher decided upon the CLUSTER algorithm in light of the data and the use of the *Gower coefficient*.

### 3.5 Summary

Chapter Three provides information on the study methodology. First, the criteria used to select the voluntary groups involved with natural resource industry in Alberta were outlined. Following this discussion was a presentation on the process by which the groups were contacted to initiate data collection. The next section dealt with the questionnaire design, including discussion on mind or cognitive mapping as a research tool for this study. Finally, the last section of the chapter outlined the analytical techniques and statistics used: frequency tables; crosstabulation tables with the associated statistics; and Cluster Analysis with the associated *Gower's coefficient of similarity* as the measure of similarity and the weighted pair linkage method used in the algorithm.

## Chapter Four

### ANALYSIS OF ORGANIZATIONAL, POLITICAL AND GEOGRAPHICAL VARIABLES

#### 4.1 Introduction

Chapter Four examines several aspects of the data analysis conducted on the environmental groups. The discussion in the text expands on the tables and maps that summarize the data collected.

The total number of respondents was 29. This figure is determined from twenty-eight submissions, with one group considered as two entries. The split is made to acknowledge the two distinct working regions the group has designated for itself (North and South).

The original list of 84 groups is subdivided into three categories as determined from the initial contact. They are:

- 22 considered outside of the selection criteria;
- 28 participated in the study; and
- 34 provided no response (5 of which agreed to participate but did not return the questionnaire).

Based on these figures a 60% (50/84) response rate was achieved. However, this figure is misleading and for the most part would result in accepting the null hypothesis. Normally a sample size greater than thirty is required. Statistical tests designed for sample sizes less than thirty were used but these tests also failed to find support for



the research hypotheses at either the 95% or 90% confidence levels. In all cases where crosstabulation analysis was used the  $C$ ,  $X^2$ ,  $X^2_Y$ ,  $r_t$ , and/or *Fisher's exact probability* statistics are given for reference. The null hypothesis in each case was that no relationship exists between the variables. Conversely, the research hypothesis was that a relationship exists between the variables. Elaboration on each set of two variables is given in the text.

The analysis in this chapter is divided into four parts. In order of presentation they are (1) organizational characteristics such as funding and membership; (2) political characteristics such as political outlook and designated activity areas; (3) geographical characteristics such as location of group activity and designated concerns and issues; and (4) cluster analysis of the similarity of response by groups.

#### 4.2 Organizational Characteristics

Several organizational characteristics have been used in past work to study environmental groups. Lowe (1984) advised that a selection of these variables be chosen. According to frequency of appearance in other studies the following variables were chosen: date established, membership, funding and most importantly group aims. These variables provide the base line of information by which to study the other aspects of the groups.

From North American history the 1960s and 1970s are the acknowledged decades for the beginning of the environmental movement (Nash, 1973). After the prosperous years following the World Wars, environmental groups were established in response to the ecological crisis made known by many environmental proponents and events (discussed in Chapter Two). This pattern is evident in Figure 4.1. The histogram also displays the decline in the number of groups in the Eighties. Possible suggestions for this observation are that enough groups exist already; that individuals are knowledgeable of how to affect change without forming groups; or environmental issues are a lower priority in comparison to other issues such as finding employment. Of the 29 responses in this study, nineteen groups were established during the Sixties and Seventies. Six other groups trace their origins back as far as the 1920s and four were established in the 1980s.

Table 4.1 displays the dates provided by the respondents and an indication of their group's membership numbers. The names of all groups in the sample are not given in Table 4.1 because of requests by four respondents. In one case the respondent provided actual membership numbers rather than inflated numbers and as result asked not to be identified.

Membership is an unreliable measure of the strength of the groups or movement. People can hold more than one

TABLE 4.1: Several Organizational Characteristics of Environmental Groups in Chronological Order (N=29)

Date Formed	Number of Members (1)	Number of Active Members (2)	Membership Trends (3)
1906	175	88	upward
1923	200	200	no change
1925	1,200	300	upward
1928	25,000	12,500	upward
1940	125	31	upward
1949	100	75	upward
1965	150	75	no change
1967	178	44	downward
1967	130	65	downward
1967	80	20	upward
1968	140	70	no change
1969	2,500	250	upward
1970	600	300	upward
1971	1,200	600	upward
1972	570	428	upward
1972	70	35	upward
1973	70	17	upward
1974	380	95	upward
1976	1,897	949	upward
1976	40	10	downward
1976	100	25	no change
1977	600	70	no change
1978	1,400	700	upward
1978	200	100	no change
1979	50	3	upward
1980	300	225	upward
1980	10	8	no change
1981	200	150	no change
1984	30	15	upward
	37,695	17,438	

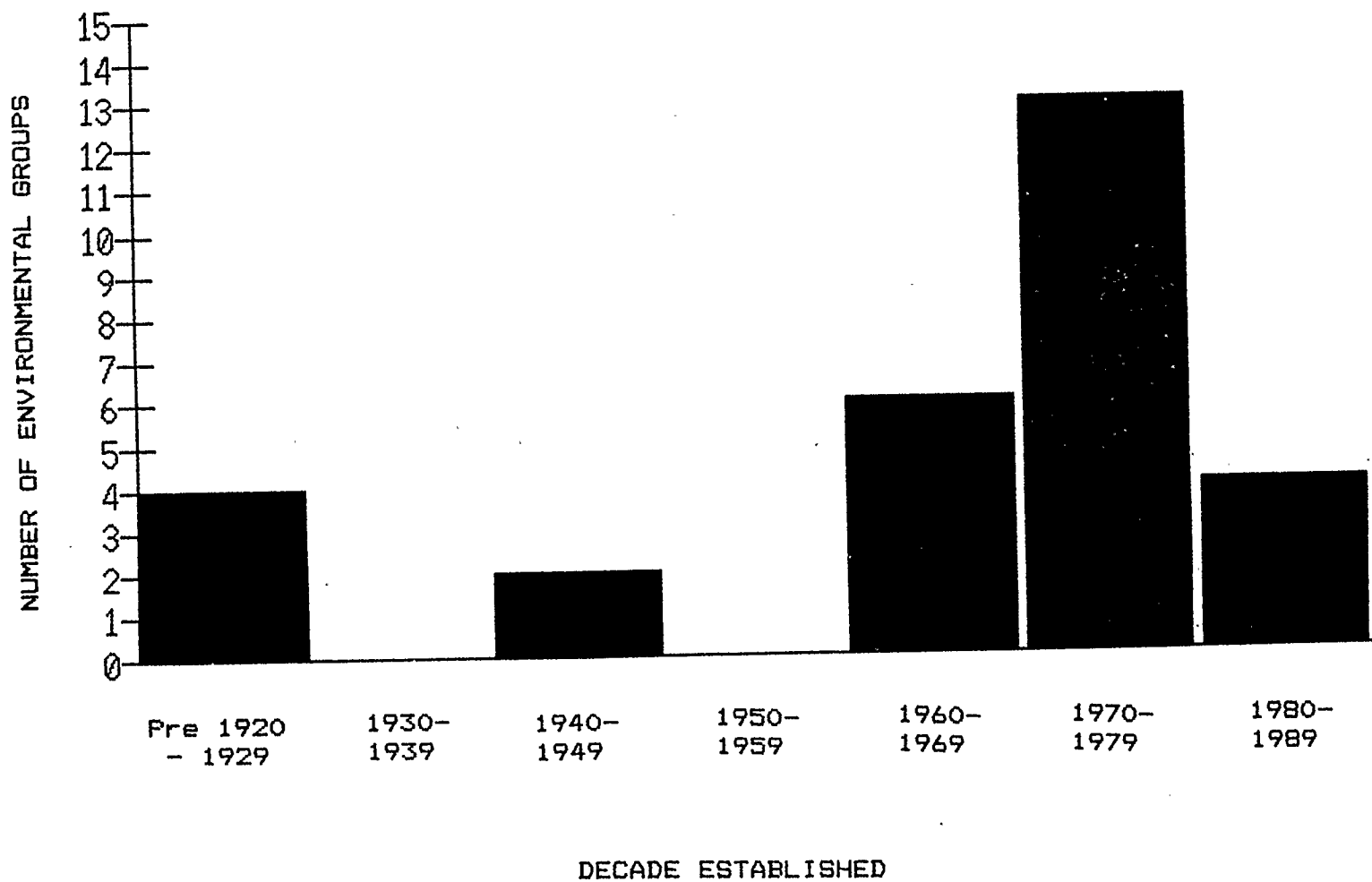
- (1) Some members maintain more than one membership; therefore they are counted more than once.
- (2) Respondents were given a choice of six percentage categories. The upper limit of the category was used to calculate the figure given.
- (3) The indication of trend relates to the time period from the inception of the group to the present.

TABLE 4.1 continued

- (4) The groups involved in the study are listed below. However, at the request of four respondents their names are not given.

Cooking Lake Moraine Landowner's Association  
Josephine Environmental Protection Group  
Alberta Forestry Association  
Bow Valley Naturalists  
Trail Riders of the Canadian Rockies  
Christian Farmers Federation of Alberta  
Outdoors Unlittered  
Alberta Fish and Game Association  
Committee for the Preservation of Three Rivers  
Waskahegan Trail Association  
Red Deer River Naturalists Society  
Edmonton Bird Club  
Alberta Four Wheel Drive Association  
Alberta League for Environmentally Responsible  
Tourism  
Buffalo Lake Naturalists  
Alpine Club of Canada (Calgary section)  
Alberta Canoe Association  
Edmonton Junior Naturalists  
National and Provincial Parks Association - North  
National and Provincial Parks Association - South  
Great Divide Trail Association  
Lakeland Environmental Agricultural Protection  
Association  
Southern Alberta Environmental Group  
Federation of Alberta Naturalists  
Alberta Wilderness Association

FIGURE 4.1: Environmental Groups by Decade Established



membership which inflates the numbers. Also it is necessary to determine if the individuals are periphery or core members (Stallings, 1973). This distinction is made to understand the level of member participation in the group activities and organization. Another problem in obtaining membership is the rounding of figures to approximate support. Because it is an approximation, the figure may be rounded up or down depending on the needs of the group in response to the task at hand. For example, a high number is an impressive statistic at an environmental hearing. To have support from 2000 members in comparison to 1566 looks better in the brief presentation (Stazenski, 1984).

From Table 4.1 the total membership is shown as 35,695 of which 17,438 (50%) are active. A skew factor exists where the membership of one group is approximately twice the size of the total of all the other groups. The second figure, number of active members, is calculated on the upper limit of six categories given to the respondent. For example, the 5-10% category resulted in 10% of the total membership given as the active members. A question arises, however, with the meaning of active. On a group to group basis, active members show their support in several ways. The predominant reason is support of organizational functions including attendance at meetings and social events as seen in Table 4.2. Political reasons are cited separately except for six groups who indicated a combination

of the two functions. On a cumulative basis 25 groups (86%) indicated that active meant participation in organizational and political activities.

