UNIVERSITY OF ALBERTA

ATTITUDES TOWARD ECOTOURISM, ECONOMY, AND WILDLIFE IN A CANADIAN BOREAL REGION:

IMPLICATIONS FOR NORTHERN DEVELOPMENT

BY ANDY MILLER

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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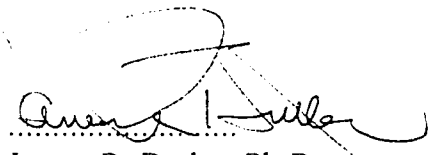

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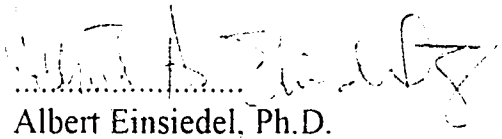

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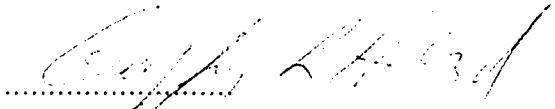

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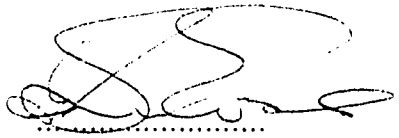

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UNIVERSITY OF ALBERTA

ATTITUDES TOWARD ECOTOURISM, ECONOMY, AND WILDLIFE IN A CANADIAN BOREAL REGION:

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

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IN PROTECTED AREAS AND WILDLAND MANAGEMENT

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ABSTRACT

Interviews with 60 northern Alberta residents and 30 visiting tourists focused on assessing attitudes toward the viability of economic diversification through ecotourism development. Results indicate that attitudes of most residents (excluding aboriginal natives), and tourists (excluding ecotourists) were somewhat favorable towards ecotourism. Ideally, strategies to encourage more favorable attitudes toward ecotourism should be encouraged to achieve maximum citizen support prior to this development innovation. Policy recommendations were developed based on the feasibility of achieving maximum favorable attitudes toward ecotourism prior to development. In addition to policy recommendations, the practical application of this study is the potential transferability of attitude measurement methods to other regions. The respondent groups included representatives from the forest products sector (timber); agriculturists (agriculture); representatives from the tourism promotion sector (tourism), aboriginal natives (native); general sightseeing tourists (general tourist); and ecotourists (ecotourist).

Given the economic potential of ecotourism (The Ecotourism Society 1992), most non-native (non-aboriginal) study area residents displayed a relatively low level of appreciation (defined as parochialism in this thesis) for ecotourism and boreal natural environments. Non-native residents also had poor knowledge of wildlife. The majority of non-native residents did not consider ecotourism as a lucrative form of economic diversification and displayed modest interest in making personal contributions to encourage the development of this industry. The study area was perceived to be somewhat aesthetically and ecologically desirable. Most residents perceived that the ecotourism industry will grow but that it's economic importance will remain low. However, they also perceived that the current resource-based economy (particularly timber and agriculture) will likely decline.

Citizen attitudes toward ecotourism development should be a primary consideration for tourism development proposals. Consideration of attitudes may result in development which more accurately reflects and incorporates local citizen issues and concerns into planning and development processes. Many rural development researchers speculate that the long-term success of development in rural areas may increase if citizens' attitudes are considered and incorporated into development planning (Arnstein 1969; Pateman 1970; Wengert 1985).

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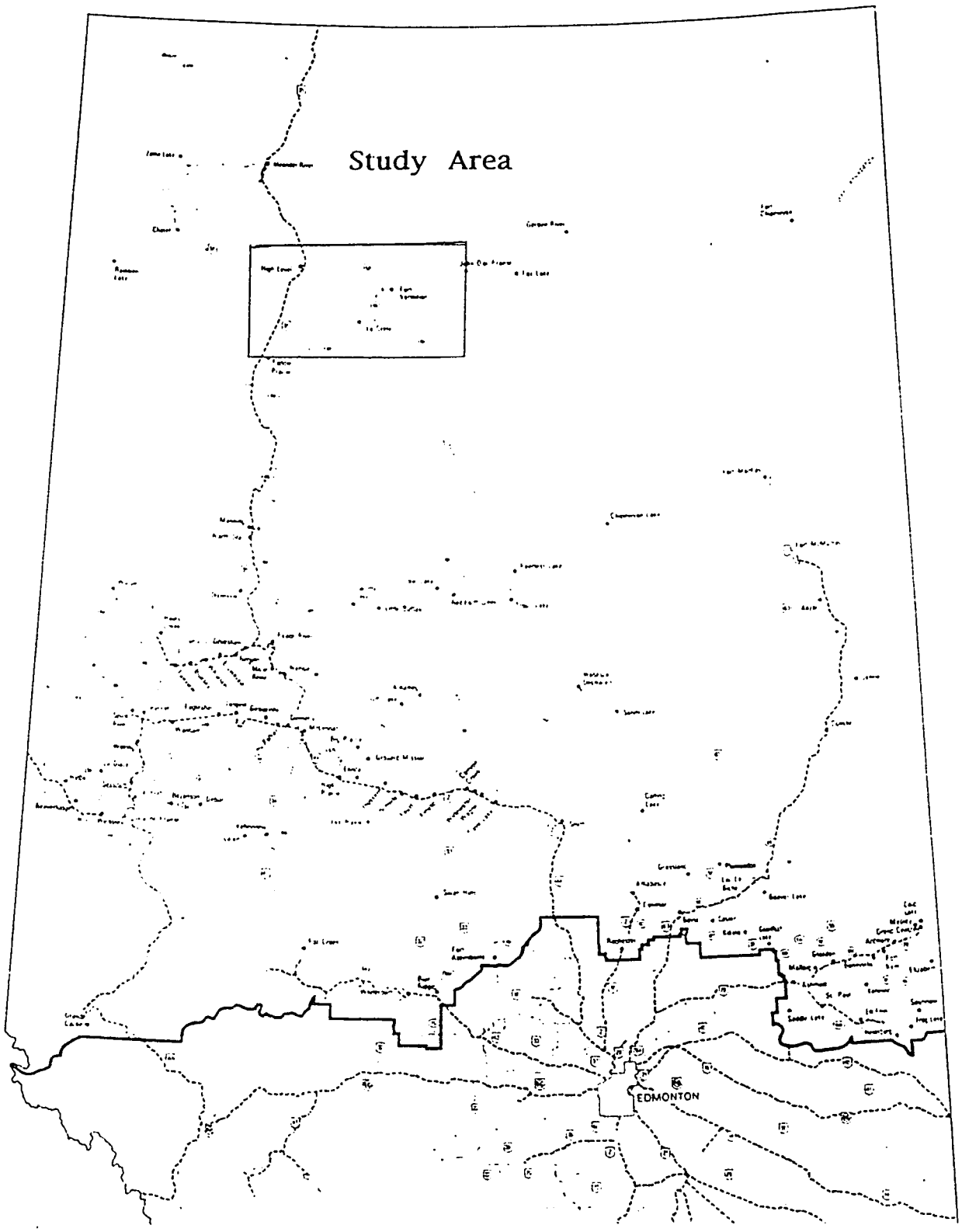
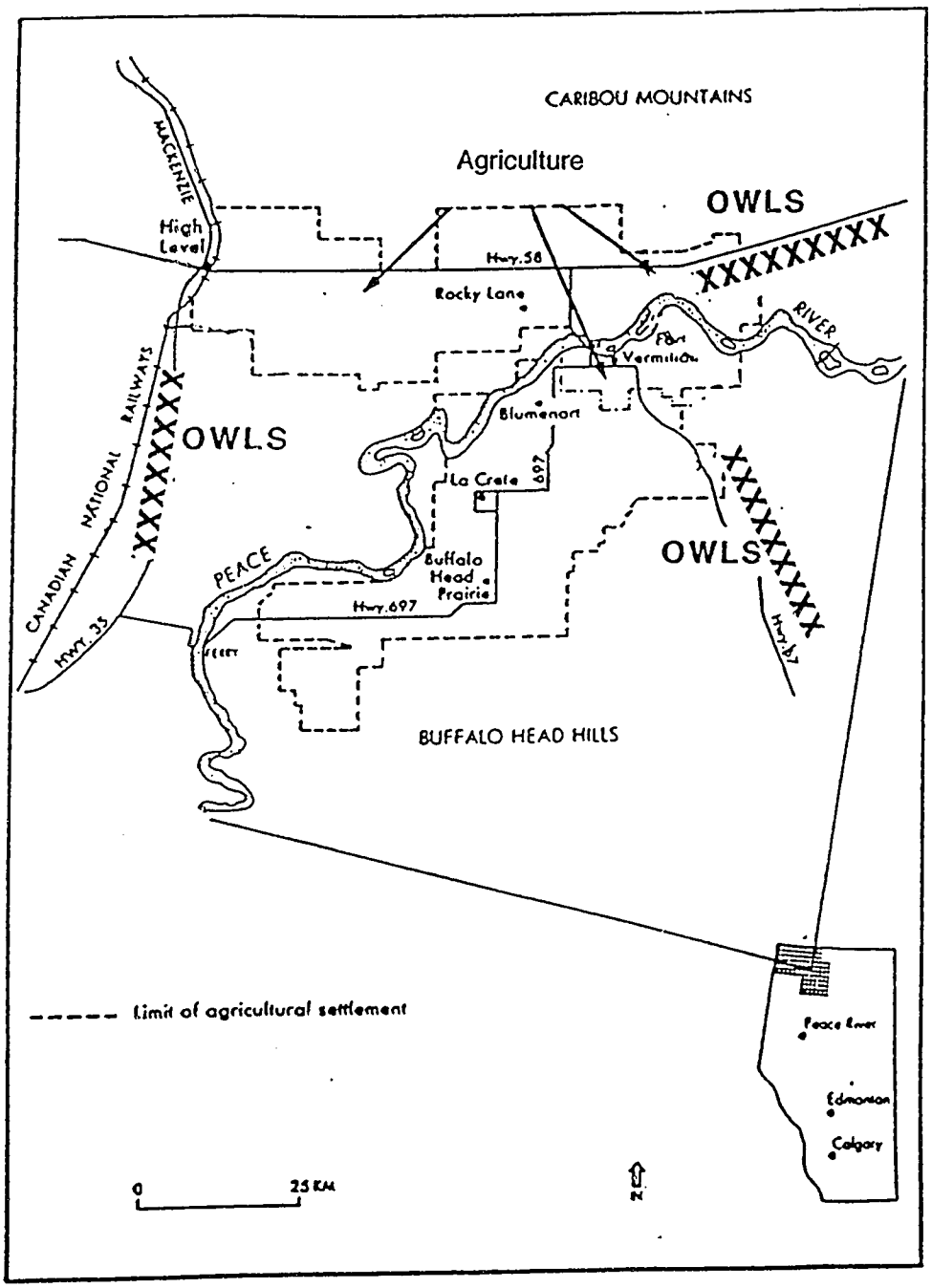


Figure 1. Study Area Map With Settlements and Owls

Improvement District 23 and the Lower Peace Sub-Region



Source: Map - 1987 Alberta Highway Map, Alberta Transportation and Utilties.

Owl Concentrations are found along roadways from February through March as indicated by **XXXXXXXX**

I. INTRODUCTION

A. Thesis Design

This thesis is separated into seven components: Introduction; Theoretical Framework; The Study; Data Results; Discussion; Conclusions and Recommendations; Bibliography. The theoretical framework is lengthy because the study involved a breadth of subjects including the dynamics of relationships between attitudes toward tourism, conservation, and rural development, citizen participation, and attitude and innovation theory. Synergies between these subjects, in relation to attitudes and attitude theory, are explored and developed to provide coherency to the theoretical framework.

B. Background

This study addresses attitudes of 60 northern Alberta residents and 30 visiting tourists, using Likert Scale and open-ended face-to-face surveys, toward economic diversification through ecotourism development. Ecotourism based on viewing wildlife and natural landscapes may be a source of economic development and diversification for the study area. The economy of the study area is currently characterized by dependency on the timber and agriculture industries which are referred to as extractive industries in this thesis. Citizen attitudes toward development should be a primary consideration for development proposals such as ecotourism. Many rural development researchers speculate that the long-term success of development may increase if citizens attitudes are considered, mitigated, and incorporated into development planning (Arnstein 1969; Pateman 1970; Wengert 1985).

Ideally, strategies to encourage favorable attitudes toward ecotourism should be encouraged in order to achieve maximum citizen support prior to the development of ecotourism initiatives. Consideration of attitudes may result in development which more accurately reflects and incorporates local citizen issues and concerns into planning and development processes and results in improved attitudes. Ecotourist and general tourist attitudes are also particularly relevant because their attitudes indicate market potential and marketing strategy. If the basis of ecotourist, general tourist, and study area resident attitudes were known, clues may be found as to the most effective strategies to develop successful ecotourism.

This study assumed that local citizens' have somewhat favorable attitudes toward ecotourism and preservation, and attitudes toward economic development which are more consumptively utilitarian than appreciative. Attitudes favoring

extracting resources, though not inconsistent with ecotourism, should be reconciled with the preservation needs of ecotourism prior to development to limit ideological polarization of those with different attitudes toward resource development.

Policy recommendations were developed based on this authors opinion of the feasibility of achieving maximum favorable attitudes toward ecotourism prior to development. Recommendations are aimed at improving the level of integration of, and concern for, local citizen attitudes in natural resource development, and at encouraging increased local ownership and control of development. Recommendations focus on 1) strategies for implementing ecotourism and on the importance of understanding attitudes and behavior toward ecotourism; and 2) increasing the compatibility between appreciative and consumptive economic development. Attitudes were assessed by gathering data on residents, general tourists, and ecotourists in three communities within Improvement District 23 in the Lower Peace Sub-region of northern Alberta: High Level, La Crete, and Fort Vermilion (Figures 1, 2).

For the purpose of this work, ecotourism is defined as appreciative, nature-oriented travel. Central to most theoretical definitions and descriptive characteristics of ecotourism are activities that have minimal environmental impacts, are centered around natural environments, are economically beneficial to local citizens, and are sensitive to local cultural norms, including local attitudes.

The study area is economically characterized by dependence upon primary extractive resource industries (timber and agriculture) and export of minimally finished products, low economic diversity, and "boom-bust" type growth (NADC 1985a, NADC 1991c, Detomasi 1986). The Lower Peace sub-region, which encompasses the study area, is the most isolated and least prosperous region of Alberta (NADC 1990). Quality of life in this remote, rural region seems to have decreased through urban economic competition and economic development strategies focused on large-scale, non-local and/or multi-nationally controlled export of resources. The economic and cultural future of such isolated rural regions may not improve unless attempts are made to diversify their economies in appreciative industries such as ecotourism, and/or productive secondary and tertiary industries such as manufacturing. The recent, though as yet scientifically undocumented, discovery of wildlife concentration areas (especially owls and songbirds sought-after by bird watchers) by university researchers indicate that potential opportunities exist for a new non-consumptive industry based on wildlife viewing (ecotourism) in an unexplored market (Butler and

Miller 1993). In northern Alberta, few residents or non-local business interests have realized the economic and ecological value of ecotourism.

Theoretically, ecotourism has strict ethical codes regarding its effects on the economic, social and ecological well-being of local communities, its responsibilities to increase local citizen well-being, and for its environmental impacts (The Ecotourism Society 1992). Similarly, in theory, it is considered important to have support from communities which host ecotourism (The Ecotourism Society 1992). In reality, the ethical code is an often overlooked component of development because of a lack of adherence to these recommendations.

Worldwide, ecotourism destinations are rapidly increasing in number (The Ecotourism Society 1992). However, in practice, too often there is little serious consideration of the theoretical ethical standards for ecotourism development (Vickerman 1988). For example, Vickerman (1988) found that local citizens were infrequently involved in ecotourism planning and management in host communities.

Popularity and benefits of appreciative and non-consumptive resource use are only beginning to be realized (Filion et al. 1983, 1985, 1991; Jacquemot et al. 1986). However, it is the opinion of this author that the popularity of appreciative uses of nature is growing at the same time as the viability of some components of natural ecosystems is being threatened by extractive resource use. For example, decreases in sought-after neotropical migrant birds have been attributed to reduced area of preferred habitat types (island effects) and negative edge effects associated with decreased forest area (Wilcove 1985; Freemark and Merriam 1986; Small and Hunter 1988). Nearly all merchantable hardwood and softwood timber in northern Alberta has been allocated to timber industries for fibre production (Forestry Canada 1993). However, maintenance of wildlife, preservation of natural landscapes, and impacts on local communities must be considered if natural resources are to be developed for ecotourism. Concomitantly, more thoughtful consideration must be paid to potential conflict between appreciative and consumptive resource users, the importance of citizen attitudes in economic and natural resource development, and the importance of economic diversification in rural areas.

This study focuses on a region of Alberta (northwestern Alberta) deemed least desirable by Albertans for travel, at a time of year (winter and spring) also deemed least desirable for travel (Manecon Partnership 1991). However, based on responses from an international ecotourism marketing and advertising effort conducted by this author, many travelers (20-30 inquiries per month) desire to visit the study area. This desire is based on existence of highly sought-after wildlife (great gray, northern hawk,

boreal, snowy and barred owls, select songbirds, wolves, and cranes) and natural phenomena (*aurora borealis* and pristine landscapes).

Many wildlife, particularly birds, are popular among birdwatchers (American Birding Association 1990). The boreal, northern hawk, great gray and snowy owls, all present in the study area, especially during late winter and early spring, were the 2nd, 4th, 7th and 12th, respectively, most sought-after birds in North America (American Birding Association 1990). These owls are present adjacent to the towns of High Level, La Crete, and Fort Vermilion. Similarly, many songbirds present in the study area, such as warblers dependent on old growth forests (bay-breasted, Cape May and blackburnian warblers), among others (Connecticut and blackpoll warblers), are among the top 50 most sought-after birds in North America (American Birding Association 1990). Thus select wildlife resources in the study area have been demonstrated to be in high demand by wildlife viewers. Many of these wildlife, particularly the owls and migratory songbirds which are dependent on old or continuous forest are threatened by habitat loss (Johnsgard 1988, Morse 1989). Populations of many forest breeding and wintering neotropical migrants declined recently (1978-1987) (Robbins et al. 1989). Harvesting of forests resulting in temporary or permanent alteration of successional status of vegetation has been implicated in the decline of many species (Robbins et al. 1989).