TABLE 4.2: Meaning of Active as Defined by Environmental Groups (N=29)

		Rel.f.	Cul.f
1. Organizational Participation	16	55	55
2. Political Function	3	10	65
3. Combination of 1 and 2	6	21	86
4. Membership Fees	2	7	93
5. No Response	2	7	100
	29	100	

Table 4.3 displays the data found in Table 4.1 from the highest to lowest number of active members. The sorting of Table 4.1 was accomplished using a Macintosh (Apple) database program "File". This software program demonstrates one powerful function useful in sorting key variables for the computer information database originally proposed by this research study.

From Table 4.3 a relationship becomes apparent between active membership and trend of membership affiliation. With a higher active membership there is an increased likelihood of an upward trend in membership affiliation. This observation would suggest that groups who maintain an active membership are more likely to increase their ability to recruit more members. Possible reasons for this observation are the increased public awareness of environmental issues

TABLE 4.3: Table 4.1 Sorted According to Highest to Lowest Active Membership (N=29)

Date Formed	Number of Members (1)	Number of Active Members (2)	Membership Trends (3)
1928	25,000	12,500	upward
1976	1,897	949	upward
1978	1,400	700	upward
1971	1,200	600	upward
1972	570	428	upward
1925	1,200	300	upward
1970	600	300	upward
1969	2,500	250	upward
1980	300	225	upward
1923	200	200	upward
1981	200	150	no change
1978	200	100	no change
1974	380	95	upward
1906	175	88	upward
1949	100	75	upward
1965	150	75	no change
1968	140	70	no change
1977	600	70	no change
1967	130	65	downward
1967	178	44	downward
1972	70	35	upward
1940	125	31	upward
1976	100	25	no change
1967	80	20	upward
1973	70	17	upward
1984	30	15	upward
1976	40	10	downward
1980	10	8	no change
1979	50	3	upward
	37,695	17,438	

- (1) Some members maintain more than one membership; therefore they are counted more than once.
- (2) Respondents were given a choice of six percentage categories. The upper limit of the category was used to calculate the figure given.
- (3) The indication of trend relates to the time period from the inception of the group to the present.

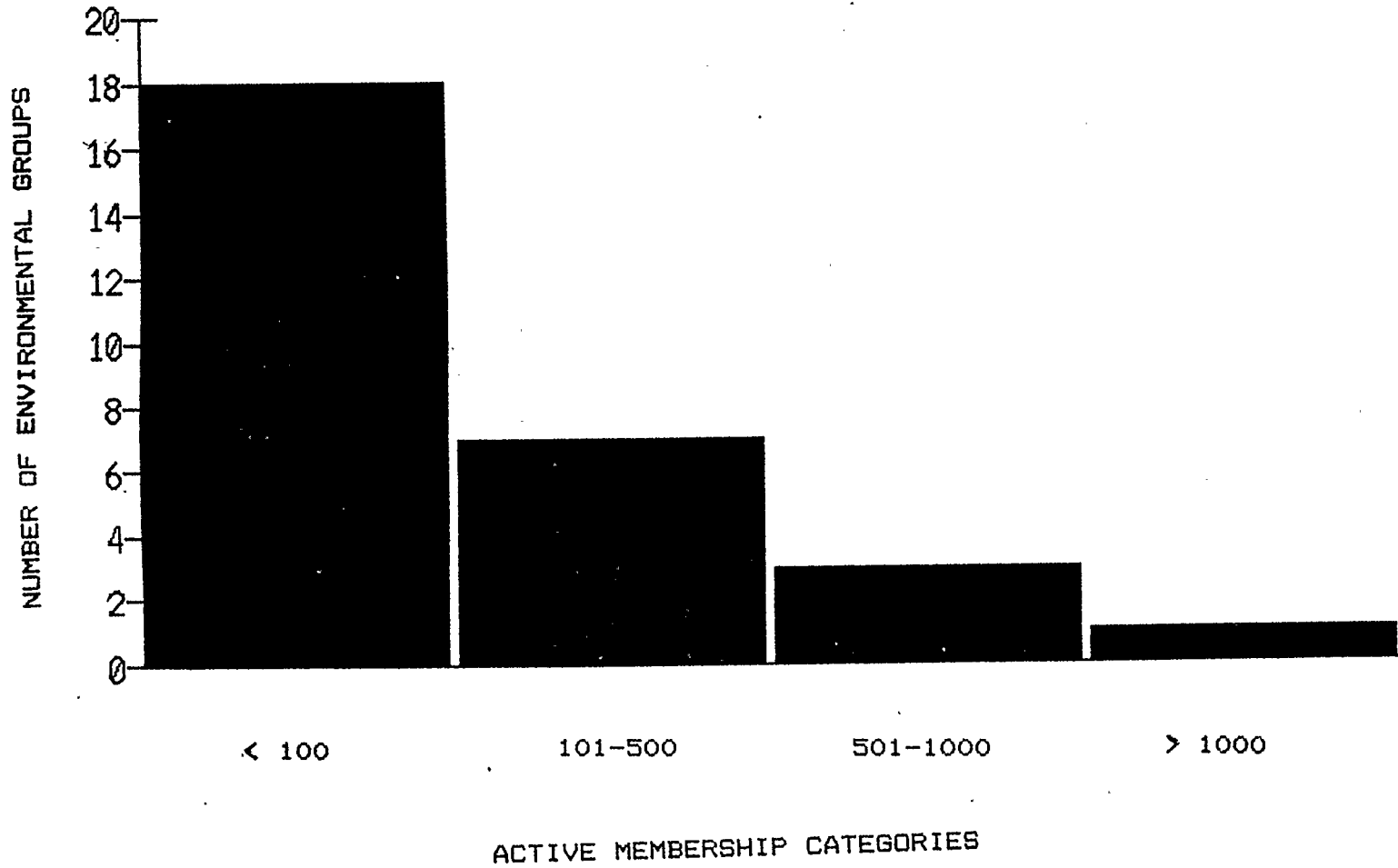


within the media and a greater ability of groups with active members to disseminate information by the "grapevine" system. However, Figure 4.2 indicates that there is a large number of groups (18) with active memberships below 100. This observation would suggest that groups with a smaller membership may have to work harder to acquire members because their grapevine system is much smaller. More importantly, the environmental movement in Alberta relies upon a large number of groups with a small number of active individuals to pursue environmental issues.

With increasing membership, groups are able to collect membership fees. Unfortunately these fees are not always adequate to sustain the activities of the groups. Therefore, funds are required from other sources such as government and industry. With the influx of institutional money some environmental proponents believe that such financial support is a sophisticated response to control informally the environmental groups. Lowe and Goyder (1983) refer to this as a "sweetheart" relationship. Adams (1984) found discontent among proponents of the Alberta movement with the institutional funding relationship, especially in dealings with government.

This study did not address the likelihood of a sweetheart relationship, but the type of funding groups rely upon has been summarized in Table 4.4. Eighteen groups (64%) obtain support from several sources while 10 operate

FIGURE 4.2: Environmental Groups by Active Membership



on voluntary support. The fact no groups indicated they rely solely on government funding confirms that all of them fit the study criteria. Any group who chose the government only category would have been reclassified according to the study criteria outlined in Chapter Three. Another observation from Table 4.4 is that no group had mentioned they receive financial support from industry. From the literature review some industrial support has been given to groups under the banner of social responsibility. In Alberta it appears that groups do not rely upon industrial funds to operate.

TABLE 4.4: Funding Support for Environmental Groups (N=28)

		Rel.f.	Cul.f.
Voluntary Support	10	36	36
Governmental Support	0	0	36
Combination of Both	<u>18</u>	<u>64</u>	100
	28	100	

Perhaps the most important organizational characteristic of a group is its aims. They are its reason for existence. Three categories summarize the responses in Table 4.5. Seventeen groups indicated their aims focus on an environmental quality/recreation basis. For example, hiking groups who maintain trails in the Rocky Mountains would be contained in this category. The remaining 11 groups felt they focused their attention on environmental

quality (7) and environmental quality/commercial aims (4).

TABLE 4.5: Environmental Groups' Aims (N=28)

		Rel.f.	Cul.f.
Environmental Quality/Recreation	17	61	61
Environmental Quality	7	25	86
Environmental Quality/Commercial	4	14	100
	28	100	

Finally, studies of a similar nature have specified the the position of the respondent to be involved in the study. This study allowed the group to make the choice. As a result 28 of 29 respondents were executive members. To appreciate fully this statistic in the context of other studies it would have been helpful to obtain the job description of each respondent for comparison. As it was the respondents listed their title and the researcher made the interpretation as to executive or non-executive status of the respondents.

#### 4.3 Political Characteristics

A topic frequently discussed in the environmental literature centres on the question, "What in your opinion is the environmental movement?" At least three schools of thought were found during the literature review. Proponents of the movement view the movement as a philosophy, an explanation of man-environment interrelationships, or a

process to meet a desired end. The same question was asked of the respondents in conjunction with whether their group was a part of the environmental movement. Overwhelmingly 90% (26 of 29) provided a pragmatic or concrete response - the environmental movement is a collective, working toward changing man's use of the environment (a process). One respondent hinted at a more conceptual or abstract definition: "understanding the relationship between the quality of life and the quality of our environment (a philosophy)." While 90% of the respondents gave a pragmatic definition of the environmental movement, only 79% (23 of 29) felt that their group was part of the environmental movement.

The process to initiate change in man's use of the environment becomes a function of the political system (eg. environmental law and lobbying). For this reason it is important to understand the political characteristics of the groups involved in the process. It is also helpful to define the political system in which the process takes place. For this thesis it must suffice to acknowledge that the Alberta movement is part of a democratic political system. To elaborate any further on the interrelationship between environmental groups and the political system in which they operate is a separate thesis.

Table 4.6 summarizes the environmental groups' rankings of activities in which they are involved. The rankings

TABLE 4.6: Rankings of Activity Areas and Summary of Issue/Concern Designation for Activity Areas

Activity Areas	Rankings				Rank (2)	Summary Issue/Concern/Combination (3)
	1	2	3	4		
Conservation/ Preservation(1)	5	4	1	2		7/5/0
Water Management	6	2	4	0	1	6/4/2
Fish/Wildlife Management	6	2	0	0	2	6/0/2
Land Use Management	2	5	1	0	3	5/2/1
Recreation/ Tourism	2	2	2	0		5/1/0
Parks Management	3	1	1	0		4/0/1
Forest Management	2	0	2	0		2/1/1
Mountain Management	1	1	1	0		2/1/0
Wildland Management	0	1	0	1		1/1/0
Education (4)	1	1	0	1		3/0/0
Air Pollution	1	1	0	0		1/1/0
Chemicals	0	0	2	0		1/1/0
Litter	1	0	0	0		1/0/0

44/16/7

Notes specific to the Table follow.

TABLE 4.6 continued

- (1) This category also can be interpreted as a miscellaneous row. Some respondents referred directly to conservation/preservation or in terms similar to these.
- (2) The assignment of Rank is based on subjective analysis of the Rankings Column.
- (3) This column summarizes the number of times the activity areas were given issue, concern (and a combination of the two) designation.
- (4) These categories were specific enough to warrant their own identification on the table.

provide an indication of the importance of the activity. In addition, the groups assessed the activity as a concern or issue. A concern is a feeling of anxiety or worry to which an action may or may not be taken. On the other hand a concern becomes an issue when a number of people are interested in the activity and take action (McNeil, 1986). The question was designed to encourage the respondents to choose either concern or issue. If they were given the opportunity to choose a combination response, no indication of the strength of activism of the selected activities could be summarized. Had a larger sample size resulted from the survey, comments on the importance of an issue to the welfare of the Alberta society possibly could have been determined.

When the respondents were asked whether the activities were a concern or issue, 44 of 68 (65%) rankings were identified as issues. This statistic is displayed in Table 4.6. However, some respondents checked both issue and concern for the selected activity. This data is recorded as "combination" in the table.

The respondents also were asked to analyze their political outlook and their action orientation. The choices available under political outlook were advocacy, advisory and combination of both.

Advocacy - your organization challenges the existing policies and procedures of government and/or industry (eg. you are in contact with politicians and/or industrialists).



Advisory - your organization has a close relationship with one or more government bodies and/or industries (eg. you are consulted by civil servants and /or industrialists).

Under action orientation the choices were reactive interested, proactive interested and a combination of both.

Reactive Interested - your organization reacts to a specific issue of direct interest to the group.

Proactive Interested - your organization works independently of immediate perceived issues/concerns of direct interest to the group.

These categories were chosen after completing the literature review and discussion with a group of people knowledgeable about the Alberta environmental movement. It was consistently mentioned that current word terminology should be used. Upon the advice of the knowledgeable group in particular, the above terms were chosen.

In addition the respondents indicated how they thought government and industry perceived the group's role under the same categories and choices. The decision to include these variables was a result of the researcher's discussion with several people involved directly with the environmental movement. They thought that the groups would have the same perception of themselves as they believe government and industry would have. If they did not, it would suggest that the groups were unsure of their relationship with government and industry. However, discussion of this topic becomes another thesis and one certainly worth investigating. Further, public perception of the work of the groups, in

terms of their political outlook and action orientation, could be included in the new study.

Tables 4.7 and 4.8 are frequency tables that display the responses of the groups' perception of their own political outlook (POLIT) and action orientation (ACTION) respectively. They also include the groups' perception of how they believe government and industry view their political outlook (GOPOLIT and INPOLIT) and action orientation (GOACTION and INACTION). The tables were prepared to display patterns of response.

After reviewing the data in Tables 4.7 and 4.8 two patterns emerge. First, the "combination" choice was given repeatedly in answer to the questions. Upon reflection, if the combination choice had been changed to "other, please specify", then possibly a clearer picture of group perception could have been discerned. The results suggest that the groups considered themselves to be multifaceted in their political outlook and action orientation. Second, while the combination choice was a preferred response for the groups' perception of their own political outlook and action orientation, a noticeable difference can be seen with the groups' responses as to how government and industry might perceive them. Instead of a combination choice the groups' chose no response. This would suggest that the groups do not know how government and industry perceive them or the groups were hesitant to respond.

Table 4.7: Frequency Distribution of Environmental Groups' Perceived View of Their Own Political Outlook (POLIT), That of Governments (GOPOLIT), and That of Industry (INPOLIT) (N=29)

	POLIT		GOPOLIT		INPOLIT	
	NO.	Rel.f.	NO.	Rel.f.	NO.	Rel.f.
Advocacy	6	20.7	9	31.0	8	27.6
Advisory	4	13.8	5	17.2	3	10.3
Combination	18	62.1	11	37.9	10	34.5
No Responses	1	3.4	4	13.8	8	27.6
	29	100	29	100	29	100

Table 4.8: Frequency Distribution of Environmental Groups' Perceived View of Their Own Action Orientation (ACTION), That of Governments (GOACTION), and That of Industry (INACTION) (N=29)

	ACTION		GOACTION		INACTION	
	NO.	Rel.f.	NO.	Rel.f.	NO.	Rel.f.
Reactive	5	17.2	7	24.1	8	27.6
Proactive	4	13.8	3	10.3	3	10.3
Combination	19	65.5	14	48.3	8	27.6
No Responses	1	3.4	5	17.2	10	34.5
	29	100	29	100	29	100

Crosstabulation analysis was used to summarize the relationships between the political outlook and action orientation variables - POLIT and GOPOLIT; POLIT and INPOLIT; ACTION and GOACTION; and ACTION and INACTION. The research and null hypotheses for each set of two variables are:

POLIT and GOPOLIT

H1 - the groups' perceived view of their political outlook is related to how they perceive government to perceive their political outlook.

H0 - the groups' perceived view of their political outlook is not related to how they perceive government to perceive their political outlook.

POLIT and INPOLIT

H1 - the groups' perceived view of their political outlook is related to how they perceive industry to perceive their political outlook.

H0 - the groups' perceived view of their political outlook is not related to how they perceive industry to perceive their political outlook.

ACTION and GOACTION

H1 - the groups' perceived view of their action orientation is related to how they perceive government to perceive their action orientation.

H0 - the groups' perceived view of their action orientation is not related to how they perceive government to perceive their action orientation.

ACTION AND INACTION

H1 - the groups' perceived view of their action orientation is related to how they perceive industry to perceive their action orientation.

H0 - the groups' perceived view of their action orientation is not related to how they perceive industry to perceive their action orientation.

The statistics are reported in Tables 4.9 to 4.12. In all cases the null hypothesis was accepted - that is, no relationship exists between the variables in each set. In other words the way in which the groups perceive their political outlook and action orientation are not related to how they believe government and industry might perceive them. This result would suggest that the groups are unsure of their relationship with government and industry.

For groups to be able to present themselves to government and industry it would be beneficial for them to have the same perception of themselves as would government and industry. However, the findings of Tables 4.9 to 4.12 would suggest that there is discrepancy in perceptions. The closest relationship exists between ACTION and GOACTION where the *Chi-square* value nears statistical significance at the 10% significance level. Because the *C* statistic allows for comparison between tables having the same dimensions (Nie, 1975:225), the best strength of relationship is found also with the ACTION and GOACTION variables. If a larger sample size was available for the study, then possibly the relationships that exists in Tables 4.9 to 4.12 would be statistically significant. As Nie (1975:218) states "Statistical significance depends not only on the strength of the observed relationship but on the size of the sample."

Within the political process it is sometimes advantageous to form coalitions. Within Alberta, several

TABLE 4.9: Crosstabulation Results for Environmental Groups' Perceived View of Their Own Political Outlook (POLIT) and That of Government (GOPOLIT) (N=29)

		GOPOLIT				Total
		Advisory	Advocacy	Combination	No Response	
POLIT	Advisory	2	0	2	2	6
	Advocacy	0	2	2	0	4
	Combination	7	3	6	2	18
	No Response	0	0	1	0	1
	Total	9	5	11	4	29

*Chi-Square*= .4041

*C*= .49441

Note: The *Chi-square* value is the calculated significance level from the SPSS IX program (Nie, 1975)

TABLE 4.10: Crosstabulation Results for Environmental Groups' Perceived View of Their Own Political Outlook (POLIT) and That of Industry (INPOLIT) (N=29)

		INPOLIT				
		Advisory	Advocacy	Combination	No Response	Total
POLIT	Advisory	0	0	3	3	6
	Advocacy	2	1	0	1	4
	Combination	6	2	6	4	18
	No Response	0	0	1	0	1
	Total	8	3	10	8	29

*Chi-square* = .4321

*C* = .48781

Note: The *Chi-square* value is the calculated significance level from the SPSS IX program (Nie, 1975)

TABLE 4.11: Crosstabulation Results for Environmental Groups' Perceived View of Their Own Action Orientation (ACTION) and That of Government (GOACTION) (N=29)

		GOACTION				Total
		Reactive	Proactive	Combination	No Response	
ACTION	Reactive	3	0	3	0	5
	Proactive	0	2	2	0	4
	Combination	4	1	9	5	19
	No Response	0	0	1	0	1
	Total	7	3	14	5	29

*Chi-square* = .1093

*C* = .57580

Note: The *Chi-square* value is the calculated significance level from the SPSS IX program (Nie, 1975)



TABLE 4.12: Crosstabulation Results for Environmental Groups' Perceived View of Their Own Action Orientation (ACTION) and That of Industry (INACTION) (N=29)

		INACTION				Total
		Reactive	Proactive	Combination	No Response	
ACTION	Reactive	3	0	0	2	5
	Proactive	2	1	0	1	4
	Combination	2	2	8	7	19
	No Response	1	0	0	0	1
	Total	8	3	8	10	29

*Chi-square* = .1755

*C* = .55223

Note: The *Chi-square* value is the calculated significance level from the SPSS IX program (Nie, 1975)

movement proponents have expressed such a need. For reasons of mutual support through pooled resources and/or common interests (Zald and Ash, 1966) coalitions serve to strengthen the presentation of a group or groups. On the reverse side of the argument, coalitions reduce the number of possible interveners at a board hearing. If the number game is used in the hearing process, one coalition of ten groups is less persuasive on paper than ten individual groups (Stazenski, 1984).

Nineteen (66%) of the 29 groups questioned in this study are involved in coalitions. All nineteen indicate that the coalition was formed because of joint interest in common subject areas. In addition, regional proximity to one another and the type of group and its resources are mentioned three times each.

One of the reasons to form a coalition is to increase the effectiveness of the group's ability to disseminate information (Stazenski, 1984). The respondents were asked whether their group was effective in presenting their views to the general public and for what reasons they were effective. Twenty-four (83%) respondents said they are effective. These groups felt the reasons for their effectiveness are the media, meetings organized by the group and their publications (Table 4.13). The reasons of four groups who replied negatively are given in Table 4.13.

When effectiveness to present their views to the

TABLE 4.13: Reasons for Effectiveness (N=24) and Lack of Effectiveness (N=4) in Presenting Group Views to the General Public

Effectiveness	Frequency
Use of Media	21
Meetings and Forums Organized by Group	19
Publications	19
Through Intervention in Hearing Process	16
Word of Mouth	16
Meetings and Forums Organized by Another Group	13
Publicity Campaigns	7

Lack of Effectiveness	Frequency
Lack of Impact in Intervention Process	3
Insufficient Active Members	3
Lack of Funds	3
Lack of Media Campaign	2
Sensitivity of Main Issue	1
Elitism of Government	1

general public (Table 4.14). As indicated previously the calculated *Chi-square* value (.1362) is not significant at either the 10% or 5% level. Even with the application of the special tests for sample size less than thirty where 2X2 tables were used the null hypothesis was accepted; that is, no relationship exists between the variables. From the analysis the calculated significance levels for *Chi-square Yates* and *Fisher's exact probability* are .4125 and .2010. The *tetrachoric correlation* (measure of association) value is .321. Therefore, the statistics indicate that the perception of the formation of coalitions does not necessarily help the groups' effectiveness in disseminating information.