It is the opinion of this author that the owls and songbirds in the study area have become one of Alberta's best-kept wildlife secrets. Historical reports dating to 1988 from Dr. J. R. Butler's graduate students and from local birding enthusiasts in these communities suggest that daily concentrations of great gray owls exceed any known assemblage (Nero pers comm.). Residents have reported up to 49 owls seen on a 75 kilometre stretch of highway (Ritchie pers comm.). Butler, upon learning of these owl concentrations in 1988, assumed it was unusual. Subsequent discussion with local residents suggested that the owl concentrations are not an anomaly, but an annual occurrence during late winter and early spring. Results of a wildlife inventory conducted by Butler and Miller suggested that owl concentration areas existed in February and March 1993 and 1994 (Appendix D), and local reports suggest that owls concentrate in select areas from December through March.

C. The Study

The study looked at 1) how residents and tourists view ecotourism; and 2) relationships between attitudes toward ecotourism and attitudes toward natural resource management, economic development and knowledge of wildlife. Economic

incentives for ecotourism and parochial pride in intrinsic values of boreal forests were assessed to aid in determination of strength and direction of attitudes. Also, themes in public artwork and library collections were assessed in the study area as possible indicators of attitudes toward ecotourism and awareness of boreal natural history.

Speculation was made as to the strength of, connection between, and direction of citizens' attitudes in relation to natural resource utilization and ecotourism development. Speculation was also made concerning the probability of achieving more favorable attitudes towards ecotourism. This speculation was based on examining possible synergies between attitudes, the role of social group cohesion and ego in attitude formation, and the importance of attitudes to underlying values.

Attitudes toward ecotourism were also explored to aid in determining how the attitudes of potential innovators/adopters differ from others. A secondary goal was to discuss innovation and adoption characteristics relevant to ecotourism development in the study area.

In addition to measuring attitudes, an attempt was made to speculate on the strength and direction of attitudes toward ecotourism (Rokeach 1968). Successful ecotourism development may be dependent on attempts to bolster positive attitudes and on attitudinal manifestation into consistent behavior. Review of literature on attitudes, behavior, rural development, and conservation was undertaken to bolster the strength of assumptions made regarding relationships of attitudes to behavior and the probable behavioral manifestation of attitudes. Thus, secondary sources were used in conjunction with primary data to develop conceptual linkages between attitudes and behavior relevant to ecotourism development.

The quantitative Likert Scale measurement technique used for this study measures only the cognitive component of attitudes. However, qualitative (open-ended) techniques were also used to measure the affective component of attitudes. Since the scales do not measure the conative (behavioral) component of attitudes, inferences about the influence of attitudes on behavior, such as an individual's decision to accept or reject ecotourism, are made with caution.

The relationship between attitudes and behavioral expression of attitudes is complex with few direct cause and effect relationships (Kellert 1980b). This relationship is complex because attitudes toward ecotourism, for example, may be only indirectly related to behavior towards ecotourism. Attitudes are not necessarily direct predictors of behavior, but may be affected by social factors (Kellert 1980b). One study goal was to use attitudinal assessment to speculate on ecotourism development potential. However, to make this speculation (to predict behavior from attitudes), non-

attitudinal factors that affect their behavioral expression must be assessed. Attitudes will be expressed as behavior only if a sufficient attitudinal intensity has been reached, if they are socially acceptable, and if an opportunity arises for their expression. Thus speculation is made on attitude intensity and social acceptability of attitudes, and behavior manifestation. The goal is to more accurately predict the likelihood of the behavioral expression of attitudes, particularly the expression of favorable attitudes toward ecotourism. As mentioned, successful ecotourism development may be dependent not only upon positive attitudes, but also upon their manifestation into positive behavior. One possible route for attitudes to be manifested would be through the development of a conservation ethic favoring aesthetic appreciation and conservation of natural resources.

II. THEORETICAL FRAMEWORK

A. Tourism, Host Communities, and the Natural Environment

Theoretical support for this thesis was sought from literature on attitudes, human dimensions in natural resource management, and relationships between tourism, conservation and rural economic development. These areas of theoretical support were then grouped into broad categories deemed relevant to the study objectives. The categories as presented in this theoretical framework include:

A. Relationships between tourism, host communities, and the natural environment.
B. Ecotourism: an alternative to traditional tourism.
C. Perspectives on rural economic development patterns.
D. Importance of attitudinal research and attitude theory.
E. Innovation theory.

The theoretical basis for this study is necessarily broad. Theory and research on relationships between economic development, the tourism industry, communities hosting tourism, and natural resource conservation are explored. Because this study focused on analysis of attitudes toward development in rural areas, a review of general economic, cultural and environmental conditions in rural areas is provided. The economic condition of rural areas compared to urban areas has been the subject of intense theoretical debate for over forty years.

These three primary areas of theoretical analysis are explored in detail to provide a framework of support for this study. Linkages between these three general areas of theoretical analysis and attitude theory are provided to tie the theoretical framework back to attitudinal assessment.

1. Relationships Between Tourism and Host Communities

Murphy (1985: 147) stated "the tourism industry needs to become a facilitator of community aspirations *as well as* business...The industry has a responsibility to the community, in that it uses the community as a resource, sells it as a product and in the process affects the lives of everyone." Murphy (1985) suggested that for the tourism industry and the host community to survive, development must occur at a scale and pace appropriate to local conditions with emphasis put on the many aspects of host quality of life.

Because citizens feel tourism impacts most directly, their attitudes should be most important in tourism planning. Many researchers suggest that citizens should be the primary force behind tourism development (Ahmed 1984; Liu and Var 1987; Vickerman 1988). Unfortunately, this ideal planning scenario is infrequently realized. If social impacts of development are assessed at all, it often occurs too late, and may not reflect tourism's more subtle social impacts such as crowding and increased demand on social services (Ahmed 1984; Liu and Var 1987; Vickerman 1988). Citizens in communities facing tourism development may have mixed attitudes toward tourism (Canmore Leader 1992, Banff Crag and Canyon 1992). In several studies, tourists have been negatively perceived by locals, and issues such as increased resource competition (community health services, fuel, water etc...) and crowding have been reported to affect local citizen attitudes toward tourism (Ahmed 1984; Liu and Var 1987). An understanding of the cause for the host community's attitudes towards tourists may be helpful in searching for ways to increase social and economic benefits of tourism for hosts.

Quality of life impacts on host communities have recently emerged as an element of tourism research (Ahmed 1984; Liu and Var 1986, 1987). This research has focused on a broad array of issues, including environmental, social and economic impacts of tourism. The majority of the studies have focused on beneficial impacts, such as revitalization of culture and economy. Researchers such as Ahmed (1984) and Liu and Var (1986, 1987) are just beginning to understand the complexity of tourism impacts on communities, and just how unprepared citizens are to address some of these impacts.

Liu and Var (1986, 1987) and Ahmed (1984) demonstrated that tourism developments in or adjacent to communities cause changes in quality of life for community members. If the changes are not welcome, there is at least an opportunity for them to be mitigated. For example, citizen concerns may be addressed through attitudinal assessment, and acted upon (such as by providing new health service centers in anticipation of increased demand).

It is the opinion of this author that tourism impacts are often assessed by consultants prior to development, but primarily from a narrow development perspective guided by concerns of elite community members. Because many communities rely on tourism for their economic well-being, economic benefits of tourism must be a primary consideration. However, immediate economic considerations should be weighed carefully against the more subtle and long-term social, environmental, and economic ramifications of tourism (Liu and Var 1987).

Host communities bear tourism's impacts more directly than tourists, yet they have been neglected in planning for and assessing tourism development (Smith 1976; R. Butler 1980; Hough 1987, Liu and Var 1987). General quality of life issues, such as self concept, cultural viability, environmental health, and aesthetics may be profoundly affected by tourism. Yet studies on social impacts seem to remain a low priority among the tourism research community. Tourism planning should revolve around the best interests of communities, with emphasis, according to Vickerman (1988), placed on the following issues:

1. Assessment of tourism's impacts before development.
2. Consideration of long-term viability versus short-term viability -- sustainable development.
3. Consideration of direct economic contribution to citizens.
4. Maintenance of social, psychological, and cultural quality of life.
5. Maintenance of environmental integrity.
6. Institutionalization of citizen participation in planning of development.

a. Tourism Impacts on Communities

Tourism may be a source of revenue to small communities with few other economic development options. However, tourism finds itself especially susceptible to "boom and bust" cycles of growth because of fluctuating demand (depending on tourists' preferences) and seasonality of many destinations (Rogers 1962). Because tourism is not a discreet industry, but rather a collection of mostly small-scale entrepreneurs, it often suffers from poor planning and regulation (Mathiesen and Wall 1982), especially outside protected areas such as National Parks (Zube and Busche 1990). It is the opinion of this author that this may be detrimental to the long-term cultural, social, environmental and economic well-being of host communities. A planned and regulated tourism industry may result in improved sensitivity toward local cultural norms and local economic well-being. For example, if policy stipulated that tourism operators recirculate a portion of their profits back into the community (by making local purchases of food and equipment, for example), citizen attitudes toward tourism may improve.

Rogers (1962), Christaller (1963), R. Butler (1980), and Doxie (1987) were some of the first to document that tourist destinations and associated host communities display cycles of popularity and decline. These cycles have most recently been modeled according to spatial and temporal dimensions of the

destination (Butler 1980; Doxie 1987). These models suggest that destinations may expand and decline in scale and popularity through time (R. Butler 1980), and that the host's initial interest in tourism may gradually become negative (Doxie 1987). Frequently cited causes for these cycles include over-development, over-exploitation of natural environments, over-commercialization, and lack of economic benefits to hosts. However, these cycles are not inherent, and may deviate from the models. It is the opinion of this author that these cycles suggest that tourism developments may be modeled on maximum growth and non-local profit, with a lack of concern for long-term quality of life for local citizens or natural environments.

The previously mentioned cycles are, then, significant for hosts, and for the planning of tourism (R. Butler 1980). The common assumption among many tourism officials that tourist destinations may grow perpetually or that they operate without severe negative impacts on hosts, is fundamentally flawed (Doxie 1987). Tourist areas may remain perpetual attractions if effective planning and management regimes exist (Mathiesen and Wall 1982). It is the opinion of this author that wise management of tourism resources to maximize long-term local benefits and limit negative local repercussions are infrequently realized. Tourism impacts may be difficult to measure because they occur on long-duration temporal scales. There is often a time lag in realizing the ramifications of social and economic impacts (Ahmed 1984). Research methodologies are rarely sufficient to determine elusive development statistics such as distribution of wealth and economic leakage, especially through time (Ahmed 1984).

Research on social impacts of tourism is complicated because our knowledge of how social systems operate is incomplete. Many seemingly disparate variables may be responsible for a single social phenomenon. For example, Beilckus (1972), targeted second home development in tourist destinations as having a range of negative impacts on hosts, and probably, many additional impacts. Users of second homes may have little motivation for interacting with locals. Because second home owners may have more available leisure time, and may be of a higher socio-economic class, they may also have different community development agendas than locals, and more time and power to implement them.

In summary, most tourism researchers now suggest that attitudinal studies of citizens living within tourism zones may be extremely helpful in confronting the many social and economic inequalities ingrained in tourism development. If host attitudes were seriously incorporated into tourism planning, problems such as

distribution of wealth, and other social and environmental problems might be better managed

b. Research on Tourism Destination Impacts: A Historical Perspective

Rogers (1962), Christaller (1963) and Young (1973) began some of the first major research efforts on the impacts of excessive visitation on tourism destinations. Most research on tourism impacts involves the physical setting rather than the cultural setting (Stankey and McCool 1989). Young, among others, popularized discussion of controlling the negative effects of recreation and tourism by researching destination carrying capacity. The principle behind this technique was to identify thresholds beyond which actions would be taken to avoid or correct problems from overuse. The first interpretations of carrying capacity focused on physical carrying capacity, and later evolved to include social and environmental aspects (Driver et al. 1987; Stankey and McCool 1989). These capacity concepts have evolved into more sophisticated methodologies for assessing and monitoring tourism impacts on the physical setting: Visitor Impact Management (VIM), Limits of Acceptable Change (LAC), the Recreation Opportunity Spectrum (ROS), and the Visitor Activity Management Process (VAMP). The most important component of each of these approaches is an understanding of the visitor (Rollins 1992); thus these tourism management techniques do not deal primarily with hosts. For example, ROS is designed to help define tourism management techniques tailored to satisfy the recreationists' demands. Stankey and McCool (1989) now recommend that capacity concepts should first define what environmental and social conditions for a site are appropriate, and then define limits to capacity rather than the other way around.

Capacity-oriented research has traditionally focused on type and quantity of opportunities offered, and physical site qualities. Management plans derived from this research have focused on economic benefits weighed against natural environmental costs (Stankey and McCool 1989). Young (1992) suggested that there should be more emphasis on the types and quantity of desired/appropriate experiences that meet desires of local communities. Guidelines to assist in identifying local community desires and impacts are urgently needed.

In summary, it has been recognized that tourism resources consist of more than the physical site and the wants of users, but also include host communities. The impacts of tourism on communities are now recognized by some researchers as limiting factors to tourism's success (Vickerman 1988; Liu and Var 1987; Ahmed

1984). This research suggests that many factors can influence the reaction of citizens, including their knowledge of tourism resources; the level of participation in tourism policy, planning, development and management; scale, rate and type of tourism development; cultural exploitation; and the role of host communities in the tourism industry (Pigram 1980; Doxie 1987). This research has been instrumental in advocacy for attitudinal studies of host communities and in beginning to comprehend the complexity of relationships between tourism and host communities.

c. Current Research Trends

Research by Liu and Var (1986, 1987) is representative of a new, if infrequently applied, paradigm in tourism research which is sensitive to measuring tourism impacts on hosts. They assessed host attitudes towards tourism impacts. Liu and Var (1986) suggested that the success of the tourism industry may be threatened if host attitudes are not acknowledged.

Few studies have measured host attitudes toward tourism development strategies (Ahmed 1984). In-depth study on host attitudes towards cultural, societal and environmental changes resulting from tourism is lacking (Liu and Var 1987). Most perplexing, however, is the fact that no comprehensive research has been conducted on the attitudes and knowledge of hosts regarding tourism development (Liu and Var 1987). Ahmed's research on tourism impacts (1984) suggested that host attitudes must be incorporated in all stages of decision making, and that hosts must be knowledgeable of the impacts of tourism, especially those that are economic, cultural and environmental.

This author speculates that in competitive, market-oriented economies, based on the provision of services and the consumption of products, as in Canada, citizen attitudes toward tourism may be biased toward potentially lucrative immediate economic benefits. The tourism industry has also down-played social, cultural and environmental impacts of tourism (Getz 1983). Unfortunately tourism often benefits only a few, and much of the economic windfall may leak out of host communities because of non-local control (Getz 1983). The tourism industry has an obligation to engage citizens in every aspect of tourism planning and development.

d. Accommodating Hosts

Many countries, states and provinces have taken action to further develop and improve tourism in local communities through comprehensive planning

techniques (Stankey and McCool 1989). These planning techniques have in reality done little to address long-term economic and social implications of tourism as community involvement in tourism planning is superficial and biased towards select interests (Machlis and Bachii 1992).

The most prevalent form of planning is rationale-comprehensive, or systematic. The process involves little collaboration with local communities. Often, citizens are asked to respond to plans and ideas created by outside interests. Such community planning is superficial and adversarial, leading to agency-citizen dissatisfaction with the plan (Stankey and McCool 1989). Stankey and McCool (1989) recognized the limitations of such planning and suggest an alternative -- the use of Transactive Planning. They suggested that alternatives to solving social problems/issues by centralized decision making must be developed. Such an alternative process should include those impacted. Stankey and McCool (1989) suggested that small working groups of citizens (who are not involved in tourism promotion) form the basis of the transactive planning process. In this way, decisions are confronted by the groups affected by the outcome, and an appropriate course of action is identified.

e. New Perspectives in Tourism Planning

Regardless of the planning technique used for tourism, its success depends on the ability and orientation of participants. Citizens are not experts in tourism nor development planning and must be given the opportunity, time and skills to participate fully.

Hough (1987) and Fletcher (1990), in their papers on attitudes of residents of protected areas, suggest a solution to fully incorporate host attitudes into resource planning. They advocate the implementation of a social impact assessment (SIA) for tourism development to identify socially desirable alternatives for tourism planning and protected area planning based on citizen concerns. Similarly, Drake (1989) called for formalized local action plans to lessen negative impacts of tourism and to prevent deterioration of host culture, society and environment. There is a need to know how local cultural, social and economic systems function, and how these systems may benefit most from tourism. Each potential and existing tourism destination can design management techniques to specific situations (Drake 1989). These situational management techniques include ecological, biological, aesthetic, social, cultural, economic and political

(Fletcher 1990). Zube and Busch (1990) suggest that the human dimension has been missing in the conceptualizing of resource use plans.

Zube and Busch (1990) suggested that the attitudes of locals frequently differ from those people who plan and manage natural resources. Priorities to accommodate local concerns include the following:

1. Prior to tourism or other resource development, traditional value orientations and behavioral patterns of local populations must be understood.
2. Attitudes toward natural resources and conservation in different cultures must be defined.
3. Locally acceptable incentives for residents to support conservation or development programs must be determined.
4. Resident perceptions of tourism development and its growth must be assessed.

f. Community Action Planning

Drake (1989) suggested that the most effective way to maximize beneficial impacts of tourism on citizens is through a formalized local participation plan in which citizens' attitudes are assessed and incorporated into the tourism development project. Such participation plans should be included as a component of each tourism project. Drake (1989) suggested the following format for local participation plans:

- Ensure early local Involvement of community members at the problem identification stage or project design stage to establish rapport with the local population affected by the project.

- Identify local leaders and affected groups through public hearings, local agencies and personal interviews

- Investigate citizen needs/wants/values using personal interviews

- Develop an appropriate participation mechanism which will ensure that all affected parties have the opportunities to gain the requisite knowledge regarding tourism's impacts and the ability to express their concerns.

- Identify selected individuals to serve on advisory committees

- Encourage continual interaction and dialogue between the local population and the project managers through a series of meetings, workshops, etc.

- Identify appropriate educational techniques, which include developing educational materials, presentations, press releases and informal meetings.

Such comprehensive tourism planning should be commonplace.