TABLE 4.14: Crosstabulation Results for Formation of Coalitions (COALIT) and Effectiveness in Disseminating Information (Effect) (N=27)

		EFFECT		
		Yes	No	Total
COALIT	Yes	18	1	19
	No	6	2	8
	Total	24	3	27

*Chi-square* = .1362      *Chi-square Yates* = .4125  
*Fisher's exact probability* = .2010  
*Tetrachoric correlation* = .321

Note: All values except the *Tetrachoric correlation* are the calculated significance levels from the BMDP-P Series program (Dixon and Brown, 1979)

Within the Alberta Government 29 departments (as taken from the Alberta Government Telephone Directory) exist with which Albertans can become involved. Six of these departments are identified by the respondents as important, in particular Alberta Energy and Natural Resources which includes Forestry and Fish and Wildlife, Alberta Environment, and Alberta Parks and Recreation. Table 4.15 displays the departments and the categories of possible interaction. Of the three departments frequently mentioned the purpose of interaction was advocacy, advisory and education/information sharing. Conversely, the lack of interaction involved research and work programs. Most environmental groups consist of volunteer support. Therefore it is difficult for groups without paid staff or extremely dedicated volunteers to become involved in research and work programs. The research the groups would undertake would be directed towards preparing briefs for presentation. Groups that have a work component in their activities (eg. cleaning hiking trails or portages) are doing the work for themselves in benefit for others.

The figures in Table 4.15 are indicative of the number of times a specific interaction category was mentioned. However, some respondents indicate both advocacy and advisory for the same department which is consistent with the responses given in Table 4.7. This observation would suggest the interaction between the groups and government is

TABLE 4.15: Frequency of Environmental Group Interaction with Government Departments (N=29)

Department	Advocacy	Advisory	Research	Education/Information Sharing	Work Programs	Other
Alberta Energy and Natural Resources (1)	12	13	6	11	6	1-Legal
Alberta Environment	11	11	4	12	1	0
Alberta Recreation and Parks	6	9	4	9	5	1-Legal 1-Legal
Alberta Education	1	1	0	1	1	0
Alberta Agriculture	1	2	2	2	0	0
Alberta Municipal Affairs	1	1	1	1	0	0
Federal Department of Environment (2)	5	5	2	5	3	0
Municipal Recreation and Parks	2	3	3	4	2	1-Legal

(1) Includes Forestry and Fish and Wildlife sections.

(2) Includes Parks Canada.

complex or the categories chosen in the research are not clear in their definition.

Two other levels of government are mentioned on Table 4.15, the Federal Department of the Environment and Municipal Recreation and Parks Departments. The federal department is mentioned because of the Parks Canada section. The Four Mountain Parks Planning Program, along with Waterton and Wood Buffalo National Parks management plans receive constant public input. The municipal governments are mentioned because of the growing concern for urban natural environments and the effect urban areas have on the surrounding environment (eg. water/air pollution, and landuse acquisition for urban growth). The level of interaction between groups and industry is low in comparison to government. It appears from Table 4.15 that environmental groups do not interact with industry as frequently as government. The petro-chemical industry did receive the most responses. The categories as they appear in Table 4.16 are unchanged from the original responses. As a result, natural resource industry was generalized by type of activity except for the specific reference to Trans-Alta Utilities. A possible explanation of this overall observation is the environmental hearing process used in Alberta. Before any new natural resource industry project is initiated it must be reviewed by the Energy Resources Conservation Board. At the public hearing groups are able

TABLE 4.16: Frequency of Environmental Group Interaction with Natural Resource Industries (N=29)

Industry	Advocacy	Advisory	Research	Education/Information Sharing	Work Programs	Other
Petro Chemical	7	6	0	5	4	0
Forestry	2	3	0	2	1	0
Agriculture	2	3	0	2	2	0
Mining	0	2	1	1	1	0
Trans Alta Utilities	3	3	1	1	0	0



to present their views on the industry's submission. In this way most interaction between environmental groups and industry is via government. To appreciate this interaction more fully a detailed communication audit between both parties would be required.

#### 4.4 Geographical Perspective of Environmental Groups

The mailing address of each group suggests where its organizational activities are localized. The mailing address determines the focal point from which each group disseminates its information. However, it does not indicate where the strength of the movement is located. Locations in a major urban centre such as Edmonton or Calgary provide the groups with access to the main governmental and industrial offices. In addition, human and material resources are more accessible in the major centre. A group may have an urban mailing list but its membership support may be derived from outside of the urban centre (eg. farmers). On a cumulative basis Edmonton and Calgary mailing addresses dominate the results of Table 4.17. The "other" category has 10 separate entries, including cities and towns across the province.

On the basis of activity in provincial (generally involved with developments within the province) or local (generally involved with developments close to the group's home base) concerns or issues, 65% of the groups chose the combination classification (Table 4.18). When asked how

Table 4.17: Mailing Address of Environmental Groups (N=29)

		Rel.f.	Cul.f.
Edmonton	10	34.5	34.5
Calgary	9	31.0	65.5
Other <sup>(1)</sup>	10	34.5	100.0
	29	100	

(1) Other includes 10 separate entries including Lethbridge, Red Deer, Tofield, Silver Valley, Banff, Cowley, Swan Hills, Rocky Mountain House, Stettler, and Bonnyville.

TABLE 4.18: Frequency Distribution of Environmental Groups' Perceived View of Their Own Geographical Perspective (GEOG), That of Governments (GOGEOG), and That of Industry (INGEOG) (N=29)

	GEOG		GOGEOG		INGEOG	
	No.	Rel.f.	NO.	Rel.f.	NO.	Rel.f.
Local	5	17.2	13	44.8	13	44.8
Provincial	4	13.8	11	37.9	8	27.6
Combination	19	65.5	2	6.9	1	3.4
No Response	1	3.4	3	10.3	7	24.1
	29	100	29	100	29	100

government (GOGEOG) and industry (INGEOG) might perceive them, the respondents leaned towards the "local" category. Again an increase in nonresponse to the perceived view of industry can be seen in Table 4.18.

Crosstabulation analysis was applied to the variables GEOG and GOGEOG, and GEOG and INGEOG. The research and null hypotheses for each set are.

GEOG and GOGEOG

H1 - the groups' perceived view of their geographic perspective is related to how they believe government to perceive their geographic perspective.

H0 - the groups' perceived view of their geographic perspective is not related to how they believe government to perceive their geographic perspective.

GEOG and INGEOG

H0 - the groups' perceived view of their geographic perspective is related to how they believe industry to perceive their geographic perspective.

H1 - the groups' perceived view of their geographic perspective is not related to how they believe industry to perceive their geographic perspective.

The analysis results are reported in Table 4.19 and 4.20.

Similar to the findings in Table 4.9 through 4.12, the groups' own perception of their geographical perspective is not related to how they believe government and industry might perceive them. This difference in perception will have some implications on the groups' involvement in the hearing process. Within the process certain individuals and groups are given the designation of local intervener. The

TABLE 4.19: Crosstabulation Results for Environmental Groups' Perceived View of Their Own Geographic Perspective (GEOG) and That of Government (GOGEOG) (N=29)

		GOGEOG				Total
		Local	Provincial	Combination	No Response	
GEOG	Local	3	1	0	1	5
	Provincial	0	4	0	0	4
	Combination	9	6	2	2	19
	No Response	1	0	0	0	1
	Total	13	11	2	3	29

*Chi-square* = .3632

*C* = .50344

Note: The *Chi-square* value is the calculated significance level from the SPSS IX program (Nie, 1975)

TABLE 4.20: Crosstabulation Results for Environmental Groups' Perceived View of Their Own Geographic Perspective (GEOG) and That of Industry (INGEOG) (N=29)

		INGEOG				Total
		Local	Provincial	Combination	No Response	
GEOG	Local	3	1	0	1	5
	Provincial	0	3	0	1	4
	Combination	9	4	1	5	19
	No Response	1	0	0	0	1
	Total	13	8	1	7	29

*Chi-square* = .5819

*C* = .45406

Note: The *Chi-square* value is the calculated significance level from the SPSS IX program (Nie, 1975)

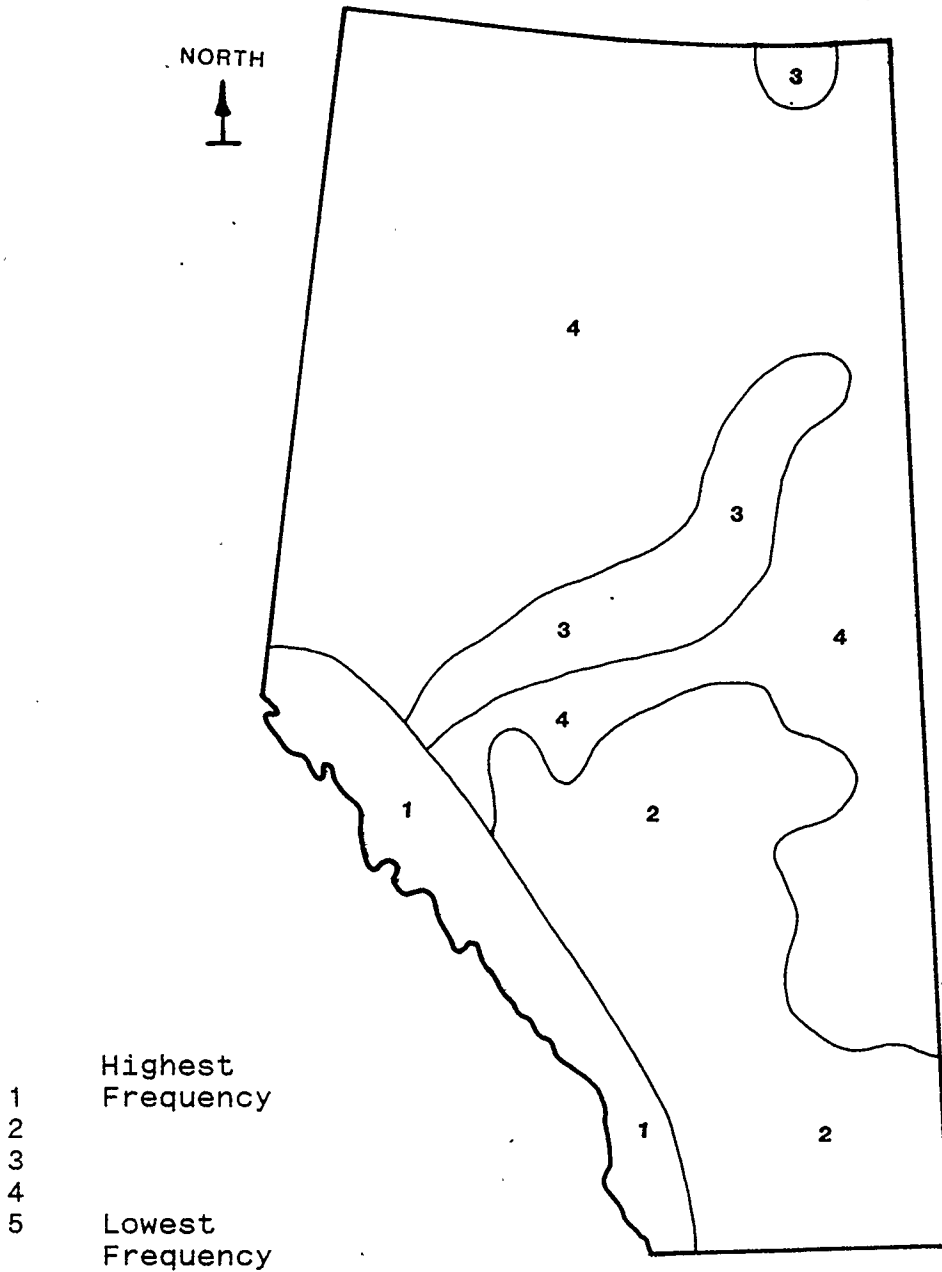
designation allows them access to some funds to offset costs in preparing and delivering briefs at hearings. The findings in Table 4.19 and 4.20 would suggest that if the groups are unclear of their geographical perspective then government may have the same perception.

The mental map approach to studying the variables - location of group activity and location of environmentally sensitive areas - presented some problems in the final analysis. Similar observations of other study results have been made by Gould and White (1974), Downs and Stea (1977) and Smith (1983). Smith (1983:100), after reviewing the literature on the use of mental maps in the interpretation of environmental information provided by travellers, found that people "...do not select a route on the basis of objective distance and pattern ..." but rather on subjective information such as "...level of knowledge of distances, routes, travel time, the perceived quality of alternatives, and other factors". A similar comparison can be made of the results in this study. For example, eight of the respondents generalized their responses to both location of groups activity and location of environmentally sensitive areas in written form instead of delineating the area on the map. Also, considerable variation in the delineation of common areas without written clarification proved as difficult to interpret. In particular, the area known as the Eastern Slopes was shown at least ten different ways.

Because the responses were generalized relative to a known location, the data was transferred in a similar fashion. Using a series of overlay maps a final map was produced for the two variables. The lowest to highest frequency is indicative of the number of times an area was drawn or mentioned on the original maps. The researcher made the cartographic decisions after consultation with Dr.M.R.C.Coulson and Mr.R.Wheate, both of whom teach cartography at the University of Calgary.

Figure 4.3 shows a concentration of activity in the southern half of the province especially along the Eastern Slopes, Edmonton to Calgary corridor, and the area around Lethbridge and Medicine Hat. This observation is supported by the findings of Table 4.6 which acknowledges water management and land use management as two of the most important issues in the province. In the southern area of the province the question of sufficient irrigation is paramount to the farmers because of the drought conditions of recent years. In addition, a question arises with gas and oil exploration as to the use of the land before and after exploration (eg. well site reclamation). The Eastern Slopes policy resurfaced as an issue in 1984/85 because of the proposed modification to the policy. Many proponents of the environmental movement saw the 1977 policy of protection change to the 1984 policy of pro-development. For example, oil and gas exploration is now permitted in some restricted

FIGURE 4.3: Geographic Location of Environmental Group Interaction in Alberta



Note: Information generalized by researcher



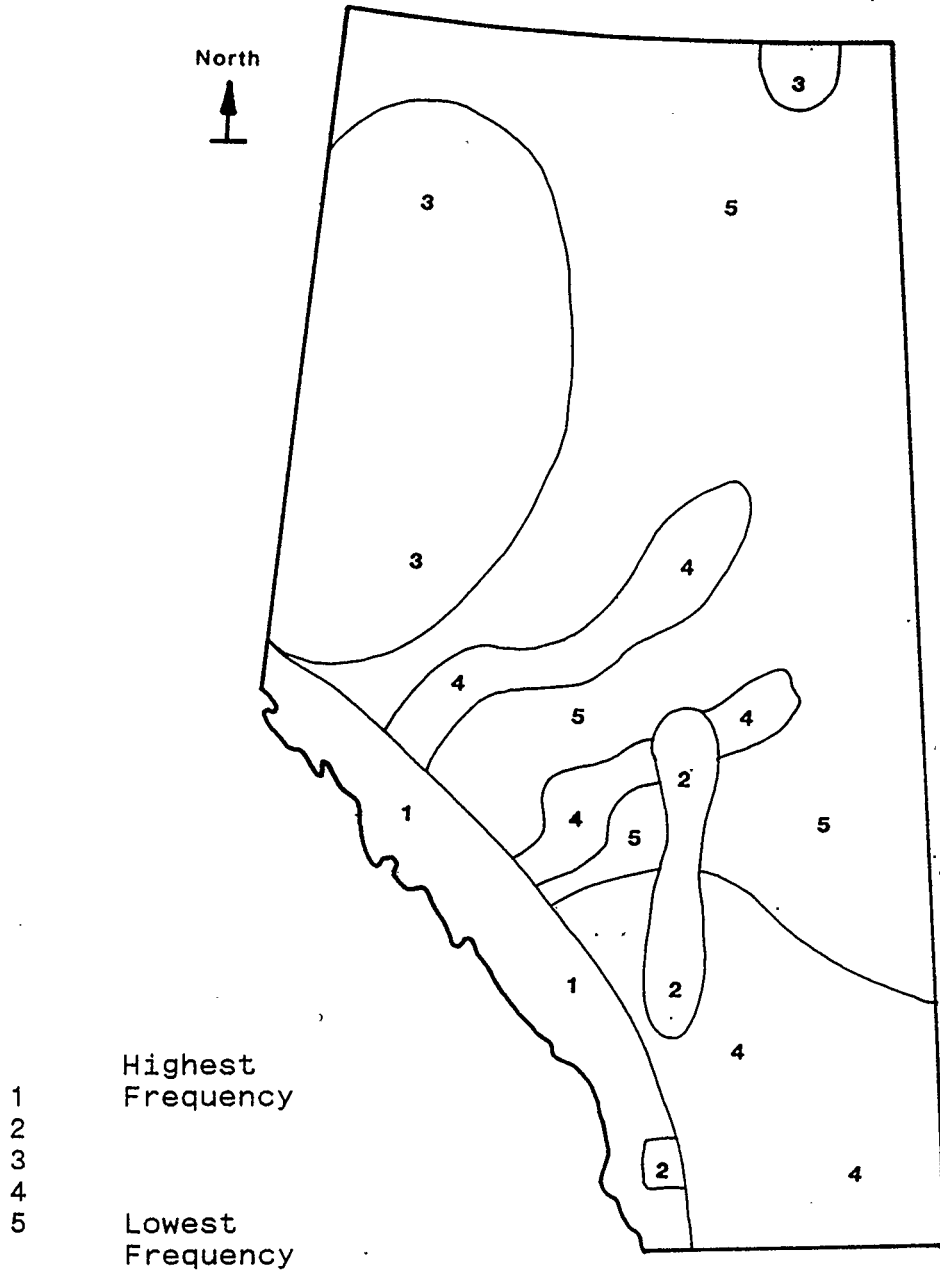
zones in the 1984 rewrite.

The Slave River Hydro Electric development in Northern Alberta is the only other area that was identified several times on the original maps. Beyond the known effects a dam site has on the environment, both above (reservoir) and below (control of river level) the dam site, the respondents gave no reasons for their choice of this northern Alberta dam.

A comparison can be made between Figure 4.3 and Figure 4.4. The second emphasizes the areas the group identify as environmentally sensitive. The four areas delineated in the first figure are once again apparent on the second figure. In addition, special reference was made to the Three Rivers Dam in southern Alberta; the South and North Saskatchewan, and Athabasca Rivers; and land use between Grande Prairie and High Level. The Three Rivers Dam was identified because of the effects the dam would have above and below the site. The South and North Saskatchewan, and Athabasca Rivers were mentioned for reasons of water management and recreational use. Finally, the Grande Prairie/High Level area was delineated because of the acidification of soils and the effect on farming and forestry operations.

In retrospect, while the mental maps are a valuable tool in exploratory work, the variation in responses makes it difficult to make any substantive statements. These

FIGURE 4.4: Perceived Geographic Location of Environmentally Sensitive Areas in Alberta



Note: Information generalized by researcher

problems arise because the maps were sent via a mail questionnaire instead of given during an interview. To use the second survey technique could provide the researcher with an opportunity to substantiate the findings both in diagram and written form but without substantial research funding such a procedure is prohibitively costly.

#### 4.5 Cluster Analysis of Group Responses

The Cluster Analysis algorithm CLUSTER (Davis 1973) was used to examine the similarity of responses of the environmental groups. Because the data used in the analysis was qualitative, the *Gower's coefficient of similarity* was used as the measure of similarity in the algorithm. This meant the CLUSTER program was modified (Waters, 1986).

With Cluster Analysis two evaluation techniques are available: subjective and objective (Waters and Barr, 1980:83). In Davis's (1973) design of the CLUSTER program no objective evaluation techniques such as *Chi-square* were available for the procedure. Instead, subjective interpretation must be made of the dendrogram produced by the program. A dendrogram is a tree diagram in which the extremities (usually shown at the bottom) represent the individuals and the branching of the tree gives the order of joining together (Marriott, 1974). On the dendrogram there is a point at which the interpretation becomes less meaningful or difficult to interpret. This is known as the

cut off point. Determination of this point is sometimes made easier by a large difference in the measure of similarity which will be prominently displayed in the dendrogram. Otherwise the researcher must make the appropriate decisions. Waters and Barr (1980:86) reported that "...although the dendrogram is a useful interpretive device it also hides much information". Waters and Barr (1980:86) also concluded that "...a generally accepted statistical procedure from which analysis can proceed" is lacking for hierarchical Cluster Analysis.