2. Relationships Between Tourism and Natural Resource Conservation

a. The Tourism Conservation Relationship

Inconsistencies between tourism and conservation objectives may be related to the existence of different attitudes toward natural resource and tourism management objectives (Pearce 1985). Pearce (1985: 247) provided an introduction to this topic by stating "because tourism has developed in such a variety of ways, leading to a wide spectrum of interrelationships, the relationship between tourism and the environment is complex." Depending on such variables as scale, character, and purpose of tourism development, the relationship between tourism, conservation and citizen attitudes toward resource management can be one of high, medium, or low conflict (Marsh 1985). Similarly, Budowski (1976) identified three potential relationships between conservation and tourism:

1. coexistence because of minimal interaction between conservation and tourism.
2. a mutually supportive or symbiotic relationship.
3. a conflict situation where tourism introduces detrimental effects to the environment and local citizens.

Budowski (1976) suggested that coexistence was, in 1976, the least tenable of such relationships, rarely remaining static. As a result, most tourism/conservation relationships are in the coexistence stage moving towards conflict (Budowski 1976). There is potential for reaching a symbiotic relationship, claims Budowski (1976), and it is the desired state because of its social, environmental and economic benefits. However, an explosion in consumptive resource use (mostly agriculture and forestry) coupled with an increase in nature tourism resulting from increased leisure time and changing values may result in widespread degradation of assets of nature and tourism (Budowski 1976). Budowski suggested that nature tourism carries with it a promising ethic, but uncontrolled expansion has resulted in conflict.

Tourism and conservation are linked in an unstable marriage, but unlikely to divorce. "The political advantage of this in a society that has a difficult time justifying nature conservation for non-utilitarian purposes will ensure that this relationship will continue" (Marsh 1987: 312). There is a widespread awareness of the inter-relatedness of conservation and tourism. However, recommendations made by international organizations and conservation interests are infrequently implemented outside special reserved areas such as national parks" (Romeril 1985:216).

In summary, it is evident that many researchers in the area of conservation and tourism identify negative attitudes toward conservation and ecologically unsustainable expectations of tourism as problems hindering the synergism of conservation and tourism. Researchers are dismayed at the delicate and tenuous relationship between conservation and tourism, and, as a solution, recommend attitudinal research to identify the source of disharmony. To date, however, few studies have given this topic adequate attention.

b. Origin and Evolution of Disharmony

Ultimately, the dilemma between conservation and tourism, other than for some protected areas such as National Parks, results from policy, and planning and management guidelines based on consumptive use of natural resources (Marsh 1987). Historically, stated Marsh (1987: 300), "tourism and conservation were amalgamated." The National Parks Act called for nature to be left unimpaired but also called for recreational benefit for people. This paradoxical aim was accepted because there existed little environmental concern, and the scale of tourism was small (Marsh 1987). "As demands for strict nature protection emerged and resource use increased, conflicts developed between the two land uses.....and they became the subject of public debate and political decisions. Indeed, there are many different perceptions of what constitutes conflict between conservation and tourism" (Marsh 1987: 302).

Early tourism was characterized by "unbridled development and despoilation of the physical environment" (Romeril 1985; 215). Further, he stated, "the accompanying economic and employment benefits of the expanding tourist sector made many blind to environmental destruction" until it became an issue of scale. "Gradually it was recognized that despoilation of natural attractions leads to elimination of popularity" (Romeril 1985: 215). This "recognition" has generally not been incorporated into tourism planning.

The circumstances under which environmental degradation from tourism occur are multi-faceted. These circumstances include "rapid and largely uncontrolled growth of the tourism industry; marked seasonal peaks of demand; little or no planning; and financial and technical inability to provide adequate infrastructure" (Pearce 1985: 249). Additionally "some government and tourism planners are insufficiently trained to properly plan and control tourism" (Inskeep 1987: 127). This list also includes a lack of knowledge of environmental

implications of tourism development and the effects of resulting natural resource management frameworks on environmental quality.

c. Policy and Practice

Marsh (1985) argued that most existing tourism areas, including those in Northern Canada which he studied, now have acceptable levels of environmental impacts, but the future poses a real threat because of increasing use of these areas coupled with natural resource extraction. Indeed, the environment will survive threats of tourism, even without policy and planning to protect it, until levels of use exceed a sustainable level. Tourism management is now characterized by an underlying global concern for improved conservation/tourism relationships. To date, however, there has been little research into attitudes toward the tourism / conservation dynamic. Most research has rather focused on attacking symptoms of the problem rather than broader issues such as the need for attitudinal change.

Much literature exists on site specific environmental impacts of recreation, mostly from the perspective of carrying capacity for given activities (Pearce 1985; Wall 1989). However, satisfactory theoretical frameworks and methods for assessing and measuring carrying capacity as related to natural resource preservation are yet to be developed (Stankey and McCool 1989). Rather, attention has recently focused on an alternative tool for research, the Recreation Opportunity Spectrum (ROS) (Driver et al. 1987). ROS is a recreation management tool designed to facilitate the provision of quality recreation experiences to recreationists. ROS does not directly address recreationists' or hosts' attitudes or the conservation of resources, but rather is a tool to mitigate physical impacts while meeting the desire of recreationists.

The majority of tourism research avoids the relationship between conservation, tourism and citizen attitudes toward natural resource management policy. For example, most research on environmental and social impacts of tourism documents the impact and develops symptomatic remedies such as crowd control or building of fences to control recreationists. This author suggests that it is also important to understand causal factors such as understanding citizen attitudes and developing methodologies to change those attitudes to be more consistent with community well-being. Although there exists no data to support the following claim, this author feels that until attitudes are understood and causal factors identified and

acted upon, it is unlikely that improvements in the relationship between tourism and conservation will be more than superficial.

Not only must attitudinal-based tourism/environmental research be encouraged, but results must be developed into indicators and techniques for use in tourism policy, planning and management (Budowski 1976). Unfortunately, "little progress has been made towards practical application of these recommendations" (Pearce 1985: 249) because research is directed not at the policy level but at the site specific management scale. However, he notes that "feeding into the decision-making process is not a simple matter." The relationship between researchers and policy makers has been an uneasy one, resulting from a lack of understanding and communication between those involved, and because they do not know each other's goals. Even if research findings are "translated into practical policy measures, they may not be adhered to or enforced," states Pearce (1985:250).

Inskeep (1985: 127) argued that tourists increasingly expect a high level of environmental quality; however, he stated that "to accomplish environmentally successful tourism development, planning must be conducted locally and regionally." More specifically, he argues that tourism development must reflect environmental and socio-economic objectives. This amounts to an argument for harmonization of tourism with environmental and social realities of the destination.

Inskeep (1985: 128) stated that "Attention must be paid to alternative types of tourism which may be less environmentally and socially disruptive....these alternatives include quality tourism (limited, highly controlled development, and selective marketing), special interest tourism (tourism in specific aspects of the natural environment), and farm and ranch tourism" to name a few. To achieve such objectives, research into citizen attitudes must be conducted and the results and recommendations acted upon.

Similarly, Haulot (1985: 220) suggested that "Tourism's array of benefits and potential for destruction of natural environments are real. A point of balance must be found between the polarized sides". No policy and practice is complete without concern for attitudes of guests and hosts, on the part of initiators and organizers of tourism" (Haulot 1985: 221). Haulot suggested that there can be no tourism which does not have respect for the social and natural environments. Harmonization is vital.

B. Ecotourism: An Alternative to Traditional Tourism

Because this study is grounded on the assumption that ecotourism development could occur in the study area, it is appropriate to provide detailed background information on the history, economics, philosophy and ethics of ecotourism.

Ecotourism development involves the systematic developing and marketing of nature-oriented travel experiences (R. Butler 1984; J. Butler and Fenton 1987; Marsh 1987; J. Butler and Hvenegaard 1988; Ceballos-Lascurain 1988; Hvenegaard 1989; Farrell and Runyan 1991; Scace et al.1991; J. Butler 1992). Ecotourism now captures nearly 10% of the world tourism market and complements conventional tourism by diversifying the industry (Scace et al.1991). It channels visitors beyond beach resorts to natural attractions. Although travel to natural attractions promotes conservation and preservation, the impacts of tourists on the landscape remains a controversial management issue. Swinnerton (1989: 519) states "One of the most urgent issues in recreation resource management is the relationship between resource protection and recreational use." Though it claims to be a patron saint of nature protection and preservation of cultural integrity, ecotourism may simultaneously support and impair conservation (R. Butler 1989). Evidence of negative impacts of ecotourism, such as crowding in the Galapagos, and trampling of sensitive Arctic flora at Bathurst Inlet Lodge in the Canadian Arctic, can be observed at many ecotourism destinations (R. Butler 1989). One common impact is human encroachment which degrades the environment and disrupts animal behavior.

Leisure, as a pastime distinct from work, is a phenomenon of sedentary lifestyle created by the advent of agrarian living 10,000 years ago (Oelschlager 1991). Although many primitive societies enjoyed a preponderance of "leisure" time, distinction between "work" and "leisure" was not evident until the advent of industrialization. Leisure generally did not involve leisure travel until modern times (Oelschlager 1991). Early world travelers were spurred on by the search for food and exotica, wealth and power, and by human curiosity (Nash 1976). In the 1800's, elite citizens traveled to hinterlands by rail, most frequently to view nature (Oelschlager 1991). It was not until the last 50 years, however, that tourism became more than an elite leisure fashion. Travel-based leisure now is available to much of the industrialized developed world (tourism is largely unavailable to most of the world's population in developing countries) (Detomasi 1986).

Changing work-place philosophy and work ethics and greater expectations of quality of life have unleashed a leisure class, pursuing tourism, upon the world. Other

factors associated with the increase in tourism include advances in communication and transportation technologies and the psychological mobility associated with broadened horizons (Nash 1976; Mathieson and Wall 1982).

Ecotourism's rise to prominence can be partially attributed to these same factors; however, ecotourism owes its growth primarily to new environmental paradigms (Pigram 1980; Erize 1987). A combination of growing concern for environmental quality, a concern for diminishing natural resources, and a desire by tourists to visit these diminishing resources contributed to the rise of ecotourism.

Central to most definitions and descriptive characteristics of ecotourism are activities that have minimal environmental impacts, are centered around natural environments, and are sensitive to local cultural norms, including local attitudes. Further, ecotourism operations can be distinguished from traditional tourism operations in that they may be locally owned and operated, pay relatively high wages to all employees, foster a participatory approach where the tourist adapts to the environment and culture of the destination, and funnel money directly into local economies (Passoff 1991; J. Butler 1992).

If ecotourism is consistent with the above definitions and philosophy, it is an ideal, low impact development, clearly separated from traditional consumptive tourism and most other consumptive forms of economic development. Ecotourism is sensitive to local environmental and economic conditions and to cultural norms. Following are select definitions, characteristics and concepts of ecotourism that have recently been used in the literature:

Ecotourism "has eluded firm definition because it is a complex notion which ambitiously attempts to describe an activity, set forth a philosophy, and espouse a model of development" (Ziffer 1989: 2). It "is a subtle blend of ecology, economy, an effort to capitalize on a growing interest in a diminishing resource: unspoiled nature" (Ziffer 1989: 2). Ecotourism does not require large facilities and is oriented towards preservation of nature and environmental protection (Erize 1987).

According to Fennell and Eagles (1990: 24), ecotourism has three main components. Given these three components, ecotourism affects the natural and built environments in three ways: economically, environmentally and socially.

1. The attraction of tourists to unique accessible natural areas.

2. Use of tourism as a tool for nature conservation through the generation of education, profits, changing attitudes, community development and political priorities.
3. The provision of employment and entrepreneurial opportunities for local people.

J. Butler (1992: 3) defined 8 ideal tenets of ecotourism:

1. It must promote positive environmental ethics.
2. It cannot degrade nature or culture.
3. It fosters intrinsic rather than extrinsic values/experiences.
4. It is biocentric, not homocentric.
5. It must benefit the natural and cultural environment.
6. It involves a first-hand experience with the natural environment.
7. It has "gratification" that is measured in terms of education or appreciation rather than in thrill seeking or physical achievement.
8. It has a high cognitive and experiential dimension. Satisfaction is expressed in emotional and inspirational ways.

J. Butler (1992) defines ecotourism as tourism that relates to the natural environment as the objective of a visit, not just a backdrop to other tourist activities. For example, Frederick Law Olmstead vividly condemned the exploitation of natural resources through inappropriate tourism in his account of Niagara Falls some 100 years ago (Sax 1985). J. Butler (1992) similarly condemned the nature of tourism in Banff National Park. Ecotourism offers close and meaningful encounters with the natural world and encourages people to travel to destinations that have endemic species, or are controversial because of conflicts over resource exploitation (J. Butler 1992).

Ecotourism ventures, if not always in practice, then in theory, have several common characteristics: they often operate on a small scale; visitation is strictly regulated; access may be monopolized to a particular area by single operators, thus limiting negative ecological impacts; local people are fully utilized in the project's operation and planning, and are well paid by local standards, making tourism an attractive and respected occupation; ecotourism ventures are often more expensive than other nature tours and a percentage of profit is generally donated to local community projects, ecological research or scholarships (Passoff 1991). As such, most

forms of ecotourism (those which are business ventures) cater to a rather financially elite group, predominantly from upper classes in developed countries.

Ecotourism philosophy may be likened to a deep ecological perspective. Devall and Sessions (1985), define this perspective as 1) developing a sense of place; 2) redefining the heroic person from conqueror of the land to the person fully experiencing the natural place; 3) cultivating the virtues of modesty and humility; 4) realizing that mountains, rivers, fish and bears have intrinsic value.

The above definitions suggest that ecotourism combines discovering and understanding the natural world with an opportunity to contribute to its protection (Boo 1990). In theory, ecotourism provides environmentally and culturally sensitive tourism. This sets ecotourism apart from the staged experiences of traditional tourism (J. Butler 1992).

Ecotourism is evolving as an alternative to traditional tourism because many citizens are not satisfied with or are ethically and philosophically opposed to what traditional tourism offers. Swanson (1992) suggests that paradigms can serve as a model to explain the rise in ecotourism. In the 50's and 60's, the dominant social paradigm evaluated nature as less important than progress and prosperity, accepted risk for the attainment of maximum wealth, and recognized no limits to growth. Recently, a new environmental paradigm has been conceptualized, one of the tenets of which is limits to growth.

This new environmental paradigm gave rise to ecotourism which questions the ideals of conventional tourism. One particularly ardent critic of traditional tourism, (Sandford 1991: 30), stated:

> It is relatively easy to condemn tourism for its erosion of values, its diluting of cultures, its perpetuation of servitude, and its damage to the environment. Tourism spreads decadence, discontent and dissension. Tourism is an act of aggression of the world's "haves" against the world's "have-nots". It searches out the best of mankind's cultural and natural heritage in the interests of a few and to the exclusion of many.

Though this critique of tourism is fraught with oversimplification, it is this author's opinion that its central tenets are valid. Machlis (1992) suggested that the basis for all tourism activity is economic inequality. "Driving mass tourism is the discretionary income and leisure time of the economically privileged; without economic inequality,

the international tourism market [primarily to developing countries] would likely collapse" (Machlis 1992). Other effects of tourism may include the construction of tourist facilities, social effects of tourists and those who cater to them on local communities, and ecological effects on natural environments. These effects may be both positive and negative. Further, the local benefits of traditional tourism are often in the form of direct benefits to community leaders and spin-off (indirect) benefits, such as increased jobs during construction or increased regional tax revenues. The direct impacts of tourism on environment and culture are frequently under-played in lieu of indirect benefits such as increased gross national product.

Ecotourism has succumbed to many of the criticisms leveled against traditional tourism. In theory it may be a panacea, but in reality, most operators and tourists do not subscribe to its tenets. J. Butler (1992) called attention to the fact that developers often label their tourism projects "ecotourism" to capitalize on a lucrative market. Further, he suggested that ecotourism is an evolving practice with no common definition nor widely practiced guidelines. Thus "ecotourism" may abuse local resources and communities. Perhaps ecotourism, as defined, is too idealistic, and has expectations of environmental and cultural stewardship which are too great, given the constraints competitive markets impose upon the ethical standards of ecotourism. Such matters should be kept in mind when discussing ecotourism's faults.

1. Ecotourism: Social, Environmental, and Economic Aspects

Unlike other forms of tourism and recreation, the primary benefits of which include exercise, health, and social interaction, ecotourism's primary benefits, in theory, include environmental stewardship, education, support of cultural traditions, local economic benefits, aesthetic values and ethics (Shaw 1987).

a. Social Aspects

Humans have a fascination with nature because of their evolutionary spiritual ties and their more recent desire to know and learn about the natural world (Oelschlager 1991). If not always in practice, then in theory, ecotourism provides a means to change attitudes of tourists and locals toward natural environments so as to include appreciative and spiritual values in addition to those consumptive in nature. Changing attitudes toward nature, including increased awareness, respect and recognition of intrinsic value, can have associated social benefits. Changing interest and awareness can lead to improved environmental quality, through preservation and conservation incentives, from which all of society may benefit (Boo 1990).

Visiting nature is often claimed to be therapeutic, and a number of psychological studies have been reported to suggest that meaningful social change (particularly with respect to self-perception and self-concept) takes place within the individual when entering, and undertaking activities in, that setting (Boo 1990). Social benefits may be equally important to economic benefits because of the emphasis people now put on quality of life.

b. Environmental Aspects

Although ecotourism is often claimed to benefit nature, like any physical utilization of natural resources, it may degrade natural environments. Ecotourism may benefit nature indirectly in many ways. Theoretically, ecotourism developments should mitigate against degradation of nature by supporting preservation incentives in threatened landscapes. For example, ecotourism, through environmental education, may stimulate attitudinal change and encourage citizens to demand nature protection and improved conservation (Ceballos-Lascurain 1988).

The potential for a symbiotic relationship between environmental conservation and tourism was highlighted by Budowski (1976). The marriage between conservation and tourism is increasingly recognized as imperative because natural resources are finite (Runte 1987). Sustainable use is not a desired ideal for tourism, but an economic necessity (Romeril 1985).

c. Economic Aspects

Ecotourism may generate sustained economic benefits because, in theory, it is relatively non-consumptive when compared to other forms of resource use. Tourism development (including ecotourism) can slow the depletion of natural resources by increasing the value of land (assuming full-cost accounting is employed), and by augmenting the stability of the labor force, thus reducing the need for traditional consumptive forms of economic development (Sagoff 1988). Popular ecotourism destinations the world over, such as in the Galapagos and at several Canadian Arctic Ecotourism Destinations such as Bathurst Inlet Lodge, have demonstrated that tourism can offer long-term, stable economic benefits.