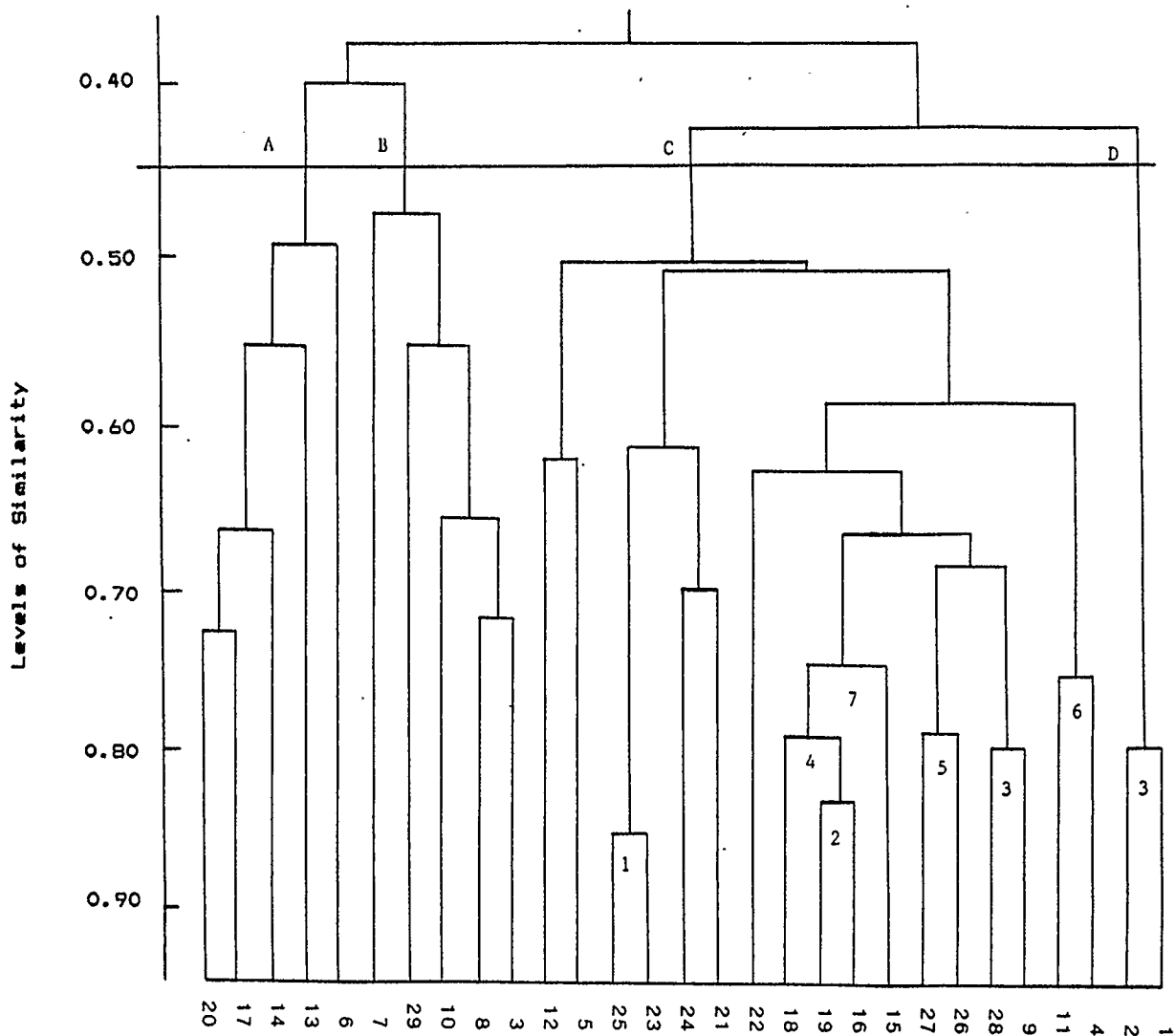
The evaluation is complicated by two factors. First the small size of the sample meant the groups were forced together much more quickly than if a larger sample was used. In using the weighted pair linkage method the algorithm has less to choose from and as a result the inclusion of some groups tends to have more influence. Johnston (1976) refers to this as the chaining effect. The main problem is that once an observation is linked into a group, it will always remain there (Johnston, 1976:19-22). Second, several of the participant responses were given as non-response. Within the algorithm, groups responding in a similar fashion would likely be grouped if they had not answered the questions. Grouping on the basis of non-response does not provide any conclusive information. Except for the fact that the respondents who did not answer the question shows similarity, it is unknown if the respondents did not answer

because of lack of knowledge or they chose to do so for their own reasons.

From Figure 4.5 four major clusters are evident. However, the order in which the groups are clustered is more meaningful. Further, in recognition of the large proportion of non response to some questions, the original data was referenced to determine at which point non response had an effect on the pairing of groups. It was determined that within the first four entries (nine groups) the groups responded with actual responses. It is not until the fifth entry where interpretation becomes less meaningful.

The first paired group is the National and Provincial Parks Association of Canada (North and South). Because this was the group that was split due to two distinctive working regions of Alberta, it makes sense that they should come together first. The second grouping was the Edmonton Bird Club and Buffalo Lake Naturalists. The link between these two groups is the maintenance and study of flora and fauna. The third entry includes two separate groupings. The first is the Cooking Lake Moraine Land Owner's Association and Josephine Environmental Protection Group. These two groups work toward the protection and improvement of land within a specified region. The other grouping is Alberta Fish and Game Association and The Federation of Alberta Naturalists. Both of these groups are umbrella organizations for a number of smaller groups. Therefore, it is logical that these two

FIGURE 4.5: Dendrogram Clustering of Environmental Groups' Responses to 20 Variables



- (1) Cut off point meaningful interpretation.
- (2) Numbers (1-7) refer to the first seven entries discussed in the text.
- (3) Letters (A-D) refer to the four major clusters discussed in the text.

provincial groups should cluster together early. The fourth entry clusters the existing Edmonton Bird Club/Buffalo Lake Naturalist grouping with Alberta League for Environmentally Responsible Tourism (ALERT). Whereas ALERT focuses on responsible tourism development in the Eastern Slopes (around Rocky Mountain House), the underlying thoughts of the group's work is the reduction of development effects on the environment (eg. loss of wildlife and the alteration of environmental aesthetics). The fifth entry is the paired group of Southern Alberta Environmental Group and Lakeland Environmental Agricultural Protection Association. The Southern Alberta Environmental Group exchanges information between interested parties while presenting their own thoughts on environmental issues. Lakeland Environmental Agricultural Protection Association focuses on land management issues in and around Bonnyville and Cold Lake (eastern Alberta) where agricultural protection is required. The link between these groups centres on surface rights and the use and protection of water.

The original data matrix was referenced to review the groups' responses to the variables used in the Cluster Analysis - variables 4 through 23 on Table 3.1. Some difference between group response is expected to underscore the characteristics that differentiate the groups' interests. For example, the issues the NPPAC - North and South and Lakeland Environmental Agricultural Protection

Association focus upon differ greatly. Therefore, it is expected that there is dissimilarity in their responses.

With regard to the first entry, the NPPAC - North and South groups' responded similarly to seventeen of the twenty variables. They differ with Variable 13 - group perceived view of how government might view their action orientation; Variable 18 - group self perception of their geographical perspective; and Variable 23 - mailing address. Speculation, as to why the difference in responses to Variables 13 and 18 exist might be explained by the difference in respondent bias. The only dissimilarity that was expected was Variable 23 - mailing address. As previously discussed in Chapter Three the NPPAC was split into groups in recognition of their distinct working regions within the province.

The second entry of Edmonton Bird Club and Buffalo Lake Naturalists differ on four variables - 4, 13, 14 and 23. In all cases, no major differences were found that would not be expected to illustrate some differences between the individual groups. The same conclusion can be drawn for the dissimilarity between responses for the Cooking Lake Moraine Land Owner's Association and Josephine Environmental Protection Group; Alberta Fish and Game Association and the Federation of Alberta Naturalists; and pairing of ALERT with the Edmonton Bird Club/Buffalo Lake Naturalists grouping.

It is the fifth entry of Southern Alberta Environmental Group and Lakeland Environmental Agricultural Prtotection



Association where a noticeable influence is found. Review of the data shows that one or both of the groups have answered with "no response" seven times. However, two variables are given a similarity designation because both groups gave a non response. Therefore, it is misleading to think that the fifth entry displays an appropriate similarity between the groups unless it can be ascertained that the non responses are in actual fact the way in which the groups wanted to respond and not forgotten responses.

Further analysis of the sixth and seventh entries found that non responses were not as prevalent as the the fifth entry. The sixth entry between Bow Valley Naturalists and the Committee for the Preservation of the Three Rivers includes four separate non responses. The seventh entry includes the fourth entry with the addition of the Red Deer River Naturalists Society who responded to all questions.

From this subjective analysis of the original data, the cut off point for meaningful interpretation may be prior to the fifth entry due to the influence of the non response. However, it is helpful also to analyze the dendrogram. From Figure 4.5, when the .7, .6 and .5 levels of similarity are reached 18, 11 and 6 clusters exist respectively. Of the six clusters at the .5 level, two consist of one group each while another cluster consists of two groups. All groups are included in four major clusters at the .45 level. As a result, the .45 level is selected as the cut off point on

the dendrogram.

At the cut off point, Cluster C as shown on Figure 4.5 includes 17 (59%) groups that responded similarly. The remaining three clusters - A, B, and D - include 5, 5 and 2 groups. With Clusters A and B a similar pattern exists in the entry of the groups within each cluster. This would suggest that the groups display a similar relationship in their response pattern. However, a difference exists between the clusters which is evident by the late entry of Clusters A and B. In comparison to the other groups, Cluster D is the most dissimilar. This observation results from the inclusion of only two groups within the cluster and the subsequent late entry of the cluster with the largest one. The creation of Cluster D may be explained, in part, by Johnston's (1976) chaining effect which was mentioned previously. In conclusion, the evaluation of the dendrogram would suggest that the groups did respond similarly.

#### 4.6 Summary

Chapter Four provides information on the findings of the study. Presentation of the findings was subdivided into four parts: (1) organizational characteristics; (2) political characteristics; (3) geographical characteristics; and (4) an examination and interpretation of the Cluster Analysis of the similarity of responses by groups. In all cases where crosstabulation analysis was

used, the null hypothesis was accepted at both the 95% and 90% confidence intervals. Even with the use of specially designed statistics (as discussed in Chapter Three) for 2x2 tables for  $N < 30$ , the null hypothesis was accepted.

## Chapter Five

### SUMMARY AND CONCLUSIONS, PROBLEMS OF THE STUDY, AND SUGGESTIONS FOR FURTHER RESEARCH

#### 5.1 Summary and Conclusions

The five objectives of the study have been met successfully. Once again they are:

- (1) to establish a profile of the Alberta environmental groups in context with organizational and political variables.
- (2) to verify environmental groups' involvement in the Alberta environmental movement.
- (3) to ascertain environmental groups' self perception of their involvement with government and industry.
- (4) to identify the geographic areas in which the environmental groups operate within Alberta.
- (5) to identify the geographic areas within Alberta that the environmental groups perceive as environmentally sensitive.

However, perhaps due to sample size no statistically significant relationships were found in the data analysis. Even with the use of specially designed statistical techniques for sample sizes less than thirty the null hypothesis was accepted in all cases for both the 90% and 95% confidence levels.

The original intent of the study was to collect information on environmental groups involved with the natural resource industry in Alberta. The information was to be included in a computer information database. In its modified form, the study was thought to be the means by

which to collect base line data for constructing the computer package. Due to the small sample size another study of similar intent is recommended. A researcher would be well advised to read Section 5.2 in this chapter on problems found in the study before initiating a new project. However, several of the current study variables can be included such as the basic variables of membership, date of establishment, funding sources, group aims, address and geographic region of activity. Another suggestion is to investigate the use of the Macintosh (Apple) "File" program for sorting data. This software package may be useful in the construction of the database system.

With regard to Objective 2, the verification of group involvement in the Alberta environmental movement, 23 of 29 groups stated they were part of the movement. When asked what in their opinion was the environmental movement, overwhelmingly 26 of 29 groups provided a pragmatic response - the environmental movement is a collective working towards changing man's use of the environment.

In answer to Objective 3 environmental groups have the ability to interact with government and industry, but the research suggests that groups interact more with government. Unfortunately there is no clear indication of this relationship because of the increasing number of no responses given to the questions on this subject. A possible explanation for this observation is the

establishment by government of the public hearing process. Before a resource industry is able to proceed with its development plans in Alberta, it must first be cleared through environmental hearings. At these hearings environmental groups are able to provide counter proposals or ask questions of industries' submissions.

The provincial government departments most frequently dealt with on environmental questions are Alberta Energy and Natural Resources which contains Forestry and Fish and Wildlife, Alberta Environment, and Alberta Recreation and Parks. At the federal level the Department of Environment (Parks Canada) was identified. Coincidentally the issues the groups identified as most important are the responsibility of these departments. In descending order of importance the issues were water management, fish and wildlife management, and land management.

Within the provincial boundaries the areas the groups identified as environmentally sensitive are, for the most part, the areas in which the groups are also active (Objectives 4 and 5). Further, the broad areas the groups delineated - Eastern Slopes (Rocky Mountains), southern Alberta and the Edmonton to Calgary corridor - also contain the greatest population base. The results, as they were presented in Chapter Four, were generalized because of the nature of the responses given on the questionnaire.

Based on the Cluster Analysis used to examine the

similarity of response to the survey questions, the findings suggest that some similarity exists between the groups. This conclusion is reached after subjective analysis of the original data and dendrogram. However, a question exists as to the point at which the clustering of the groups is meaningful. With the analysis of the original data the first four entries display similarity based on actual data. When the fifth entry was reviewed the influence of non responses are seen. Subsequent analysis of the sixth and seventh entries found some influence of non response.

With reference to the dendrogram, the cut off point was selected at the .45 level of similarity. At this point four clusters exist with each cluster containing 5, 5, 17 and 2 groups respectively. Because the third cluster contains seventeen groups and noting the similar pattern in which the two clusters of five groups came together, it is suggested that the groups did answer in a similar fashion. The late entry of the fourth cluster of two groups is explained partially by the chaining effect (Johnston 1976) that is sometimes evident in hierarchical clustering algorithms.

From an interdisciplinary approach, the thesis proves useful in the wider discussion of possible variables available to study environmental groups. Past work focused on socio-political and/or communication study variables, whereas this thesis has incorporated geographical variables which provide another means to broaden the understanding of

the environmental groups and the work they undertake.

The study will be useful to environmental groups of Alberta as an insight into their work in Alberta. For example, the groups believe they are effective in disseminating information to the general public. The study indicates that the effectiveness in disseminating environmental information is possibly aided by the groups forming coalitions. Yet from the literature review it is not always advisable to form coalitions because it can lessen the effectiveness of the groups' interaction in the environmental hearing process. Sometimes it is advisable to have twenty groups participate in a hearing rather than selecting one group to represent the interests of twenty. Therefore, the reason a group forms a coalition must be reviewed in the context of increasing information dissemination or improving political interaction.

Further to this point of self reflection, the groups should question their socio-political structure. For example, the groups can compare their active versus non-active membership ratio against the other groups. From the study a relationship between active membership and upward trend in membership was discerned. The groups would be advised to consider how their membership is being used. With an active membership which is growing, the groups have a better chance of disseminating their information, increasing financial support for the groups' aims and



involving more people directly (work programs such as cleaning trails) and indirectly (researching information for briefs) in programing.

## 5.2 Some Problems of the Study

The main problem with the modified format of this research study was the use of a mail questionnaire. If a personal interview had been used either as follow-up to the mail questionnaire or had formed the basis of the main data collection technique, it may have cleared up some of the discrepancies in responses as well as possibly increased the sample size.

The mail questionnaire was not accompanied by a formal letter. However, subsequent discussions with some respondents indicated that this was not a problem for them. But they all agreed that such formality would not be a hindrance. Also personal contact by phone between the initial introductory mail out and the forwarding of the questionnaires was thought to be sufficient to ensure a greater return. This was not always the case as five groups did not return the questionnaire even though they had verbally agreed to do so.

When the present study originally was proposed a government research grant had been obtained by an NGO. Part of this grant was allocated to cover travel costs associated with conducting personal interviews throughout the province.

Unfortunately, the research money was not made available because the project coordinating committee wanted more time to review the project. However, to meet personal commitments the researcher initiated the study in a modified form.

Some of the questions on the questionnaire were determined to be ambiguous. For example, the questions dealing with political outlook could have been worded without the "combination" choice. Instead, an "other, please specify" category accompanying the advocacy and advisory choices associated with the political outlook question would have allowed the respondents to choose the better response. If they did feel they were a combination of the two then they could respond accordingly. One respondent went so far as to write in the margin that the political outlook of his group was somewhat adversarial.

Finally, the problem of one respondent representing the group was discussed in Chapter Two. In this study the decision as to who would answer the questionnaire was left to the group because it was felt the group would choose the most appropriate respondent. The validity of the response given by one respondent on behalf of the entire group still must be questioned. As a result another method should be used such as sampling the individuals in a group, pooling their responses and then using the pooled responses in the study. Unfortunately, such problems as the diverse

geographic locations of group members, the question of using executive members only, and the active versus non-active membership views would need to be resolved in deciding who and how to sample.

### 5.3 Suggestions for Further Research

From the obvious need to determine the sampling method desired for similar research it also would be helpful to include all environmental groups in the study. A typology could be developed by which the researcher could study variables within and between groups from studying the entire collection of groups. If more specific research was required after the general review then a cluster of groups could be studied. In this way researcher bias in determining which groups are to be included would be reduced. No matter what information is available the ultimate decision as to the typology criteria is still left to the researcher.

A complete list of groups in the province, their aims and issues they are pursuing would be generated by using the encompassing approach to studying all environmental groups. Once the list was created, other studies of government, industry and general public perceptions of the work of the environmental groups could be initiated. As a result such aspects as the location of ecologically sensitive areas within the province, the political outlook and action

orientation of environmental groups, and level of public support of the environmental groups' work could be verified.

A communication audit of the interaction between environmental groups and between environmental groups and government, industry and the general public is another possible topic. Through coalitions and newsletters the groups keep abreast of environmental concerns and issues. It is not known how effective this network is and to what extent it is operational.

Another suggestion is to study the role of environmental groups in formal and informal education. This suggestion is particularly interesting in view of the switch from a technological to an information society in North America (Naisbitt, 1984). Environmental groups are an untapped source of information. Unfortunately these groups are perceived as too radical in their approach and therefore unacceptable to make presentations to schools, especially at the primary and secondary level. Nestor Kelba (1985), Chairman of the Alberta Teachers Association Environmental Council suggested that teachers are hesitant to invite environmental groups into their classroom because of the perceived controversy surrounding the activities of some groups. Instead they would rather use the assistance of environmental education consultants within the education system. In doing so the teachers may be influenced by the biases of the individual consultants in the same way they

would be susceptible to an individual environmentalist from an outside group. Therefore, a study of the perceptions of educators towards environmental groups and vice versa might reveal how joint environmental education programs could be pursued.

A final, more conceptual suggestion is that there should be a definitive study of the environmental movement. Does it exist? Who believes in it? What purpose does it serve society? What current terminology should be used to describe the environmental movement? As one knowledgeable person involved in the movement commented, "Why ask for a definition of the environmental movement? There is no such thing as an environmental movement. It is a media name to group conservationists."

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APPENDIX 1

The following are the names of the 84 environment groups that were asked to participate in the study.

Alberta Fish and Game Association  
Alberta Forestry Association  
Alberta Four Wheel Drive Association  
Alberta Outfitters Association  
Alberta Society of Professional Biologists  
Alberta Speleological Society  
Alberta Wilderness Society  
Alberta League for Environmentally Responsible Tourism  
Alpine Club of Canada  
Bow River Protection Association  
Bow River Water Users Association  
Bow Valley Naturalists  
Buffalo Lake Naturalists  
Calgary Canoe Club  
Calgary Eco-Centre Society  
Calgary Field Naturalists  
Calgary Mountain Club  
Camrose One World Centre  
Canadian Coalition for Nuclear Responsibility  
Canadians for Responsible Northern Development  
Canadian Nature Federation  
Canadian Ski Association  
Canadian Society of Environmental Biologists  
Canadian Wildlife Federation  
Canadian Wolf Defenders  
Christian Farmers Federation  
Committee for the Preservation of Three Rivers  
Concerned Citizens Committee of Crowsnest Pass  
Cooking Lake Moraine Land Owner's Association  
Roundhill Dodds Agricultural Protection Association  
Ducks Unlimited  
E.C.A. Public Advisory Committee  
Edmonton Bird Club  
Edmonton Coalition for Nuclear Responsibility  
Edmonton Junior Naturalists  
Environmental Law Association  
Environmental Protection Association  
Equinox  
Equal Shares for All Users  
Federation of Alberta Naturalists  
Foothills Protection Association  
Friends of the River

Genesee Agricultural Protection Society  
Grazing Reserves in Perspective  
Great Divide Trail Association  
Ghost Valley Protection Committee  
Greenpeace  
HOPE  
Interdisciplinary Committee for Environmental Quality  
Josephine Environmental Protection Group  
Keephills  
Keewatin Humane Trappers Association  
Kiwatinow  
Lakeland Environmental Agriculture Protection Society  
Lethbridge Naturalist Society  
Modeste Watershed Protection Society  
National Trail Association  
Natural History Club  
N.P.P.A.C. North and South  
Outdoors Unlittered  
Paddle River Headwaters Protection Association  
Peace Country Acid Soils  
Peaceworks  
Pesticide Probe  
Protect Agricultural Land  
Red Deer River Naturalists  
Rocky Mountain House Bird Club  
Rocky Mountain Ramblers Association  
Save Tomorrow Oppose Pollution  
Sierra Club of Western Canada  
Skyline Hikers of the Canadian Rockies  
Slave River Coalition Committee  
Southern Alberta Environmental Group  
Stettler Rockateers  
T.R.A.C.E.  
Trail Riders of the Canadian Rockies  
Trout Unlimited  
Trumpler Swan Naturalists  
Unifarm Environmental Committee  
Valhalla SOS  
Wabamun Home Owner's Association  
Waskahegan Trail Association

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APPENDIX 2

Alberta Environmental Groups

Section 1

1. Name of Group \_\_\_\_\_
2. Mailing Address \_\_\_\_\_  
City/Town \_\_\_\_\_  
Postal Code \_\_\_\_\_  
Telephone \_\_\_\_\_
3. Date Group Formed \_\_\_\_\_
4. Number of Members \_\_\_\_\_
5. Approximately what proportion of your members would you describe as active?
  - ( ) less than 1%
  - ( ) 1 - 5%
  - ( ) 5 - 10%
  - ( ) 10 - 25%
  - ( ) 25 - 50%
  - ( ) over 50%
6. What do you mean by active?
7. Has there been (choose one) in the number of members joining your group from the time of your group's inception to the present?
  - ( ) a general upward trend
  - ( ) a general downward trend
  - ( ) no change



8. Briefly summarize the aims/goals of your group.

9. Your source(s) of funding are

Government

Private Donations

Membership Fees

Donations

Direct Mail Fundraising

Payment for Services

Project Grants

Other, please specify

10. Would you consider that your group is a part of the environmental movement?

Yes

No

What in your opinion is the environmental movement?

11. What are the subject areas or focus of your environmental activities? Please be specific (for example: if your group is involved with Water, in particular Watershed Management, then write Watershed Management in the space provided).

In addition rank their importance to your group (one is most important).

	RANK
A. _____	
B. _____	
C. _____	
D. _____	

(ii) Of the subject areas you have listed which are CONCERNS (those areas in which you may take action) or ISSUES (those areas in which you will take action)?