Ecotourism valuation techniques include many types of non-economic valuation such as spiritual and ecological and alternative valuation measures such as willingness to pay, which are not considered in traditional resource use. The potential economic value of ecotourism is especially evident when alternative methods of economic valuation are employed. For example Hvenegaard (1989) found that

birdwatchers were, in theory, willing to pay for the opportunity to view certain birds and for the opportunity to view these birds in the future.

Many of the costs of extractive resource use, such as erosion, pollution and resource supply exhaustion, and spiritual and aesthetic values of the resources are not often considered in traditional economic valuation systems (Adamowicz pers com.). Traditional economic valuation only considers a subset of the total values generated from various economic activities and rarely considers aesthetic, spiritual and ecological values.

Some forms of alternative economic valuation may be quantified by measuring "willingness to pay" and are often referred to as contingent valuation methods (Dwyer et al. 1977; McConnell 1985). Willingness to pay values are of three types: existence value (vicarious value), bequest value (willingness to assign value to something to ensure it will be available for future generations), and option value (willingness to pay so that the option for personal use is maintained) (Vickerman 1988).

Alternative types of valuation, such as spiritual value, aesthetic value, ecological value, and intrinsic value highlight the importance of considering other than economic valuation when quantifying the value of natural resources. The true value of ecotourism may not be realized until many forms of alternative economic and non-economic valuation are employed.

Economic valuation as a primary criteria to judge worth should be used cautiously. Economic value of resources fluctuate dramatically on very short time scales, occasionally on the order of days (Adamowicz pers com.). For example, the value of many minerals such as copper and iron has undergone tremendous fluctuation in economic value over a very short time scale (Adamowicz pers com.). This implies a risk in economic valuation, especially for appreciative resource use, which may not maintain economic status from competition for resource use, under fluctuating competitive economic valuation systems and traditional methods of valuation.

2. Importance of Ecotourism and Wildlife Viewing

The importance of this study is highlighted by the popularity and economic value of wildlife viewing. Wildlife viewing activities represent the most prevalent use of wildlife in North America (Filion et al. 1993; U.S. Fish and Wildlife Service 1993). In 1981, 66.8% of Canadians (Filion et al. 1983), and 54.9% of Americans (Shaw and Mangun 1984) participated in non-consumptive wildlife activities such as bird watching, in and around their homes (residential activity). In 1981, 13% of

Canadians went on trips expressly to view wildlife, whereas 9.8% went on hunting trips (Filion et al. 1983). In Alberta about 80% of the population participated in activities related to wildlife viewing in 1991 (Filion et al. 1993) and 40% participated in bird watching activities in 1990 (Manecon Partnership 1991). High levels of involvement are expected to continue into the 21st century (Filion et al. 1992).

Ecotourism (Boo 1990) and wildlife viewing (Wiedner and Kerlinger 1990) have provided incentives for conservation among local residents, tourists and policy makers alike. To be more responsive to the wants of recreationists, recreation and tourism agencies are increasingly diversifying their offering of recreation activities to include wildlife viewing (Scace et al. 1991). As ecotourism development increases, attention must be paid to the wants and needs of wildlife-viewing recreationists, to the attitudes of locals impacted by development, and to the management of landscapes integral to ecotourism.

Bird watchers are a large group of wildlife users in North America, and bird watching is a fast growing recreation activity providing economic incentives for preservation and conservation (Scofield 1978; Harrison 1979; Butler and Fenton 1987). Estimates of participation in bird watching in the United States now exceed 61 million (Hall and O'Leary 1989). Providing opportunities for these growing ranks of tourists will be essential for effective delivery of ecotourism. Further, addressing the needs of birders and hosts will be important for future wildlife conservation since they constitute an important economic and political force for conservation.

Statistics quantifying the popularity of ecotourism, and the direct and indirect expenditures from ecotourists have become a component of arguments advocating preservation /conservation of natural resources. However, because there are no universally accepted techniques to quantify the economic value of ecotourism, consistency among statistics is low. Thus, although the precision of ecotourism economic accounting techniques leaves something to be desired, they nonetheless are accurate in demonstrating that ecotourism has considerable economic value.

Research has revealed high popularity of, and high economic value of, wildlife to Canadians (Filion et al. 1983; Jacquemot and Filion 1987). Filion (1988) found that non-consumptive wildlife use, particularly bird watching, contributes substantially to the Canadian economy. Among Canadians, Albertans participate more and spend more money on wildlife viewing than the average Canadian (Manecon Partnership 1991). Filion et al. (1981) found that 19.4% of Canadians

participated in primary non-consumptive wildlife activities, spending $2.1 billion in the process.

Public support for maintaining abundant wildlife and preserving endangered wildlife has increased from 80.0% in 1981 to 83.3% in 1987. Of particular interest is the amount of time and number and amount of expenditures individuals have devoted to non-consumptive wildlife-related activities. From 1981 to 1987 the number of person-days spent on primary non consumptive trips increased from 56.8 million to 74.4 million.

Results of these surveys have led many wildlife, tourism, development and natural resource management agencies to re-examine their policies and programs to include ecotourism (Manecon Partnership 1991). For example, Alberta Tourism is now actively encouraging ecotourism development.

In Alberta, two major studies have been completed which document the economic, cultural and environmental importance of wildlife and wildlife viewing, and which address wildlife tourism goals (HLA Consultants 1990; Manecon Partnership 1991). These studies suggest that:

1. Albertans want a strong commitment from government to resource protection and management if wildlife viewing is developed and promoted on a sustainable basis.

2. Albertans, particularly in the southern part of the province, want an improved supply of, and access to, public lands supporting a diversity of viewable wildlife.

3. Alberta Tourism should have an expanded role in land-use planning, particularly as it relates to travel routes, tourism resources and protected areas.

4. Since non-resident tourists will demand a high level of expertise and service from wildlife tourism operators, Alberta Tourism should assume primary responsibility in fostering high standards and skills in the industry.

The 1991 Alberta Resident Watchable Wildlife User Survey (Manecon Partnership 1991) was conducted to determine resident preferences and impediments to wildlife viewing and to detail some related socio-economic benefits. Based on participant activities in 1990, some highlights include:
1. Ninety-six percent of Albertans participated, at least incidentally, in various forms of wildlife viewing and appreciation, while 64% participated in a direct and

purposeful way through activities at home or by taking trips for the specific purpose of viewing wildlife in the outdoors.

2. An estimated $350 million was spent on equipment (binoculars, cameras, film, bird feeders, etc.) to aid Albertans' wildlife-viewing activities and an additional $583 million was spent for expenses related to wildlife viewing trips including transportation, accommodation, food and souvenirs. Total expenditures for wildlife viewing ($933 million) is fast approaching a billion dollar a year industry in Alberta.

3. Among 11 selected outdoor recreation leisure activities in Alberta, wildlife viewing was ranked fourth in popularity.

C. Perspectives on Rural Economic Development Patterns

1. Introduction

Many rural areas have narrow economies dependent on producing, extracting, and exporting natural resources (Detomasi and Gartrell 1984). According to many researchers, these areas often are effected by a host of economic, social, and environmental dilemmas symptomatic of rural decline and regional economic disparity (Bradbury 1980; Bowles 1982; Jean 1990; Haigh and Kisko 1992; Haigh and Murri 1992) . These dilemmas include:

1. economic domination by urban areas.
2. narrow-based natural resource-dependent (single industry) economic frameworks.
3. emigration and loss of intellectual and creative diversity.
4. federal and provincial development policies based on capital and technology-intensive development.
5. local effects (narrowing cost/price ratios, increasing debt load, etc.) of global economic restructuring on natural resource exports.

Many rural areas are declining because of narrow economic frameworks and are in need of economic diversification (Haigh and Murri 1992). It is the opinion of this author that ecotourism is one avenue offering economic diversification potential to rural areas because it has some components which rural sociologists and economists equate with rural stability. If not always in practice, then in theory it is: small scale; non-capital intensive; has few infrastructure requirements; provides incentives for resource conservation; or may be partly locally owned and operated.

As mentioned in the introduction, consulting citizen attitudes towards new economic development is increasingly considered an integral component of development planning. Research on attitudes of citizens toward current and future economic conditions has been too long overlooked (Arnstein 1969). Rural areas, rather than being involved in economic decision making, have been led by urban economic priorities (Bradbury 1980; Bowles 1982). If rural citizens are to have a voice in their economic destiny, it is important to first gain an understanding of citizen attitudes toward economic development options. Rural areas have recently been dramatically restructured by changes in rural development policy favoring large-scale, extra-locally owned and operated, capital intensive, and non labour intensive primary and secondary resource industries (Haigh and Kisko 1992;

Haigh and Murri 1992). An understanding of rural attitudes toward economic development options may be an essential step, though ordinarily overlooked, in stemming rural decline.

In Canada, relatively small scale and locally owned primary and secondary natural resource exports were historically the bulwark of economic development (Bowles 1982). Economic and social life in rural areas has been shaped by extraction and export of raw or minimally processed natural resources. This trend began with the fur trade and was followed by agriculture, energy and forestry. Communities were established in resource-rich areas, and quickly became dependent upon them. Many communities were consciously created as tools or instruments to aid in particular economic projects (Bowles 1982). Communities which rely on single or limited resource industries continually face the risk of losing their major source of income. Resource dependent communities are an integral part of Canada's cultural and economic heritage and will continue to be for the indefinite future. Yet many of these communities may increasingly suffer from cyclical economies, social upheaval, and resource exhaustion because of the development emphasis on increasingly large-scale, mechanized, and non-labour intensive resource extraction (Canadian Agricultural and Rural Restructuring Group (CARRP) 1989). Concomitantly, the ramifications of global economic restructuring is compounding the complexity of rural disparity (CARRP 1989). At issue among researchers investigating rural development is what the future foretells resource-dependent communities, and whether anything can be done to ameliorate rural economic trends (Copithorne 1979). It is the opinion of this author that an essential component of re-defining rural development is developing an understanding of rural attitudes toward economic development. This may contribute towards bringing rural concerns to the forefront of economic decision making.

In years ahead, trends toward urbanization and mechanized resource extraction are predicted to continue, associated with further declines in rural population and rural economic and social vitality (Detomasi and Gartrell 1984). Public policy to improve rural incomes, reduce rural/urban income disparity, and stabilize rural economies in general has been slanted towards improvement of the physical resource base (Detomasi and Gartrell 1984). This has occurred via large-scale non-locally controlled development rather than towards strengthening rural economic diversity and human resource bases (Haigh and Murri 1992). Investment in large-scale, capital and technology-intensive development, labor substitution and extra-locally controlled resource development represents what many consider

misdirected development policy for rural areas (Haigh and Kisko 1992; Haigh and Murri 1992).

2. Characteristics of Resource Dependent Communities

One of the most predictable global trends is urbanization (Haigh and Murri 1992). Associated with this trend toward urbanization is increased regional disparity manifested by economic domination by select urban centers over their rural hinterland (Haigh and Murri 1992).

Urban economic policies guide, and have come to dominate rural development strategies (Haigh and Murri 1992). Development policies have spawned massive rural out-migration. Not all rural areas are so affected, but those not capable of adopting more urban economic strategies are currently, or soon may be, experiencing rural decline. While resource industries remain a major, though shrinking contributor to gross domestic productivity (GDP) in Canada (agriculture = 30%; forestry 10%) their capacity as employer has decreased dramatically (agriculture = 4%; forestry 2%) (Jean 1990). However, GDP reflects but does not indicate the economic value of primary industries (Jean 1990). Rather, international market prices have a more significant effect on market equilibrium (Ironside 1990). Resource industries no longer are able to support local communities as a result of cost-price squeezes, debt loads and labour substitution (Bowles 1982). Rural decline reflects a long-term trend within resource industries toward globalization, and is manifested by mechanization, labor substitution, and increased efficiency (Haigh and Kisko 1992).

Many rural areas have economies dominated by agriculture, forestry, and energy, with other sectors varying in significance by region. Many "prairie" province communities are resource dependent (Fletcher et al. 1991). These communities have economic limitations which are largely absent in more diverse urban economies (Jean 1990).

Socio-economic trends, adapted from Jean (1990), in rural areas include 1) a decrease in population and loss of diversification of occupational structure of rural sectors, 2) a tendency to improve only one form of production (using capital-intensive, specialized, mechanized and productive techniques), and 3) the creation of large processing and marketing plants leaving ownership and profit in the hands of large cooperatives or multinationals often located non-locally.

Canada has urbanized dramatically. Thirty-five percent of Canada's population was urban in 1901; today the figure is 85% (Jean 1990). This out-

migration has seriously affected the quality of life in rural regions. Out-migration has contributed more than any other factor to an aging rural population, associated tax inequities, reduced levels of education, skill training, and a host of service and infrastructure limitations, and lack of new economic opportunities (Bowles 1982) (the remainder of this paragraph is adapted from Bowles 1982). Out-migration drains rural areas of many younger people, who leave in search of better employment. Leading urban economic centers are consolidating their power into fewer centers, resulting in escalating disparity between them and smaller urban centers and rural areas. Government transfer payments for equalization of rural areas have proved only marginally successful in reducing economic disparities in the short-term, and have only entrenched long-term disparity. Economic health increases with urbanization, a fact many rural communities are reluctant, yet forced to accept.

The above points obscure the fact, suggest Haigh and Murri (1992), that rural problems can be the product of both poverty and prosperity. Paradoxically, the past success of agriculture and other resource industries has contributed to rural decline. Success in these industries has resulted in 1) supply exceeding demand, 2) a consequent devaluation of prices, 3) replacement of capital and technology for labor to increase efficiency, 4) a shortened industrial life span from the circular effects of increasing competition, and 5) increasing mobility providing the means for drawing people away (Haigh and Murri 1992).

3. Trends in Rural Economies

Much evidence exists on the symptoms of rural decline (Bradbury 1980; Bowles 1982; Jean 1990; Haigh and Kisko 1992; Haigh and Murri 1992) . Rarely however, is a theoretical analysis provided of the structural conditions in which the social and economic problems of resource dependency are generated (Bradbury 1980; Detomassi and Gartrell 1984).

The following paragraph is adapted from Detomassi and Gartrell (1984) who suggested that the energy crisis, beginning in 1973, and protectionist trade policies, in conjunction with global competition from developing countries, stimulated the planning and construction of large-scale energy and resource development projects in rural areas. These development projects have important implications (social, economic, environmental, and political) for the communities and regions in which they occur. They may lead to both short-term, rapid population increase and long-term out-migration, though little in the way of stability

or sense of community. Until recently, increasing control of economic decision-making by multi-nationals was largely overlooked as a determining factor in rural economic stability.

The following paragraph is adapted from Bradbury (1979) who suggested that rural economic structural problems must be reviewed by addressing theories of capital accumulation, global economic restructuring, and policies of uneven development. He suggested that a theory of resource dependency is itself dependent upon understanding the process and context of capital accumulation and uneven development policy. Only then is it possible to see the historical reasons for rural decline. Three forces are inherent in urban/hinterland competition. These are the dominant role of the state as a legitimator of corporate activity, the role of corporate capital accumulation operating under the auspices of competitive market economies, and the role of increasing investment and capital as the driving forces controlling state and corporate economic strength. Only recently have urban areas provided fertile ground for maximizing capital accumulation, and minimizing competition. Now, economic necessity dictates that industry abandon its historic rural and small urban center stronghold. Such out-migration manifests itself in long-term rural out-migration and decline.

Bowles (1982), suggested that Federal and Provincial government rural development policy and strategy has fostered an image of rural equated with autonomy and self-sufficiency, and is grounded in idealism of capitalistic, market-oriented, competitive economics. Yet this system is foreign to rural areas and has little chance of success because of urban competition. Most rural areas are linked to, and shaped by, the economic strength of urban areas. As Canada relies heavily on extraction and export of staples, many rural areas are tools to aid urban economies who control the use of these resources (Detomasi and Gartrell 1984).

The following paragraph is adapted from Haigh and Gill (1992). The urban equation of autonomy and self-sufficiency has not worked well in rural areas because these economies of scale can not compete. Economic development programs in Canada have clustered around five main economic sectors. Resource extraction, the manufacturing industry, recreation and tourism, retirement, and the decentralization of government have all been utilized for rural development programs, with the bulwark falling on resource extraction. In rural northern Alberta, resource extraction (including agriculture) and decentralization of government are the primary economic sectors (Detomasi 1986).

The following two paragraphs are adapted from Haigh and Murri (1992). Discussions of rural development have focused on modernization, industrialization, urbanization, and bureaucratization. The tendency has been to assume that all these processes occur together, at the same rate, regardless of place. The reality, however, is that rural places change at different rates. Rural residence has important consequences for daily experiences which are profoundly different from urban. To miss this insight is to miss an important distinction which justifiably separates the types of development mechanisms which are proper for rural versus urban places. As such, to understand development, one must identify within the local area the structural consequences of broad economic and social patterns operating at a societal level.

One such structural pattern inherent in most rural resource dependent areas is the prevalence of episodic rather than secular development. This suggests that development in rural areas does not progress through a natural formative process but rather bursts into existence with the appearance of large new natural resource industries. Many argue that this pattern does not represent true development, but only growth, and is characteristic of nearly all rural resource developments (Bradbury 1980; Bowles 1982; Haigh and Kisko 1992). Such episodic growth has dramatic negative consequences on the quality and quantity of rural life, regardless whether such "development" results in economic prosperity or poverty.

Contrary to popular belief, Copithorne (1979) suggested that whether a region has natural resources is not a significant factor in rural economic development and stability. The following two paragraphs are adapted from Copithorne (1979). Natural resource sectors are not leading economic sectors. It is a myth that natural resource developments result in economic windfalls for other than extra-local development power-holders, and select community stock-holders. Rather, it is the nature of economic development agendas, industry domination of government development policy, and the nature and rate of resource use that is a problem. Copithorne (1979) suggested another myth -- that natural resource sectors have long been held to be creators of rural employment. He suggests that policy makers do not understand how natural resources have their impact on economy. They look to natural resource sectors for things they cannot do. Labour, wage rates and employment are determined predominantly by non-primary sectors (smaller scale sectors, especially those that manufacture goods rather than ship primary and secondary [unfinished] products) rather than by primary. Thus, resource development is far from optimal as a strategy for rural stability.

As urban incomes continue to rise, natural resources have been a declining component of final demand in the Canadian economy, resulting in more direct pressure from international markets. Decline in smaller scale, resource-based industries reflects a shift in the economic strength of these industries and in the areas that depend on them economically. It reflects a fundamental restructuring of rural economies and of the role they will play in the future. These changes, however more pronounced in rural economies, are also prevalent in urban economies because of global economic restructuring. The changes in urban economies toward ever increasing competition, efficiency, and capital accumulation has a reciprocal effect on the rural economies they control, further compounding the complexity of the rural dilemma.