	CONCERN	ISSUE
A.		
B.		
C.		
D.		

Section 2

12. Which type of environmental group do you consider your group to be? [there are three parts to this question]

Part A. Political Outlook

- ( ) Advocacy - your organization challenges the existing policies and procedures of government and/or industry (eg. you are in contact with politicians and/or industrialists)
- ( ) Advisory - your organization has a close relationship with one or more government bodies and industries (eg. you are consulted by civil servants and/or industrialists)
- ( ) Combination of the above

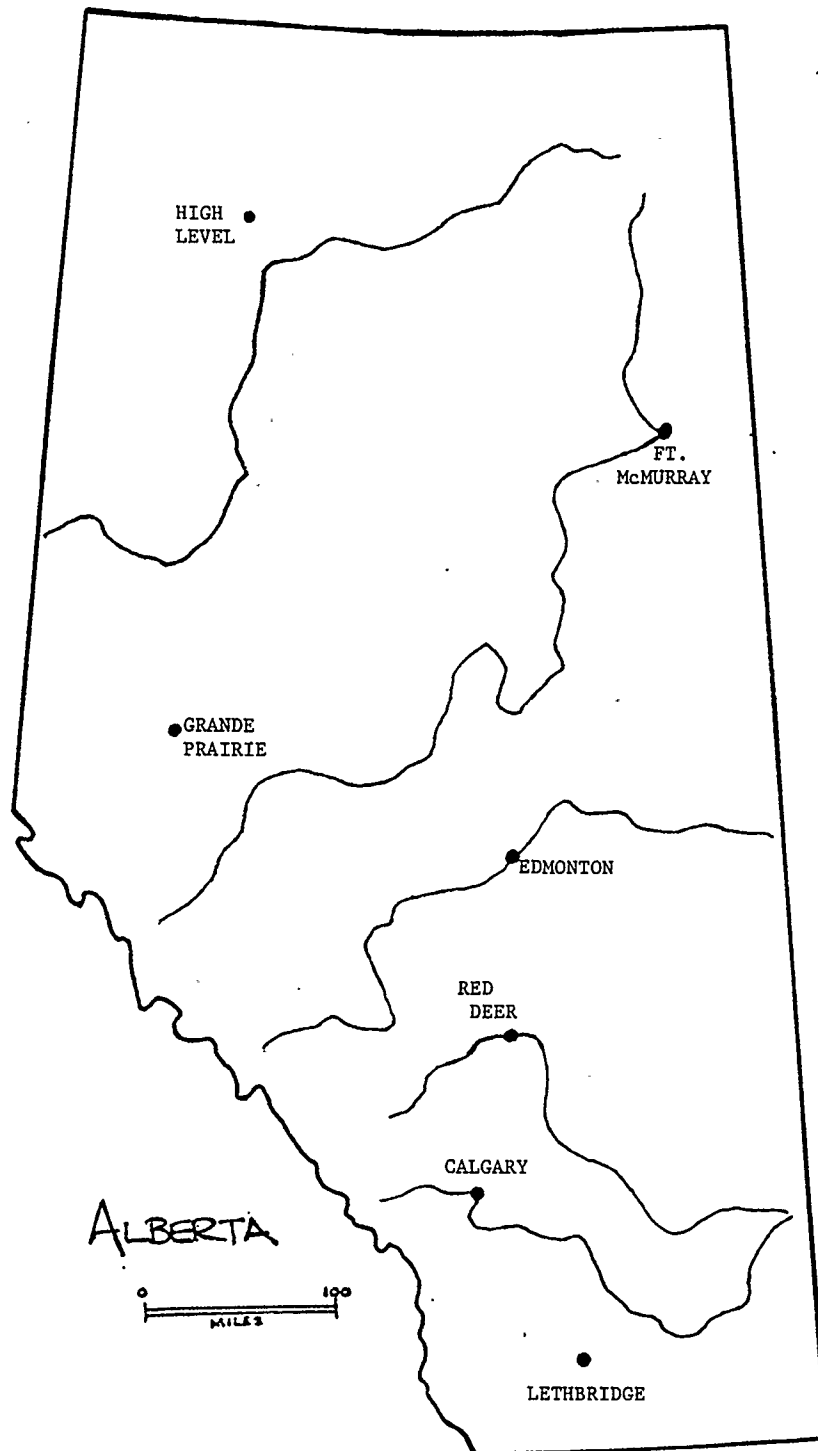
Part B. Action Orientation

- ( ) Reactive Interested - your organization reacts to a specific issue of direct interest to the group
- ( ) Proactive Interested - your organization works independently of immediate perceived issues/concerns of direct interest to the group
- ( ) Combination of the above

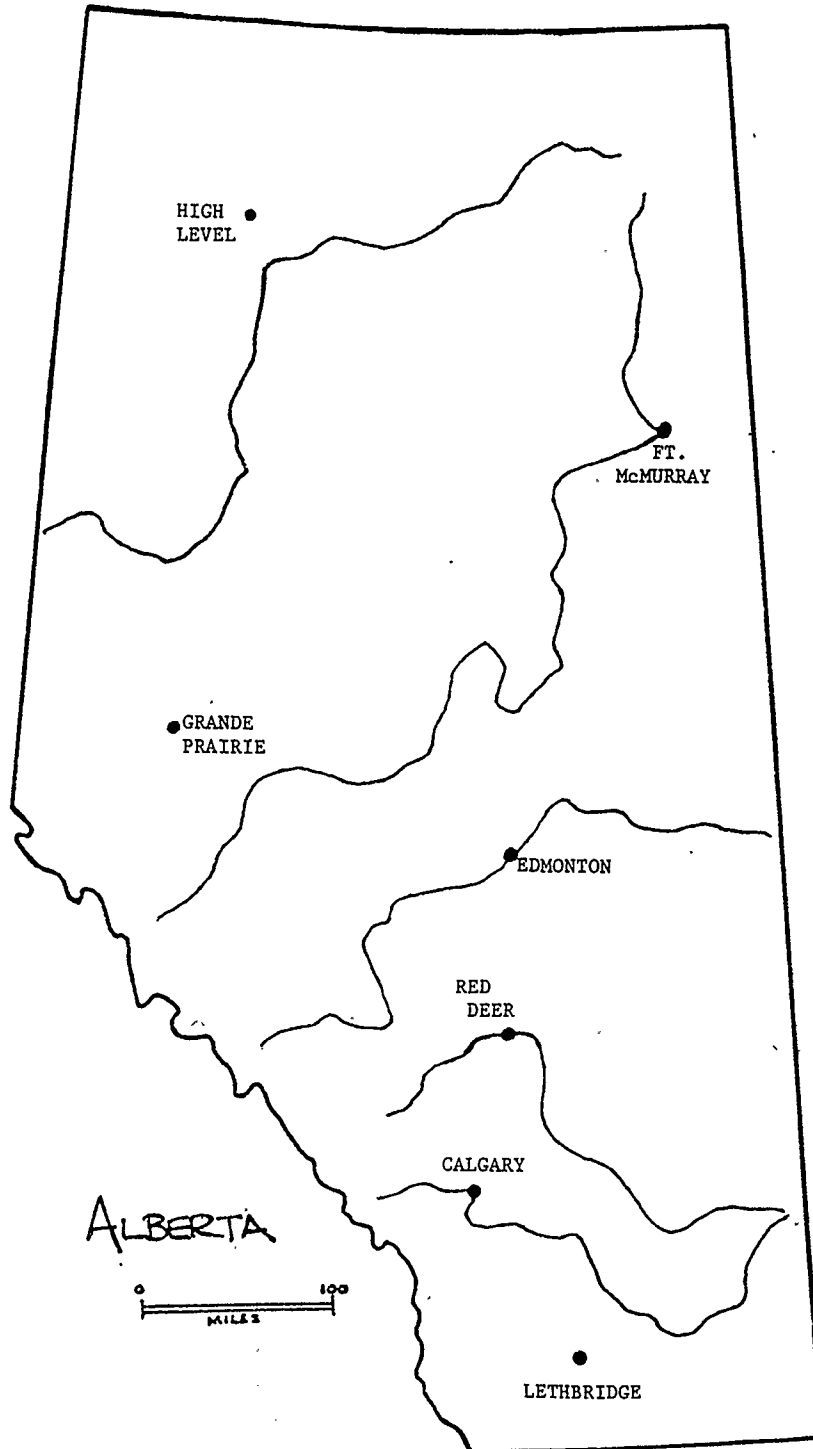
Part C. Geographical Perspective

- ( ) Locally Based Issues/Concerns - generally involved with developments close to your home base
- ( ) Provincially Based Issues/Concerns - generally involved with developments within the province
- ( ) Combination of the above

13. In what geographical area(s) of Alberta is your group active? [Draw a boundary around the area(s) and shade them in on the map provided]



14. With respect to your environmental activities, in what areas of Alberta would your group consider to be the environmentally sensitive or "hot spots"? [Indicate them on the map and identify them by name]



15. What government departments and/or agencies have your group interacted with in one or more of the following ways?

Codes:

- 01 Advocacy
- 02 Advisory
- 03 Research
- 04 Education/Information Sharing
- 05 Work Programs
- 06 Other, please specify \_\_\_\_\_

For example: ALTA PARKS and RECREATION 01 XX 03 XX 05 06  
\* shared information and advised the department on one or more development programs

\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_  
\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_  
\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_  
\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_

16. What natural resource development industries has your group interacted with in one or more of the following ways? [To be filled out similar to number 15]

\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_  
\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_  
\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_  
\_\_\_\_\_ 01 02 03 04 05 06, \_\_\_\_\_

17. In general, what type of group do you think the Alberta Government consider you to be?

Part A. Advocacy ( ) Advisory ( ) Combination ( )

Part B. Reactive ( ) Proactive ( ) Combination ( )

Part C. Local ( ) Provincial ( )

18. In general, what type of group do you think natural resource development industries consider you to be?

Part A. Advocacy ( ) Advisory ( ) Combination ( )

Part B. Reactive ( ) Proactive ( ) Combination ( )

Part C. Local ( ) Provincial ( )

19. Is your group one of several groups forming a coalition (a grouping of organizations pursuing similar interests)?

( ) Yes

( ) No

The coalition was formed on the following basis:

( ) because of joint interest in common subject areas

( ) because of regional proximity

( ) because of the individual type of group and the resources that each has at their disposal

( ) other, please specify

20. Do you think your group has been effective in presenting your views to the general public?

( ) Yes ... How have you achieved this effectiveness?

- ( ) through intervention in the environmental decision-making process
- ( ) through media coverage
- ( ) through public meetings, forums, conferences sponsored by group
- ( ) through publications (eg. newsletter)
- ( ) through publicity campaigns
- ( ) through conferences, forums sponsored by other agencies or groups
- ( ) by word of mouth
- ( ) other, please specify

( ) No .... What are the limitations that have hindered your effectiveness?

- ( ) lack of impact in the environmental decision-making process
- ( ) lack of an effective media campaign
- ( ) insufficient staff/volunteers to promote the group
- ( ) other, please specify

21. Position of respondent in the group \_\_\_\_\_

Contact number \_\_\_\_\_

THANK YOU