In summary the ideal economic development strategy for rural areas is one which generally promotes a stable, diversified economy based on small scale locally owned and operated, labour intensive industries. Further, quality of life concerns must be weighed carefully against the urban strategy of rapid capital accumulation, efficiency and autonomy. Ecotourism and, especially, manufacturing may be ideal development strategies for select rural areas.

D. Importance of Attitudinal Research

From a practical perspective, attitudes and knowledge were selected for measurement because there is an extensive literature on attitude, perception and knowledge measurement offering a range of measurement methodologies, which are fairly simple to apply (Dawes 1972).

Academic research opportunities in the area of attitudinal research have arisen as a result of three parallel developments (Jackson 1987). First, in the universities there is a growing emphasis on understanding behavioral aspects of human use of natural environments. Second, in both government and industry there is a growing recognition of the need to better understand public preferences and incorporate these preferences into development and environment management strategies. Third, among the citizenry there is a growing demand for participation and consultation regarding development and natural resource utilization. Academics have taken advantage of these circumstances and introduced attitude studies as a method of improving the assessment of citizen preference. Development programs have traditionally been insensitive to the attitudes and knowledge of citizenry (Ahmed 1984). These studies may provide useful data to allow citizens to become more involved in development planning

processes, and, through such involvement and awareness, to hold government and industry decision makers accountable to citizens through more thoughtful consideration of citizen attitudes and preferences.

Little research has been conducted on assessing a) attitudes of citizens prior to economic development such as tourism (Ahmed 1984); and b) local attitudes toward the effects of tourism on economic and social development (Boo 1990). Tourism is being developed in rural northern areas in Canada, yet little is known of the attitudes of the people who may host, and benefit from, such activities (Liu and Var 1986, 1987; Hough 1987; Zube 1990). Similarly, Shaw and Zube (1980), have drawn attention to the paucity of research on psychological, social, economic and ecological values regarding wildlife and natural environments. Knowledge about these values is required for adequate environmental decision-making. Wildlife and natural resource management agencies across Canada must recognize the need to better understand the nature, extent and importance of interaction between wildlife, economic development and recreation trends.

Hendee and Schoenfeld (1973) also support the need for basic human behavioral research in relation to natural resource development. Wildlife management and other areas of natural resource management are in large part people management. It is important to understand human attitudes and knowledge because they are intimately related to understanding changes in human behavior toward the natural environment.

Ecotourism development often results in improved local economic conditions and improved integrated resource management from resource conservation and preservation incentives (Scace et al. 1991). However, ecotourism also has been less than maximally successful in the above mentioned areas because of lack of consultation and negotiation with local communities. Some researchers conjecture that failure of ecotourism developments to live up to ethical ideals (as developed by The Ecotourism Society 1992) has been partly a result of lack of understanding of attitudes of local residents and tourists prior to development (Liu and Var 1986, 1987).

1. Attitudes and Knowledge

a. Definitions

It is the purpose of this section to explore definitions and theoretical aspects of attitudes, knowledge, and related socio-psychological terms. Although this thesis is attitudinally based, it is important to discuss inter-relationships between the above socio-psychological terms so that attitudes can be put in appropriate context. Differences between perception, values, knowledge, attitudes, beliefs, and opinions are subtle and may be argued to be one of scale, intensity, and degree along a socio-psychological continuum. Along this continuum, perception and resultant values are most general, and opinions are most specific. Attitudes were selected for measurement in this study because they are one of the most specific socio-psychological factors, yet are more enduring, and, therefore, measurable, than other specific factors such as opinions.

Although there is considerable overlap in meanings of the above socio-psychological factors, important distinctions do exist. However, prior to discussing definitions, it is imperative to review select aspects of related social theory. Attitudes, perceptions, values, and knowledge are formed as a result of the process of socialization (leading to the development of world view and the formation of identity) - the process through which the human mind and identity is developed.

World view is the result of the process by which individuals perceive, integrate and understand information about the world around them (socialization) (Sherif 1965; Rokeach 1968). The features of an individual's socialization process are directly related to the features and functions of their beliefs. Beliefs form as the results of the socialization process. The development of world view, then, is a function of three categories of social organization. These categories are society, community and self (identity). Each of these categories has profound effects on interaction. Socialization is the result of an individual's understanding of the way societies, communities and individuals react to one another, through observation of others within these social strata, and how individuals perceive themselves in the eyes of others. Thus social groups are the dominant factor involved in determining identity and feelings. It follows that values, attitudes, opinions and knowledge are determined by the larger process of socialization. The relevance of the adages "we perceive ourselves according to how others perceive us" becomes readily apparent upon consideration of socialization theory.

Perception helps individuals organize information and fit it into components of the above-mentioned socio-psychological continuum including values, attitudes, beliefs and opinions, leading to the very general idea or feeling about a class of related subjects. Perceptions are innate organizing principles upon which ideas and thoughts are structured; they are processes or acts or the result of understanding, or becoming aware of, something directly through the senses (Leukel 1976). Leukel (1976) describes perception as the development of meaning resulting from past and present sensory input.

Values determine attitudes, are hierarchical, and reveal the importance of a subject to a person (Witter 1980; Hastings and Hammitt 1986). Attitudes represent underlying value systems (Allport 1935). Values determine attitudes and are strong and relatively unchangeable (Allport 1935). Values are involved with establishing priorities and evaluating the relative importance between two objects, processes or situations (Allport 1935).

Opinions are similar to attitudes but are more changeable and free of emotional components (Hovland, Janis and Kelley 1953). Opinions are cognitive reactions to an object or event as opposed to attitudes, which are distinguished by their motivational or drive factors.

Attitudes were chosen for measurement in this study for both analytical and practical reasons. Analytically, attitudes are more specific than values and other socio-psychological factors, save opinions. Though attitudes are less specific than opinions, they are more enduring and therefore more accurately reflect reality (Dawes 1972).

Rokeach (1968) suggested that individuals hold more attitudes than opinions and values, and that attitudes are relatively specific and enduring, thus making attitudes more accessible and more measurable. Clusters of related attitudes are generally defined as being plastic and of a general nature, and form the basis of value structures from which evaluations about life's experiences are formed. Although values may be more enduring within individuals than attitudes, attitudes are still considered sufficiently enduring to be measured. However, Rokeach (1968) cautions that accurate measures of attitudes may be difficult to obtain because of the interplay between attitude-toward-object and attitude-toward-situation. Nonetheless, with this disclaimer in mind, attitudes were selected as the focal area of measurement for this study, with knowledge being measured where appropriate.

Attitudes generally refer to "an affect or a preparedness to respond in a certain way toward a social object or phenomenon.....moreover an attitude involves some evaluative component" -- that is, affect is for or against, preparedness is to accept or

reject (Dawes 1972: 137). It follows then that techniques meant to measure attitudes generally require an individual to respond in a positive or negative manner to a social object (Dawes 1972). An attitude is defined as: "A predisposition towards some object includes one's beliefs, feelings, and behavior tendencies concerning the object" (Gold 1980: 35). An "object" can be a thing, place, person, or concept in either the social or the physical environment (Gold 1980). Attitudes can be considered as a particular disposition, state of mind, or feeling with regard to an individual or cluster of related subjects, and an inclination to act in a certain way (Allport 1935). Boem (1970) defined attitudes as likes and dislikes. Moore (1983) and Zanden (1984) defined attitudes as a learned predisposition to respond in a consistently favorable or unfavorable manner to an object.

In addition to attitudes, the other socio-psychological factor measured was knowledge. Knowledge can be considered the sum or range of factual information absorbed by an individual (Hastings and Hammitt 1986). Thus, information leading to knowledge is the sum total of attitudes, perceptions, values and behavior, often giving an individual motivation to act one way or another. Knowledge measurement is a widely used, if controversial, cognitive assessment technique (Maw 1989; Dolsen 1986). There is much theoretical debate about the role of knowledge in attitudes formation, and, consequently, the reliability of predicting attitudes and behavior from knowledge. However, knowledge level has been speculated by some to be a reliable indicator of attitudes (Dolsen 1986; Maw 1989).

An individual's level of knowledge about an object, event or place has been speculated to have a direct correlation with their attitude toward the same object, event or place (Dolsen 1986; Maw 1989). Maw (1989) suggested that park visitors with higher levels of knowledge about bears and higher affective or emotional connections to bears were less likely to get into conflict situations.

Community-based themes of expression were measured as a sub-theme of attitudes and knowledge. Themes in public artwork and library material were measured as an indicator of attitudes and knowledge, although there is no direct evidence to support this premise. These themes may be related to knowledge level, attitudes and other socio-psychological factors. Therefore, the thematic expression of art and library material can be related, in a very general way, to broad scale community attitudes about an object, event or place. Research on such visual and cognitive indicators can be considered an extension of studying citizen's attitudes. For example, in a very general sense, the level at which themes of local significance, such as wildlife and natural history, are expressed in public artwork and library collections

may be indicative of citizens' attitudes toward local wildlife and natural history. However, when traveling through communities which celebrate the conservation and preservation of natural resources, this author has observed that artwork tends to be reflective of this appreciation. The Alberta communities of McLennan and Jasper both display considerable artwork depicting local natural history themes to the public. For the purpose of this study, analysis of themes expressed through artwork and library material is termed "Thematic Visibility Index." Certainly, many other community-based themes of expression could also be measured, such as the town of High Level's forestry theme. Artwork is just one particularly poignant theme which also has a significant impact on visitors because public artwork is so visible within a community.

In this thesis attitudes are termed parochial when they are narrow or restricted in scope. Parochial attitudes are extremely relevant to attitudinal studies. Parochialism (as defined in this thesis) results from superficial familiarity with an object such as a landscape, resulting in a general lack of appreciation for special, unique, or otherwise attractive or appealing qualities. Attitudes can become particularly strong when they have formed over time and are deeply ingrained through social group and ego identity processes (Proshansky and Seidenberg 1965). This highlights the role of normative group influences on the strength and direction of attitudes.

According to this theory, normative group influences in the study area will be strongly influenced by social groups and their normative processes which in turn are strongly influenced by employment (Proshansky and Seidenberg 1965; Triandis 1971). In the study area, forestry and agriculture are the dominant employers. However, it is the opinion of this author that unlike most occupations, forestry and agriculture also serve as lifestyles, providing employees with a strong industry specific social system. Thus, attitudes which characterize these industries may also be closely associated with personal and social group identity. Because attitudes prevalent within these industries are focused on extraction and consumption of resources, this author speculates that attitudes favoring appreciative resource use may be inconsistent with maintaining cohesion among employees. Given these unsubstantiated assumptions, parochialism may be a dominant factor shaping attitudes toward resource utility.

As a result of parochialism, attitudes are narrowed in scope, reinforcing parochialism in a circular fashion. The old adage "familiarity breeds contempt" is particularly relevant to developing an understanding of parochialism. If parochialism toward boreal landscapes and wildlife is a prevalent condition among study area residents, then an effort to change these attitudes becomes an important consideration for citizen involvement in land-use planning considerations, including ecotourism

development and improved integrated resource management. In the event that residents of the study area have developed attitudes toward boreal natural history that are not based upon knowledge, efforts to change them may meet with limited success.

b. Theory

Because attitude theory is encompassed by the broader category of belief theory, discussion and recommendations will also be grounded in reference to belief theory. However, although there are many similarities, important distinctions exist between attitudes and beliefs (LaHart 1978). Like an attitude, a belief is the information that a person has about a particular object or situation (LaHart and Barnes 1978). However, beliefs influence decision making but don't imply a tendency to act, whereas attitude does. Further, beliefs do not include negative/positive types of evaluations that are the basis of attitudes (Mihalic 1974).

A detailed review of attitude theory is presented because attitude measurement constitutes the major component of this study. Theoretical discussion of knowledge measurement, a lesser component of the study, is also presented. There are two approaches to analyzing and understanding attitudes: the functional and structural approaches (Pennington 1986). The former approach explains what attitudes do for individuals, while the latter approach explains what attitudes are.

The functional approach identifies four functions of attitudes: the adaptive, knowledge, self expressive and ego defensive functions. An adaptive function of an attitude directs the individual to attain that which will give satisfaction and avoid that which is unpleasant. The knowledge function of an attitude helps the individual to order and classify information received through cognition, thereby making aspects of the external world more understandable. Through the self-expressive function of an attitude, individuals gain self-worth by expressing themselves in a social context. By expressing attitudes, individuals demonstrate their worth and gain esteem through positive feedback. The ego-defensive function of an attitude allows individuals to cope with their own unpleasant or uncharacteristic behavior to maintain self-worth. Together, these four functions of an attitude "help a person to mediate between the inner demands of self and the outside world" (Pennington 1986: 62).

In this study, the structural approach was used to measure attitudes. Structuralists argue that attitudes consist of cognitive, affective and conative (behavioral) components. An individual becomes aware of an object through cognition. The individual evaluates the object and develops an affect or inclination

toward it. Based on this affect, the individual is then predisposed to behave in certain ways in relation to the object; this is the conative (behavioral) component.

However, the conative, or behavioral, component of an attitude is considered to be the problematic characteristic. From a survey of attitude literature, Allport (1935: 8) concluded that researchers considered the conative component to be the "essential element" of an attitude because of its contribution to behavior. Attitude and social psychology researchers have tried to examine and measure the attitude and the behavior that results from the individual holding the attitude. Establishing a causal relationship between attitude and behavior would mean that it is possible to change behavior by changing attitudes. It has, however, been difficult to establish this relationship (Gold 1980).

An attitude about a particular subject may or may not lead to consistent behavior. Behavior only occurs when a sufficient attitudinal intensity has been reached, the behavior is socially desirable, and an opportunity occurs for its expression. The confusion about the relationship between attitudes and behavior is probably a result of a lack of research attempting to predict behavior from knowledge or attitude (Kliejnas 1969). Reliable predictions of behavior are possible, but only when based on attitudes that are well formed.

Attitudes are held to have two characteristics which affect their relationship with behavior: intensity and direction (Krech, Crutchfield, and Ballachey 1962). An attitude may be strong or weak, positive or negative. An individual with a weak negative attitude toward an object will behave differently in relation to the object than an individual with a strong, positive attitude toward the same object. These two characteristics have provided a framework for methodologies to work from in constructing attitude measurement schemes. Strong attitudes usually result in the expression of a predictable behavior (especially when an opportunity arises for its expression). Such an attitude is considered resistant to change. Those attitudes which are formed around basic needs such as food, shelter and companionship are especially resistant to change (Maslow 1970).

Favorable attitudes develop toward objects and events that satisfy needs and wants. Unfavorable attitudes develop toward objects that do not satisfy needs and wants (Krech, Crutchfield, and Ballachey 1962). Many attitudes can be traced to the influence of social groups and the immediate award potential of holding attitudes that are consistent with social group norms. Krech, Crutchfield and Ballachey (1962), suggest that attitudes consist of 4 components:

1) Attitudes develop in the process of want satisfaction.

2) The group affiliations are intimately involved in the formation of attitudes.
3) Attitudes are shaped by exposure to information.
4) Attitudes are reflective of personality.

The purpose of the attitudinal component of this study was to investigate relationships between, and strength and direction of, attitudes toward ecotourism of groups of individuals. Further, the study investigated their willingness to accept ecotourism as a form of economic diversification, and to attempt to identify causal factors which may have contributed to the development of these attitudes. The emphasis of this study is, therefore, on the structural rather than the functional approach, because the structural approach deals with attitude-behavior relationships.

Most attitudinal change studies use a longitudinal (measuring change over time) study design. In this study, attitudes were measured at only one point in time to try to measure whether an individual has a predisposition to act in a certain way. Because attitudes differ in intensity, it is common to measure attitudes using a scale of intensity, such as the Likert scaling technique.

The Likert Scale measurement technique used for this study measures only the affective component of attitudes. However, both quantitative (Likert Scale) and qualitative (open-ended) techniques are used to more completely measure the affective component of attitudes. Since the scales do not measure the conative component, inferences about the influence of attitudes on behavior, such as an individual's decision to accept or reject ecotourism, are made with caution. Further, researchers have suggested that an investigation using an attitude measurement scale will achieve limited success at best: "in forcing attitudes into a scale form, violence is necessarily done to the unique structure of man's mind" (Gold 1980: 25). Conveniently compartmentalizing the meaning of complex attitudes into positive and negative orientations toward an object or issue under study may be a gross oversimplification and generalization. Attitude scales are a rough approximation of the way in which attitudes actually exist. The relationship between attitudes and behavior is complex with few direct cause and effect relationships.

The drive value of attitudes is suggested to result in behavior that is consistent with attitudes. However, social forces may affect the behavioral manifestation of attitudes depending on their social desirability. The connection between attitudes and behavior is a complicated one with few direct cause and effect relationships (Kellert 1980b). Attitudes are said to be consistent with overt behavior when a sufficient attitudinal intensity has been reached, the behavior is socially desirable, and an opportunity arises for its expression.

Attitude formation and behavior modification through knowledge acquisition are important components of development policies (Hendee 1972). However, much research suggests that this assumption amounts to folklore, because little empirical evidence exists to support such a claim (Wicker 1969; Hendee 1972; Burrus-Bammel 1978). Nonetheless, many researchers support the premise that knowledge acquisition and experience may effect attitudes and behavior (Swan 1977; R. Butler 1980). The claim given in support of the connection between attitude and knowledge is that few studies have attempted to predict behavior from both the cognitive and affective dimensions of knowledge. Most studies rely exclusively on cognitive indicators. Thus, support for a causal relationship between knowledge and behavior is contingent upon the prerequisite that the information provided transcends knowledge acquisition to include affective dimensions such as development of emotional and spiritual ties to wildlife, for example, through respect, common concern and recognition of intrinsic value inherent in other life forms (Kellert 1983). Thus, changing attitudes cognitively through knowledge acquisition may be met with limited success without also developing emotional feeling or concern about the issue that results in a feeling that the individual can resolve the issue (Swan 1977; R. Butler 1980).

2. Belief Theory and Attitude Centrality

Consideration of socio-psychological factors regarding attitude change processes are essential for developing an understanding of attitude formation, attitude change and the role of individual and group identity in attitude centrality. In this section, consideration will be given to the following questions:

1. How do attitudes change?
2. What is the relationship between attitude change and behavior change?
3. What is the feasibility of attitude change given what is known about positive/negative and weak/strong attitudes' resistance to change and the power of social cohesion of population segments in maintaining sets of attitude.

Because attitude theory is encompassed by the broader category of belief theory, it is necessary to understand beliefs. Attitudes and beliefs are very similar except that attitudes imply a tendency to act. Because this "tendency to act" component of attitudes is not relevant to this discussion (see below), attitudes and beliefs will be considered interchangeable for sake of clarity. Three common assumptions of belief theory are presented (Rokeach 1968).

1. Not all beliefs are equally important to an individual.
2. The more central a belief, the more resistant it is to change.

3. Central beliefs have widespread effects on the rest of the belief system.

An important consideration is by what criteria does one decide which beliefs are central and important and which ones are less so? Certain beliefs play a more powerful role than others in forming attitudes and behavior, and these beliefs may be more resistant to change. Thus, although certain beliefs may be changed, it is vital to consider which beliefs, if changed, will result in a change in behavior. Sherif (1965) developed a conceptual approach to analyzing variations in the importance of a belief, defining variations in attitude importance in relation to ego-involvement. He assumed that variations in ego-involvement are manifested by rejection or membership in a social group committed to an issue. However, Kliejnas (1969) defined an attitude in relation to it's centrality and the number of other concepts dependent on it. He also stipulated that the importance of beliefs and attitudes depends on the extent to which they are perceived to be instrumental to an individual's values. The centrality of an attitude may be dependent upon social group cohesion, synergies between attitudes, and the instrumental importance of attitudes to an individual's values (Kliejnas 1969). Synergies can have compounding effects on attitude strength and centrality. For example, several strong negative attitudes toward ecotourism and appreciative resource use may reinforce one another resulting in compounded negativity. Thus, understanding the basis of attitudes toward ecotourism and the potential for attitude change may involve consideration of a complex array of factors.

One commonalty among the differing conceptualizations of an attitude's centrality is its relationship to other attitudes. The more implications and consequences it has for other attitudes and the more the attitude is shared with others within a social group, the more central the attitude, and the more resistant it is to change (Kliejnas 1969). Existential attitudes concerning a person's identity in the physical and social world are considered to have more connections and consequences for other attitudes than those attitudes that do not concern a person's identity. A change in an attitude, then, is a change in predisposition, meaning a change in the organization or structure of beliefs or a change in the hierarchy of belief organization (Rokeach 1968: 135).

Change in attitudes and behavior was not measured in this study. However, because a primary assumption of this study is that negative attitudes exist toward ecotourism where positive attitudes are desired, speculation about the centrality of certain attitudes and their level of resistance to change based upon the above mentioned belief theory is provided.

Attitude change has been attempted, and has often failed, by change agents for centuries (Triandis 1971). The cause of much of the failure to change attitudes is an over-simplification of motivation theory. A fact long ignored by change agents is that attitudes will only change if the new information received is consistent with underlying beliefs, assumptions and values and/or if there are social and ego rewards (such as improved standing in a social group) for attitude change (Triandis 1971).

The cognitive component of attitudes is easier to change than the affective. Many attitude change agents rely on trying to change the cognitive component and ignore the more important emotional component (McGuire 1957). Most frequently attitude change is attempted through acquisition of knowledge (McGuire 1957). Attitude change through knowledge acquisition may be successful if the attitudes are not strongly held, but if attitudes are strong (associated with basic needs such as food, water and shelter), even attempts at both cognitive and affective attitude change may be ineffectual.

E. Innovation Theory

1. Introduction

Because ecotourism would be an innovation development in the study area, it is appropriate to discuss the theory and process of innovation and adoption with implications for the perceived viability of ecotourism as an option for innovation in the study area. The application of innovation theory to this study will be of more theoretical than practical value because the innovation is hypothetical. Actual observations of innovation/adoption processes can not be made because ecotourism was not introduced. Rather, citizens were asked to respond to questions about the potential innovation. Innovation and adoption theory is applied to identify potential innovators, note how their attitudes differ from others, and to identify problem areas in the adoption process.

Attitudes about innovation can be quantified by analyzing how potential adopters perceive the characteristics of the innovation. These characteristics define the persuasion process and influence the establishment of attitudes which in turn formulate value systems. Innovation adoption/diffusion processes are beneficial in understanding whether innovators are present, who they are, and how their perceptions and attitudes toward the innovation differ from others. An understanding of these processes can be useful in scoping, planning and implementing innovative development techniques such as ecotourism.

This section gives an overview of adoption/diffusion theory as it applies to attitudes toward ecotourism.

2. Characteristics of Innovation

Rogers and Shoemaker (1971) identified five characteristics of innovation considered by an individual in the adoption process. Individual differentiation among the relative importance of these characteristics leads to different adoption rates:

1. Relative Advantage - the degree to which an innovation is perceived as better than the previous practice.
2. Compatibility - the degree to which the innovation is perceived to be consistent with existing values, past experiences, and needs of the receivers.

3. Complexity - the degree to which an innovation is perceived to be difficult to understand and use.
4. Trial Component - the degree to which an innovation may be experimented with on a limited basis.
5. Observability - the visibility of an innovation.

Muth and Hendee (1980) suggested that even when a decision to adopt an innovation is made by an individual, the diffusion process may be lengthy. Once an individual has learned about an innovation, such as ecotourism, and considered its adoption characteristics, they may proceed with rejection, or through the process of adoption stages. There are five steps in this adoption process: awareness, interest, evaluation, trial, and adoption or rejection (Rogers and Shoemaker 1971).

1. The awareness stage is when exposure of an individual to an innovation occurs. Mason (1967) found that mass media are used most at this stage.
2. The interest stage is when more information about an innovation is sought to increase understanding and make a judgment. This stage requires more detailed knowledge about an innovation. This information is mostly channeled by mass media.
3. The evaluation stage is when individuals undertake a theoretical simulation of applying an innovation, concomitantly balancing advantages and disadvantages. At this stage, personal contacts replace media as the primary information channel.
4. The trial stage is characterized by testing the functionality of an innovation in a low-risk environment. Interpersonal communication within the social system is the primary information channel at this stage. "Friends, neighbors, peers and government agents are consulted most frequently at this stage because detailed technical information is needed as well as reassurance that the technology has indeed worked for someone else" (Muth and Hendee 1980: 14).
5. The final stage, adoption or rejection, is based on an individual's satisfaction with trial use of an innovation.

Mason (1967) asserted that intelligent decision-making is based upon the individual's accumulation of relevant data prior to selection. Innovation decision-making is evaluated through knowledge of successful trial and peer review within

the social system. Thus, change agencies must provide a constant information flow, regardless of the stage achieved by the innovation in the adoption process.

Rogers and Shoemaker (1971) compared adopter distributions to the normal learning curve. They concluded that adopter distributions are expected to be normal in form, such that exposure and interaction with the new idea accumulates with each adoption. Based on the distribution of a sample under the standard bell curve, it was proposed that for the five adopter categories there is a tendency toward adoption of an innovation from the innovators and early adopters through the early and late majorities to the least innovative individuals of the population. Under the bell-shaped distribution, innovators comprise only 2.5% of the sample population.

Properties attributed to adopter categories allow for segmentation of the social system into distinct units of progression. Rogers and Shoemaker (1971) delineated specific characteristics and salient values at the adopter categories. While these characteristics depict a conceptualized spectrum of adopter categories, in reality there are difficulties establishing adopter stages. As with all theoretical classification systems, flexibility in the assignment of an individual to a conceptual category is inherent and cannot be avoided.

Rogers and Shoemaker (1971: 158) identified five major variables that determine an innovation's rate of adoption. In their paradigm they include:

1. "Perceived attributes of the innovation ... (including): ... relative advantage, compatibility (with previous behavior), complexity, ... (trial potential) ... and observability."
2. "Type of innovation-decision ... (either) ... optional, collective or authority."
3. "Communications channels ... (including): mass media and interpersonal."
4. "Nature of the social system .. (either) ... traditional or modern norms and the degree of communications integration."
5. "Extent of promotion efforts by change agents."

In summary, innovation and adoption processes have implications to ecotourism promotion strategies. Thus analysis of innovation adoption and diffusion characteristics and processes can be beneficial in terms of identifying potential innovators, providing a framework for assessing their attitudes towards the ecotourism innovation, and to identify problem areas in the adoption process. Further, an understanding of innovation characteristics and processes can be useful in determining the level of support for ecotourism, and in identifying strategies for scoping, planning and implementing it.

III. The Study

A. Purpose and Research Objectives

This study looked at the attitudes of 60 northern Alberta residents and 30 visiting tourists toward the viability of economic diversification through ecotourism development. Ecotourism based on viewing wildlife may be a source of economic development and diversification for the study area (which is currently characterized by extractive resource dependency). Assessing citizen attitudes toward ecotourism (Ahmed 1984; Liu and Var 1986,1987) with implications for citizen attitudes being incorporated into development planning processes and citizen education (Arnstein 1969; Pateman 1970) is considered by many a vital, yet often overlooked area of economic development planning . Attitudes toward ecotourism were examined to determine the level of support for this development innovation among local residents. The assumption made by this author is that the level of support is indicative of strategies for promotion/development which are sensitive to local issues and concerns.

Objectives

1. To identify, by means of personal interview, the attitudes and knowledge of select northern Alberta residents, general tourists and ecotourists regarding ecotourism development, economic diversification, and wildlife.

2. To determine if socio-economic and socio-demographic characteristics have implications for ecotourism development.

3. To assess results for implications to ecotourism planning and development strategies.

4. To assess results for implications to multiple-resource management, particularly recreation and tourism, forestry, and wildlife management.

5. To develop a conceptual framework for facilitating development of more positive attitudes towards ecotourism, wildlife, and boreal environments.

6. To develop survey methodology with potential transference to other regions.

1. Propositions

1. Residents have less positive attitudes than general tourists and ecotourists toward ecotourism as a potentially significant contributor to economic diversity, and more positive attitudes toward extractive resource use than general tourists and ecotourists.

2. Resident and tourist attitudes, and the attitudes of respondent groups (timber industry; agriculturists; tourism industry; general tourists; ecotourists; and natives) are different.

3. There is a correlation between themes presented in public artwork / library material and attitudes toward ecotourism, and knowledge of wildlife.

2. Rationale for Study Propositions

For reference, propositions are summarized prior to presentation of rationale.

Proposition 1. Study area residents have negative attitudes toward ecotourism.

Ecotourism may not be perceived as a significant contributor to economic diversity. Attitudes of residents of the study area may be biased toward extractive or consumptive use of natural resources. Residents may harbor less positive attitudes toward development that does not involve extractive resource use.

Attitudes favoring extractive resource use in the study area may be particularly resistant to change because the majority of residents are employed by timber and agriculture industries. Also, these occupations are thought of as lifestyles and thus are central to social group identity and ego. Thus, the old adage, "you are what you do," suggests that people whose livelihoods are perceived as threatened by opposing attitudes are likely to feel resistant toward advocates of change. These threats to self-worth strike at the core of self-concept resulting in attitudes (the expressive and ego-defensive functions of attitudes) that are resistant to change.

Expressive and ego-defensive beliefs are assumed to be central and resistant to change especially when they reflect basic survival needs for food and shelter. Further, attitudes favoring consumptive use of natural resources in the area may be grounded in historic consumptive patterns of use. It is the opinion of this author that because resources have historically been used consumptively, it may

be difficult for residents to accept non-consumptive resource use as being economically lucrative. Thus, attitudes toward non-consumptive resource utilization may be resistant to change.

Rokeach (1968), and Sherif (1965), suggested that central attitudes (attitudes based on basic needs such as food and shelter (Maslow 1970)) are resistant to change, especially if they have been reinforced through time.

Proposition 2. Resident and tourist attitudes toward ecotourism feasibility vary widely in accordance to population sectors as defined.

Residents from various respondent groups would be expected to have unique attitudes toward ecotourism. For example, the timber and agriculture groups rely on extracting resources (select forests) that ecotourism is dependent upon. Agriculturists cut forests down for agricultural expansion. Therefore, timber and agriculture would be expected to have less positive attitudes toward ecotourism than other respondent groups.

Proposition 3. Themes presented in public artwork and library material are reflective of attitudes toward and knowledge of ecotourism and wildlife.

Based on discussion with University of Alberta art historian Mike Mathenn, there exists much historical support for the thesis that if pride were taken by local residents in the natural history of the study area, themes representing this pride would be manifested in public artwork and library collections. Many cities celebrated for their artwork, including Rome and Paris, take great pride in their artistic heritage and celebrate it through public displays of artwork. Similarly, this author has observed that select towns in regions well-known for natural history appreciation, such as the Rocky Mountains community of Banff, and even McLennan, Alberta (noteworthy for birdwatching), reflect their pride in natural history through displays of public artwork with numerous references to local natural history.

To this author's knowledge, the claim that library materials may be reflective of citizen attitudes is unsubstantiated.

B. Study Area Description

Disclaimer: *Many of the NADC references cited in the following section (NADC 1981, 1984a, 1984b, 1985b, 1991a, 1991b, 1991c, 1991d, 1991e) are the unofficial results of NADC conferences and/or research projects where original sources of data where not cited. Therefore, unless otherwise noted, these references should be considered as scientifically unsubstantiated opinion and/or conjecture of the NADC.*

1. Physical and Social Description

The study area is in the Lower Peace Sub-region, Improvement District 23 (ID 23), and within the planning zone referred to as northern Alberta by the Northern Alberta Development Council (NADC) (Figure 2). Eight Communities, including 5 Native reserves, are within the study area. These include: the town of High Level, the hamlets of Fort Vermilion and La Crete, and communities on the following native reserves: Bushe, Boyer River, Beaver Ranch, Jean D'or, and Tall Cree. The study area covers 3,500 square kilometres adjacent to the Peace River and is bounded by highways 88, 697, 58 and 35. The landscape shows little relief and is dominated by boreal forest with agricultural development along highway corridors.

The residents of ID 23 are predominantly of German and Dutch ancestry (75% of the population) and aboriginal natives (Cree and Slave) (11%) (NADC 1991). However, in the study area (a subset of ID 23), 66% and 33%, respectively, of the residents are of western European and aboriginal native ancestry. Fifty-seven percent of the labor force in ID 23 is employed in primary resource industries, 15% in trade and 10% in service sectors. The population of ID 23 has fluctuated over the decades but has recently increased markedly. Between 1971 and 1986 the population increased from 5214 to 6942 (NADC 1991d). Most of the population increase occurred in the new towns of High Level and Rainbow Lake (outside the study area). Sixty percent of the population in ID 23 is under age 24, including a large segment of young, transient, extractive resource industry employees. Excluding High Level, average family income in ID 23 is the lowest in northern Alberta. The number of unemployed increased by over 200% between 1981 and 1991 (NADC 1991c).

Improvement District 23 lies within the Footner Lake Forest, which encompasses over 40,000 square kilometres in northwestern Alberta. Footner Lake Forest is ecologically characterized by a mixture of boreal forest types and a

lesser component of Peace River aspen parkland and Peace River lowland forest. Boreal forest stand types include Southern, Hay River, Upland and Sub-Arctic. Ecosystems within the Footner Lake Forest are characterized by 70% black spruce muskeg, and 30% upland forest of which 50% is spruce dominated, while 50% is hardwood (NADC 1981).

Oil / gas, forestry, and agriculture provide the basis for the region's economic base (NADC 1981). The Lower Peace sub-region has followed a pattern of economic development similar to, but lagging behind, the rest of Alberta, and also similar to, but more advanced than, the Northwest Territories. It is in consideration of this middle ground that social and economic conditions and imperatives for the study area will be discussed. Social and economic statistics presented in this section are based on data collected by various consultants for the NADC in three geographic regions (Northern Alberta, ID 23, and the Lower Peace Sub-region). Statistics from three geographic regions rather than just one are presented because:

1) the Lower Peace sub-region cannot be discussed in isolation from northern Alberta and ID 23 because it is intimately associated with them, geographically, economically, and ecologically.
2) many statistics are based on data collected in northern Alberta as a whole, or ID 23, and much less specifically on the Lower Peace Sub-region.

Because the Lower Peace sub-region is the most isolated and least prosperous region of Alberta (NADC 1990), little attention has been paid it relative to other regions within the NADC geographic mandate. Thus, much discussion will focus on northern Alberta as a whole, yet will be grounded in discussion of ID 23 and the Lower Peace sub-region where possible.

Most statistics and other information presented in this section were gathered from NADC sources. The NADC was formed in the 1950's to generate goals for development and is responsible for advocacy of northern development (NADC 1981). The geographic area of focus of the NADC is the entire northern half of Alberta. For the isolated north, with few exceptions, any development is good development in the eyes of the NADC. The result is broad NADC goals and guidelines which perpetuate, if not exacerbate, resource dependency through encouraging the development of large-scale, extra-local extractive resource industries. The results of such policies are impoverished manufacturing and

service industries leading to long-term rural decline. Northern Alberta has a history of resource-dependent development, which, like other rural areas across Canada, limits local economic strength and stability, yet may provide short-term well-being punctuated by severe economic downturns and general economic instability (Detomasi 1986).

2. History of Settlement and Economic Development

The study area was originally occupied by Slave and Dene Natives (NADC 1991c). In the mid 1700's Cree occupied the land and pushed the Slave and Dene people further north, into the Northwest Territories. Currently there are five Cree Reserves within the study area. The reserves are Tall Cree, Jean D'or Prairie, Beaver Ranch, Bushe, and Boyer River. The total native population in the study area is 2003. In I.D. 23, there are 10 reserves with a population of 3892 (NADC 1991b).

The settlements of High Level, La Crete, and Fort Vermilion lie within the study area. Fort Vermilion is the oldest non-native community in Alberta. Fort Vermilion was settled by whites in 1788 to serve as the first in a series of Hudson's Bay Company fur trading posts on the Peace River (NADC 1981). Anglican and Roman Catholic missions soon followed the fur trading posts. The fertility of soil for agriculture was quickly documented and, subsequently, led to agricultural expansion along the banks of the river. Exploration and initial settlement was followed by exploitation of animal resources, agriculture and forestry, leading to the development of a modern economy. Coincident with each of these periods was the evolution of specific types of transportation such as wagon trails and, eventually, rail lines and highways, which facilitated further economic development. The introduction of industry brought with it increased goods and services to serve the growing population (NADC 1985a).

Agriculture and forestry were introduced in the early 1800's, but until the late 19th century, the fur trade served as the nucleus for white settlement (NADC 1991c). Klondike Gold Rush travel routes through northern Alberta increased the relative future importance of agriculture and forestry sectors by opening up transportation routes and encouraging settlement. Since that time, northern Alberta has increased its dependency on the primary industries of natural resource extraction and agriculture (NADC 1985b).

Ukrainian settlers arrived in the region between 1910 and 1920, and settled on the north bank of the Peace River adjacent to Fort Vermilion in what is now

referred to as Rocky Lane. Mennonite settlement in the region began in the late 1920's in Carcajou (30km south of the study area), and later in the area now known as La Crete (NADC 1981).

Transportation routes and physiography of the region influenced the settlement pattern. Early travel along the Peace River led to the settlements of Fort Vermilion and La Crete, while High Level recently (since 1963) evolved as a service center at the junction of two major new highways in the region. Settlement in the region is limited in extent by the Buffalo Head Hills to the south, and the Caribou Mountains to the north. These upland features forced settlement along two east-west axes: highway 58 in the north and Secondary Highway 690 in the south (Haden 1990).

Land east of High Level and north of the Peace River along highway 58 was settled after the Second World War. Agricultural settlement in this region followed improved roads and the completion of a rail link to High Level in 1964. In the 1970s, oil and gas discoveries at Rainbow Lake and AMA, west and northwest of High Level, spurred new growth in the region (NADC 1981).

Forestry operations began in earnest in the 1960's with the completion of the rail link to High Level (NADC 1991a). After the rail link to High Level, lumber became the economic mainstay of the region and the population grew from 100 persons to over 4000 today. High Level and La Crete are industry towns, based on logging and farming respectively, while Fort Vermilion is a mix of the two. In 1991, the population of I.D. 23 was 6876. The population density of I.D. 23 is less than 1 person per square kilometre. Within I.D. 23, the hamlets of Fort Vermilion and La Crete are two of the three largest settlements with 1991 populations of 876 and 650 respectively. High Level and Rainbow Lake are separate urban municipalities with 1991 populations of 4286 and 353, respectively (NADC 1991e).

3. Socio-economic Trends

Most decisions affecting the economy of northern communities in Alberta are made outside the north by senior levels of government or by large, non-local resource industries. Since the advent of large-scale extractive resource development in the 1960's, there has been very little involvement of local citizens in economic development except as laborers and providers of raw materials or services (Detomasi 1986). In general, communities in northern Alberta are exporters of energy and raw resources and importers of food, products and services (CO-West Associates 1981). The north is essentially without secondary

and tertiary industrial development such as manufacturing and processing, and without renewable and non-consumptive resource activities (NADC 1984a).

The Lower Peace Sub-region, and Northern Alberta in general, is on the periphery of the province's general economic development. Factors such as a colder climate, geographic isolation, transportation distance to major markets and population size place the area outside the sphere of Alberta's economic development (CO-WEST Associates 1981).

Government ministries charged with local development issues have suggested that small communities in northern Alberta will increasingly be affected by out-migration, narrowing economic bases, aging populations and declining birth rates (Detomasi 1986). These problems are largely the result of economic development priority on large-scale, non-locally owned extractive resource industries, as well as other geographical problems as mentioned above (NADC 1990). NADC (1990) suggested that important small growth-industries that northern Alberta may capitalize on include environmental packaging, biotechnology and ecotourism (NADC 1990).

Northern Alberta's population is small relative to the south and is predominantly rural. Only two communities have over 10,000 inhabitants, yet they account for some 35% of the total population (NADC 1991c). These two communities, Peace River and Grand Prairie, dominate the economic landscape of northern Alberta. Northern Alberta has 7% of Alberta's population and 60% of its surface area (NADC 1991c).

The hamlets of Fort Vermilion and La Crete were isolated during spring and fall ice flows each year until 1971 when a bridge was built spanning the Peace River. Thus much economic growth in the sub-region has occurred as a result of improved access within the last two decades. Improvements in road and rail service has had a major effect on the Sub-region through increased access for agriculture, oil/gas, and forestry sectors. Though the Sub-region has been one of the fastest growing in Alberta due to large resource developments, it remains the most sparsely settled, has the least diversified economy, and the lowest average incomes (NADC 1991a).

Native communities in Northern Alberta are faced with more difficult development challenges than non-native communities. In the Lower Peace Sub-region, many native communities have been largely bypassed by development. These areas experience socio-economic conditions well below both northern Alberta and provincial averages. Chronic poverty, unemployment, out-migration,

illiteracy, and social disruption characterize many native communities. However, cultural revitalization of spiritual traditions now characterizes some reserves and may result in improved social and economic conditions.

Over the past 30 years, the Lower Peace Sub-region witnessed fairly sudden increases in population, rate of growth, and economic diversity from exploitation of natural resources (NADC 1991b). Many transnational corporations with timber company subsidiaries such as Daishowa-Marubeni and Alberta Pacific have recently become established in northern Alberta. Recent increases in timber output have maintained positive economic growth for the sub-region. The town of High Level, the hub of economic activity in the sub-region, is expanding in the retail and service sectors. The number of new businesses increased by 23% during the 1980's.

Five new single industry towns have been established in northern Alberta. New towns and out-migration have caused a cumulative decline in Northern Alberta rural county populations of 25% over the past 30 years, while cities and new towns have grown dramatically (NADC 1991c). In the Lower Peace Sub-region, only High Level has a population greater than 1000.

Since the late 1960's the most significant "northern" policy initiatives of the Federal government have been designed to promote large-scale industrial activity associated with extractive resource use (Detomasi 1986). The motivation for such policy was a perceived threat to sovereignty from the US, the OPEC oil embargo, escalating prices, and domination by the US in manufacturing (Detomasi 1986). Energy developrnent and other natural resource extraction were hailed as the primary engines for economic growth in Canada throughout the 1980's and 1990's. The Canadian economy is dependent upon export of primary and secondary natural resources extracted from the north.

The primary motivations of northern industrial sectors was profit and loyalty to non-resident shareholders (Detomasi 1986). However, economic efficiency is an inadequate goal for northern community development (Detomasi 1986). Rather, the emphasis must be on local goals such as ownership, job creation, skills development, capital reinvestment, and improved community services (Detomasi 1986). Stable northern economies are, by definition, community oriented, and based on such values as cooperation, mutuality, solidarity, and egalitarianism (Rees 1985). Much economic distribution of goods is based on kinship, friendship, need, or some convention other than purchasing power (Ross and Usher 1986).

Economic diversification and increased local enterprise is perhaps the only long-term mode of building northern economies (Rees 1985). However, such diversification and enterprise is unlikely. The small and widely dispersed populations, small local markets, rigorous climate, difficult physical environment, and the extraordinary costs this imposes on small business, severely limit capital accumulation and reinvestment by local residents.

4. Analysis of Select Economic Sectors in the Lower Peace Sub-region

a. Agriculture

Fort Vermilion and High Level are the most northern farming communities in North America, and are among the most northern such communities in the world. Oil seeds, coarse grains and hay crops are the dominant agricultural products in the sub-region. The number of farms in northern Alberta decreased by 550 between 1971 and 1991, while average farm size increased from 250 to 400 hectares (NADC 1991). Employment opportunities have decreased due to fewer individual farmers and mechanized production. Farmers in the Lower Peace sub-region earn comparatively less than farmers in more southern regions because of harsh growing conditions (NADC 1984b). Many farmers are forced to supplement their incomes in winter months through seasonal employment in the timber industry. The farm population in the Lower Peace Sub-region constitutes roughly one-fifth of the total population, and is decreasing. Historically, agriculture has been an economically significant sector in the sub-region.

Future potential for increased agricultural development in the area is low (NADC 1991c). Eighty percent of arable land is on lesser quality soils, and 70% has drainage problems. Further, farm incomes in the area are 20% lower than Alberta as a whole, and marketing flexibility is a serious constraint. Farm consolidation rates of 1% annually are expected to offset the decreasing value of agriculture in the area. However this contributes to a net loss in farm population, and adds to economic instability in farming communities. The value of agriculture to the area is expected to stabilize or decrease because of globalization of trade (Detomasi 1986).

b. Forest Products

Eight of the ten provincially-administered forests at least partially lie within Northern Alberta (NADC 1990). Over 60% of the forested land in northern Alberta is classified as unproductive. Ninety percent of productive forested lands in northern Alberta have been committed to timber production. Over the past 30 years, forest yields have increased dramatically. Softwood yield has increased by 500% over the past 30 years. Like agriculture, forestry has witnessed increases in the number of large-scale, relatively non-labour intensive forestry operations, frequently controlled extra-locally by non-local firms (CO-WEST Associates 1981).

In the Lower-Peace sub-region, the forestry sector has increased dramatically since the 1960's. As of 1988, one-fifth of Alberta's annual allowable cut (AAC) of softwood timber was within the Improvement District (NADC 1991c). Since 1960, hardwood and softwood timber yields have increased by over 10,000% (NADC 1990). The new town of High Level (population 4,286) was created to serve the forest products sector in the sub-region. High Level is continuing to grow rapidly (population increase of 1400% over the past 30 years). As more forest is allocated to the forest industry and yield predictions continue to decrease, the rate of growth is beginning to subside. All large diameter softwood timber (merchantable timber) outside of protected areas (873 hectares) is now committed to timber production (Fletcher et al. 1991). High Level currently ranks 13th among the most timber dependent communities in Canada, and ranks 11th in communities most rapidly increasing in timber dependency (Fletcher et al. 1992).

The long-term sustainability of the timber industry in the study area is in question because of regeneration problems, timber supply problems, the relatively higher cost of timber management, and the relocation of major forestry operations to more southern regions (NADC 1991d). Sixty-four percent of forested regions in the study area are unproductive, while an additional 17% are low in productivity (NADC 1991d). Unproductive forests are caused mostly by the prevalence of muskeg and associated high water tables). Large diameter timber supplies are rapidly being exhausted (Anonymous pers comm. 1992). The lower value of smaller diameter timber, and extensive problems with forest regeneration (caused by soil temperatures below that required (15 degrees centigrade) for spruce germination and post-harvest water table elevation) (Anonymous pers comm. 1992) may become a limiting factor to timber industry growth. It is this author's opinion that timber management in the area is costly because of limited road networks, and access problems caused by the prevalence of muskeg and high

water tables). Nonetheless, given the large scale of forestry development, and limited economic diversification options, the forest products sector will continue to be a dominant economic force, relative to other sectors such as tourism, in the sub-region for the indefinite future.

c. Tourism

Tourism is the world's largest economic activity, with an annual net profit of over $400 billion (NADC 1990). As with resource industries, the tourism industry is subject to "boom-bust" cycles of growth and decline. Successful tourism development has long escaped northern Alberta. Not until the late 1980's, with the advent of the Tourism Destination Area Planning Program, did the NADC seriously consider tourism as a realistic economic diversification tool. Tourism has increased in northern Alberta, but nowhere near its potential. Most tourists pass through northern Alberta on their way elsewhere, or choose other destinations (NADC 1985a). The NADC considers tourism to be one of the few viable economic diversification options for northern Alberta, but the highly specialized and competitive nature of tourism niche marketing poses real challenges (NADC 1985a, 1990).

NADC now recognizes that tourism offers an opportunity for many smaller communities to diversify into new economic activities. Further, the NADC has identified as a priority the conservation of natural resources upon which tourism is dependent (NADC 1991a).

5. Results of NADC Sponsored Tourism Research

The NADC has recognized that tourism is one of the few growth industries in northern Alberta and has sponsored much research and discussion on the potential for building a more solid tourism base (NADC 1981, 1985a, 1990a, 1990b). They are working in cooperation with Alberta Tourism and numerous northern groups interested in promoting tourism. It is the opinion of this author that the primary roadblock to effective northern tourism development has been the perception that other tourist destinations are more desirable, coupled with the relative isolation of northern Alberta compared to other tourism destinations and target markets.

The NADC has worked in close cooperation with the Tourism Destination Area Planning Program, established by Alberta Tourism, to find alternatives to the Rockies for tourist visitation. The program involves the inventory and assessment of

tourism resources in specified areas, citizen participation processes, feasibility studies, and preparation and implementation of development strategies. This process has led to several small-scale tourism enterprises in the north, but the north's tourism potential is far from realized. Outdoor/wilderness tourism has been identified as the most promising sector to be pursued (NADC 1991c).

In 1989, tourism in Alberta was a $2.6 billion industry and employed 100,000 in both full and part-time employment (NADC 1991d). Northern Alberta's share of the revenue was about 10%. Proportionally, southern Alberta captures 88% of Alberta tourist visitation (NADC 1991d). Further many tourists traveling in northern Alberta are just passing through, although statistics to support this claim are not available.

Alberta Tourism is aware of many of the geographical difficulties facing northern Alberta in tourism development planning. Through the Team Tourism Program, Alberta Tourism has helped tourism zones identify markets and develop plans to reach them. They also offer workshops for tourism operators, zones and communities with registered tourism action plans.

Alberta Tourism has identified many issues, concerns and challenges related to promoting tourism in Northern Alberta. Prominent among these are establishing partnerships between government; citizens and industry; coherent marketing strategies; retention of natural resources; development of non-consumptive tourism activities; clustering of secondary and tertiary activities; joint ventures; community education and training; and hospitality and infrastructure (NADC 1985a).

C. RESEARCH METHODOLOGY

1. Purpose of the Study

In order to satisfy previously stated objectives, a methodology was devised to administer the survey questionnaire and collect socio-economic and attitudinal data from population groups. The respondent groups included representatives from the forest products sector (timber); agriculturists (agriculture); representatives from the tourism promotion sector (tourism), aboriginal natives (native); general sightseeing tourists (general tourist); and ecotourists (ecotourist).

2. Research Phases

This study involved four phases:

First, an in-depth background literature review was conducted to analyze existing documentation and databases relating to the study. The literature review focused on examining tourism and ecotourism, attitude theory, and the social, cultural, environmental, economic and psychological values associated with resource development, recreation activities, and wildlife.

Second, a personal survey questionnaire was developed, pre-tested, refined, and later administered to residents, ecotourists, and general tourists in the study area in their homes, at work, and at tourist gatherings. Likert scale and open-ended questioning techniques were used in the survey instrument. Knowledge of local wildlife was assessed using photograph identification. The pretest survey instrument was developed and administered to a select number of residents in the study area. The final survey instrument was administered in winter and summer, 1993.

Third, results were compiled and data analyzed. Statistical treatment of data was used where applicable. Specific statistical treatments used include ANOVA, Chi-Square and Correlation.

Fourth, research results were discussed in reference to study propositions and objectives, and recommendations were developed.

3. Survey Population

The focus of research was on representatives of the agricultural, timber, and tourism industries, indigenous natives, general tourists and ecotourists. The survey consisted of a random sample of each of the above-mentioned population segments at least 16 years of age. For agriculturists, the Improvement District 23

map was used to produce a master list for the sampling frame. For the timber and tourism industries, a master list of government and private industry employees was compiled to produce a master list for the sampling frame; employees were interviewed at their place of employment. The tourism sample included permanent employees of tourism promotion agencies, tourism operators, and representatives of tourism bureaus. For indigenous natives, a random sample was taken at a religious gathering of members of four reservations: John D'or, Fox Lake, Garden River, and Tall Cree. For general tourists, a sample was selected from visitors to the High Level Tourist Information Center. Every fifth, and or willing, tourist entering the center was interviewed. The entire ecotourist population was sampled at Canada Maximas Lodge near Fort Vermilion. Tourists came to the lodge for wildlife viewing. For sources of error associated with selection of interviewees, please refer to section titled "sources of error".

When interviews occurred at residences, as with farmers, initial contact was made via telephone. Home interviews were administered to the first individual over age 16 who came to the door or any available member of the household.

The survey groups were defined by occupation, race (natives), and recreation participation (tourists and ecotourists). These groups represented independent variables. Dependent variables were a) attitudes as measured by sample survey techniques, and b) knowledge of wildlife as measured by photo identification of wildlife. Likert scales are an appropriate measure of intensity of response to questions (Miller 1991). The Likert scale was used as it is a highly reliable and robust measure of attitudes (Miller 1991).

4. Survey Instrument: Development, Pretest, and Final Test

A structured, personal interview questionnaire was used in this study. The interview instrument consisted of quantitative (Likert Scale) and qualitative (open-ended) questions. This approach was selected from various alternatives because personal interviews using both scaled and open-ended questioning permit greater depth and detail in the questionnaire and allow for probing and clarification of issues to obtain more complete data (Isaac and Michael 1987). Thus, the use of open-ended questioning in conjunction with more traditional scaled responses permits a more complete understanding of attitudes. Gold (1980) suggested that in forcing attitudes into a quantitative scale, damage is necessarily done to the true meaning and scope of the attitude. Open-ended questioning, though more subjective and difficult to analyze, permits interviewees to describe the intellectual

and emotional bases of their attitudes in a less structured framework, and in more depth than permitted in a structured interview framework.

Results to Likert Scale questions are presented according to a four-point scale. Likert scale categories measure intensity of feelings. Thus, a typical Likert Scale will measure whether an attitude is **very intense, intense, somewhat intense** or **not at all intense.** Results in this thesis are presented according to this intensity of feeling. For example, in response to a question about attitude towards the economic importance of ecotourism in the study area, results are presented in the following framework: 36% of respondents considered ecotourism not at all important while 74% considered ecotourism somewhat important. The mean Likert Scale score, using a scale of 1 to 4, was 1.70 indicating an attitude towards ecotourism between negative and somewhat positive.

Only responses of residents were sought for open ended-questions. General tourists and ecotourists were not asked to respond because open-ended questioning required an intimate knowledge of the study area. For most groups, two common questions and usually one unique question were asked of each respondent.

Interviewer bias was curtailed by holding discussions on this subject with Dr. Harvey Krohn at the University of Alberta Population Research Center.

The final questionnaire had 24 attitudinal, knowledge and socio-demographic questions, and 2-4 open-ended questions per resident respondent group. Prior to data collection, a preliminary questionnaire was developed and tested, and a final questionnaire was developed in the following manner. After a review of literature dealing with attitudinal measurement, tourism development, and the economies of rural resource-dependent communities, a sample of questions was prepared. Next a preliminary questionnaire was developed to fulfill the desired research objectives. The instrument was then revised, in consultation with representatives from the University of Alberta Sociology Population Research Laboratory (Krohn pers comm.). The questionnaire was pre-tested in winter 1992 to reveal errors or problems. Four of the original 28 questions were eliminated after the pretest, and 3 questions were re-worded for clarification of intent. The final set of interview questions were divided into 4 orientation categories: Attitudes Toward Wildlife; Attitudes Toward Economic Conditions; Knowledge of Wildlife; and Attitudes Toward Ecotourism. Several open-ended questions about attitudes toward ecotourism, and questions on socio-demographic characteristics were

included in the survey instrument. The final version of the instrument appears in Appendix E.

5. Thematic Visibility Index

This index was carried out by conducting counts of public artwork and library material in the three primary communities within the study area: La Crete, Fort Vermilion and High Level. All artwork displayed for the public and library collections were counted and classified by presence or absence of 1) natural history themes, and 2) boreal natural history themes. The relative proportion of boreal natural history themes to other themes was treated as an indicator of interest, awareness, and pride in, and indirectly, of attitudes toward, boreal natural history.

6. Representativeness, and Sources of Error

Overall response rate was 98% (N=90). Because of this response rate, problems of non-response bias was assumed to be absent.

Sources of error include the timing of interviews and the selection of interviewees. Ecotourists and Agriculturists were interviewed during times when owls were present in relatively high concentrations. Other interviews were conducted after owl concentrations had diminished. Thus, ecotourists and agriculturists responses may have been biased because many questions directly or indirectly focused on owl concentrations. Four of the 15 ecotourists interviewed were personal friends of this author and were aware of the nature of the study.

7. Data Processing and Analysis

Data was analyzed using the STATVIEW statistical package for Macintosh. This package was used to generate descriptive statistics and carry out contingency tests, chi-square, and Analysis of Variance (ANOVA). A significance level of 0.05 or less was used as a limit for accepting or rejecting research propositions.

Descriptive statistics (univariate analysis) were initially used to organize and understand each parameter and its frequency distribution. Chi-square tests of association were conducted to discover relationships between selected variables with nominal or ordinal intervals of measurement (also used on variables with higher levels of measurement with collapsed categories). Chi-square tests help determine how far a sample distribution deviates from a theoretical distribution.

Though the Chi-square test of independence determines when an association exists between two sets of attributes in a population, it indicates little about the strength of a relationship. Therefore when determination of the strength of a relationship was desirable, One-Way ANOVA tests, at the 0.05 confidence level of significance, were used to analyze knowledge of wildlife scores and to assess the degree of relationship between select categoric independent variables and also between categoric independent variables and dependent variables.

8. Levels of Explanation

Results are presented at two levels of explanation: specific and intermediate. The two levels of explanation permit analysis of individual and groups of interview questions and analysis of individual groups and collapsed groups of survey respondents. At the specific level of explanation, results are presented for all respondent groups and most survey questions. At the intermediate level of explanation, respondent groups and/or groups of similar questions are collapsed to provide a more general level of analysis.

At the specific level of explanation, results of individual attitude statements (statement means) were examined separately by respondent group. At this level of explanation it can be determined whether there are differences between attitudes according to individual statements. If there are differences at this level, it is then possible to search for elements which are common among those statements on which the groups differ. If there are common elements, they can be examined to see whether they are related to the concepts involved in the orientation categories.

At the intermediate level of explanation, respondent groups were combined and/or groups of attitude statements were combined into orientation categories based on common themes. Thus, responses of residents (timber, agriculture tourism and native) and non-residents (tourist and ecotourism) were compared.

Orientation categories (as opposed to statement means) were examined to determine whether general differences exist in attitudes toward wildlife, economics and ecotourism, and knowledge of wildlife. These results are of particular interest since they are the results which determine if there is support for the research propositions.

In Table 1, attitudinal interview questions are rephrased as propositions for clarification of intent. The intent of questions and the meaning of Likert scale responses is illustrated more clearly when questions are presented in a simplified

statemen[illegible]rmat. Rephrased interview questions are presented in sequential and numerical order as they appeared on the survey questionnaire.

IV. DATA RESULTS

A. Results - Structure and Layout

Results of interview questions at the specific level of explanation (mean results of individual statements) are presented in sequential and numerical order in relation to the survey questionnaire (A1....D7). Socio-demographic results are presented first, but appear as the last questions on the questionnaire. Not all results are presented in written format. Only those results deemed meaningful to the purpose of this study are presented in written format. However, most Likert Scale results are presented in tabular format in Table 1.

Socio-demographic characteristics, including age, sex and education, are presented first. Next, attitudinal results are presented by respondent group (specific level of explanation), and by respondent groups collapsed into groups (residents and tourists) and groups of survey questions collapsed by theme into orientation categories (intermediate level of explanation) (See Methodology). Finally, other relationships, as uncovered by correlation of variables are presented and discussed. Discussion of selected results is presented in this results section.

Interviews were conducted with 60 residents (four groups of 15) of the study area, 15 general tourists, and 15 ecotourists); the response rate was 98% (N = 90).

In Table 1, question means are presented by respondent group. In this table, attitudinal interview questions, as they appeared on the formal survey questionnaire, are rephrased as propositions for clarification of intent. The intent of questions and the meaning of Likert Scale responses is illustrated more clearly when questions are presented in this simplified proposition format. A complete copy of the survey instrument is found in Appendix E.

Results of socio-economic variables appear in the following order: Sex, Age and Education.

Interview questions were divided into four categories based on question orientation and theme. Accordingly, results are presented categorically, in numerically sequential order, in the sequence in which the questions appear on the questionnaire.

Results of Likert Scale questioning are presented by orientation category: 1) Attitudes toward wildlife and wildlife viewing; 2) Attitudes toward economic, industrial and employment trends; 3) Knowledge of wildlife; 4) Attitudes toward ecotourism.

Results of open-ended questioning are presented by resident respondent group: Timber; Agriculture; Tourism; Native.

Open-ended questions concern the following issues: 1) Interviewees perceived role in ecotourism; 2) Conflicts and/or opportunities that may arise if ecotourism is developed.

At the conclusion of each interview a subjective ecotourism receptivity index was conducted. The receptivity index provided a biased yet comprehensive technique for addressing the respondent's general attitude toward ecotourism. The receptivity index was performed by subjectively ranking each interviewee's overall attitude toward ecotourism on a four-point Likert scale. This subjective ranking of general attitudes toward ecotourism was beneficial because subtle cues were included in the measurement which may not have been reflected in formal Likert scale responses. These cues included tone of voice, gestures, facial expressions, and hesitancy or willingness to respond to questions.

Results of the subjective Ecotourism Receptivity Index are presented following open-ended results.

Results of the Thematic Visibility Index are presented following Ecotourism Receptivity Index results.

1. Survey Respondent Groups

Fifteen respondents from each of the following population groups were interviewed. Study area resident groups included Timber, Agriculture, Tourism and Native. In this thesis, timber and agriculture groups are also referred to as extractive resource users. Non-resident groups included General Tourist and Ecotourist. A description of survey respondent groups is found in Appendix C.

B. Descriptive Profile of Study Area Residents and Visiting Tourists

1. Sex

Thirty-two percent of study area resident respondents were female and sixty-eight percent were male. There were significant differences in the ratio of females to males between respondent groups (i.e., timber; tourism etc.) ($F = 2.90$; D.F.: numerator = 3, denominator = 56; $P < 0.05$). All respondents from the timber group were male. Respondents from both agriculture groups were predominantly male (67%), as were natives (60%), tourism (60%), ecotourists (53%) and general tourists (53%). I.D. 23 was 43% female in 1990, and the Canadian population was 51% female in 1992 (NADC 1991c). There were significant differences in the ratio of females to males between the study sample and the study area ($X^2 = 3.943$; D.F. = 1; $P < 0.05$), and between the study sample and the Canadian population ($X^2 = 4.022$; D.F. = 1; $P < 0.05$).

Other studies of tourist populations (both general tourists and ecotourists) have reported similar findings suggesting that the proportion of males is often higher than that of females (Frost 1985; Kellert 1985; Stoll and Johnson 1984; Richards 1980).

The study sample of workers was 11% less female dominated than the total study area population and 19% less than the total Canadian population. Thus the sample was not representative of regional and national trends. Nonetheless, no differences were found between the attitudes of male and female respondents.

2. Age

The mean age of respondents in the study area was 42 years, and for tourists, 39 years. There were few differences in average age among groups of respondents. The largest proportion of resident respondents were those in 25-34 and 45-54 year-old age distributions. NADC (1991a) reports that only 3.5% of the population of ID 23 is over 55 years of age. NADC (1991a) reports that 60% of the population in I.D. 23 is under 25 years of age.

The average age of the study sample was the same as the average Canadian. Average age of ecotourists was higher than that reported by NADC for I.D. 23 (32 years). Average age was lower than results of published findings on ecotourists (Statistics Canada 1992; NADC 1991c; Frost 1985; Kellert 1985; Stoll and Johnson 1984; Richards 1980).

The relatively young age of ecotourists skewed the average age below that reported in the literature. Age of ecotourists visiting the study area was not reflective of ages reported in the literature because the ecotourist sample was taken mostly from student and faculty visitors from the University of Alberta and young professionals from Edmonton and Calgary Alberta.

Because this study defined the sample population based primarily on occupation, the 0-24 year-old age distribution was necessarily under represented. Thus, the average age was skewed higher than would be expected from a random sample. These younger age groups generally have lower employment ratios than older age groups and are employed in service industries not sampled in this study. Further, 3% of study respondents were under 25 years of age.

3. Education

Significant differences were found in the number of years of education of respondent groups ($F = 3.71$, D.F.: numerator = 5, denominator = 84; $P < 0.01$): ecotourists (16); general tourists (13); tourism (13.5); timber (11.5); agriculture (9); native (8). The education level for study area residents (all study area resident groups combined) was 10 years. The average education of the study sample of ecotourists (16 years), and general tourists (13 years) was similar to that of other published findings on tourists (Frost 1985; Kellert 1985; Stoll and Johnson 1984; Richards 1980).

Level of formal education of respondents residing in the study area was significantly lower than that of the average Canadian ($X^2 = 4.041$; D.F. = 1; $P < 0.05$), and than that of the average ecotourist ($X^2 = 6.747$; D.F. = 1; $P < 0.01$) (Statistics Canada 1992; Frost 1985; Kellert 1985; Stoll and Johnson 1984; Richards 1980).

Education of study area residents was low because most study area jobs are in fields attractive to young people using their employment in the study area as a stepping stone. The majority of the study area population of farmers are partially self-taught. The Mennonites (who comprise approximately half of the population of study area farmers) have historically rebelled against formal, structured education. Few adult Mennonites have more than grade 9 education.

The findings on education of ecotourists agree with Hendee (1973), who suggested that participants in activities dependent on appreciation of the natural environment are more highly educated, and with Swinnerton (1991),

who suggests that highly educated people are more likely to participate in a wide variety of outdoor recreation activities.

4. Origin of General Tourists and Ecotourists

Most general tourist respondents (60%) were international visitors. In the sample, 53% were from the United States and 7% were from Europe. The final 40% were from Canada. British Columbia was the most common province of origin (20%), followed by Alberta (13%), and Ontario. Most ecotourists (60%) were visitors from Alberta. Others were from the east and west coasts of the United States.

C. Results of Attitudinal Survey

Not all results were deemed pertinent to this study. Although most attitudinal results are presented in Table 1, only select results are presented and discussed in other than tabular format. Results are presented by individual statements, by the four questionnaire orientation categories and by individual and collapsed groups of respondents. Questionnaire orientation categories include: 1) Attitudes toward wildlife and wildlife viewing; 2) Attitudes toward economic, industrial and employment trends; 3) Knowledge of wildlife 4) Attitudes toward ecotourism. Respondent groups include: Timber; Agriculture; Tourism; Native; General Tourist; and Ecotourist. Collapsed groups of respondents include study area residents and tourists.

1. Attitudes Toward Wildlife

a. Specific Level of Explanation

Question A2. There is a significant difference between respondent groups in enjoyment gained from wildlife viewing ($F = 3.79$; D.F.: numerator = 5; denominator = 84; $P < 0.005$).

The timber and agriculture groups find wildlife viewing less enjoyable than other groups (Table 1). The timber group and agriculturists find wildlife viewing somewhat enjoyable and enjoyable while all other groups find wildlife viewing enjoyable and very enjoyable. Collectively, respondents from all groups derive considerable enjoyment from wildlife viewing.

Ecotourists were the only group to consciously seek out wildlife viewing experiences for enjoyment. Other groups derive a degree of enjoyment from wildlife viewing, but wildlife encounters were generally serendipitous rather than intentional.

Question A6. There is a significant difference between respondent groups in perception of time of year when owls are most visible ($F = 3.09$; D.F.: numerator = 3; denominator = 56; P , 0.05).

Natives, more than other respondent groups, correctly identified winter as the time when owls are most visible. Other groups were split as to when they perceived owls to be most visible. Non-native respondents most frequently cited

spring and fall bird migrations as the time when owls are most visible.

During spring and fall bird migrations, the study area attracts unusually large concentrations of waterfowl, shorebirds and hawks. These large migrations may overshadow the effects of smaller and less visible migrations and accumulations of owls, which occur geographically adjacent to the larger waterfowl and hawk migrations. Nonetheless, winter and early spring accumulations of owls are quite visible, including by car. Only 47% of the study sample were aware of the winter accumulations of owls. The lack of awareness of owls thus may serve as an indicator of high levels of parochialism among study area residents. Large numbers of owls should attract the attention of locals. This lack of awareness may indicate a lack of appreciation for boreal natural history.

The few respondents (mostly natives) who recognized winter owl accumulations as distinct from spring and fall bird migrations, also took a great deal of pride in their knowledge, and considered owl accumulations as a special feature of the study area.

Question A7. There is a significant difference between respondent groups in level of concern about loss of wildlife habitat ($F = 4.68$; D.F.: numerator = 5; denominator = 84; $P < 0.002$).

Natives and ecotourists were more concerned about loss of wildlife habitat than other groups. The tourism group was somewhat concerned and concerned about habitat loss. The timber group, agriculturists (extractive resource users), and general tourists were not at all concerned and somewhat concerned about loss of wildlife habitat. Natives and ecotourists were concerned or very concerned about loss of wildlife habitat. Collectively, respondents from all groups were somewhat concerned about loss of wildlife habitat loss (Table 1). Residents of the study area were more concerned than general tourists and less concerned than ecotourists about wildlife habitat loss.

Sixty percent of timber and agriculture respondents (N = 18) gave defensive and/or indirect responses such as "the wildlife can go elsewhere" and "many wildlife benefit from habitat alteration" to the question about habitat loss.

Question A8. There is a significant difference between respondent groups in perception of wildlife viewing as being

important in promoting conservation (F = 4.43; D.F.: numerator = 5; denominator = 84; P < 0.002).

This question addressed the issue of whether wildlife viewing fosters more ecologically oriented natural resource management.

Natives and ecotourists perceived wildlife viewing as being important and very important. The timber, tourism and agriculture groups perceived wildlife as being somewhat important and important. General tourists perceived wildlife viewing as being not at all important and somewhat important. Collectively, residents of the study area considered wildlife viewing to be somewhat important and important in promoting conservation (Table 1).

b. Intermediate Level of Explanation

Positive correlation's between responses to A2, A7 and A8 held for the timber, agriculture, tourism and general tourist groups and negative correlation's held for the native and ecotourist groups (Table 2). Respondents who found wildlife viewing most enjoyable (natives and ecotourists) generally perceived wildlife habitat loss to be a concern and considered wildlife viewing important in conservation. The timber, agriculture, tourism and general tourist groups generally derived less pleasure from viewing wildlife, were less concerned about wildlife habitat loss, and perceived wildlife viewing as less important in conservation.

Table 1. Attitudes Toward Wildlife, Economic Conditions and Ecotourism (individual statements) By Study Area Resident Groups, Tourists and Ecotourists.

Propositions Interview Questions rephrased as statements	Cat	Timb Mean	Tour Mean	Agric Mean	Nativ Mean	Total Mean	Tourist Mean	EcoT Mean	F	< P
A2. Wildlife viewing is enjoyable	W.L.	2.61	3.40	2.61	3.2	2.90	3.64	4.00	A) 2.69 B) 3.79	n.s. .005
A4. Wildlife are abundant here.	W.L.	2.21	2.70	2.12	2.40	2.31	2.14	3.00	A) 1.76 B) 2.41	n.s. .05
A5. Owls are abundant here.	W.L.	2.51	2.70	2.05	2.91	2.47	1.00	3.51	A) 2.85 B) 4.98	n.s. .001
A7. Wildlife habitat loss is a concern	W.L.	2.13	2.51	2.05	3.60	2.47	1.40	4.00	A) 3.59 B) 4.68	.01 .001
A8. Wildlife viewing is important for conservaton	W.L.	2.50	3.00	2.55	3.60	2.78	1.66	4.00	A) 2.95 B) 4.43	.05 .002
B1. Employment prospects in the area are promising	ECON	2.71	2.00	1.60	3.60	2.32			A) 3.75	.005
B2. *@ Local industry is important to the economy	ECON	2.53	2.72	2.49	2.65	2.58			A) 1.51	n.s.

A = ANOVA between study area resident groups
B = ANOVA between all study groups (study area resident groups and visiting tourist groups)

Table 1 (Cont.). Attitudes Toward Wildlife, Economic Conditions and Ecotourism (individual statements) By Study Area Resident Groups, Tourists and Ecotourists.

Propositions Interview Questions rephrased as statements	Cat	Timb Mean	Tour Mean	Agric Mean	Nativ Mean	Total Mean	Tourist Mean	EcoT Mean	F	< P
D1. This area is desireable for wildlife viewing	ECOT	1.33	3.00	2.13	3.9	2.51	2.00	4.00	A) 4.69 B) 4.53	.001 .001
D2. There are too few tourists using this area	ECOT	2.33	3.59	1.75	2.77	2.51	1.77	4.00	A) 3.45 B) 3.74	.01 .005
D4.Ecotourism has social benefits to communities	ECOT	2.41	3.27	2.41	2.50	2.63	3.88	4.00	A) 2.10 B) 2.89	n.s. .025
D5. Wildlife are a source of community pride here	ECOT	1.78	2.27	1.83	3.1	2.16	1.09	4.00	A) 3.60 B) 4.91	.01 .001
D6. Wildlife will be an important tourism source	ECOT	1.08	2.40	1.55	3.20	1.94	1.60	4.00	A) 4.39 B) 3.61	.001 .005
D7 *# Wildlife will be an important tourism source	ECOT	1.50	2.50	2.05	3.20	2.33	1.60	4.00	A) 3.40 B) 3.75	.01 .005

*@. Responses to individual study area industries (see questionnaire) were collapsed to demonstrate the collective economic importance attached to industries.

*C. Question D6 was asked twice: once before (D6), and once after (D7) respondents were presented with statistics depicting ecotourism as economically lucrative.

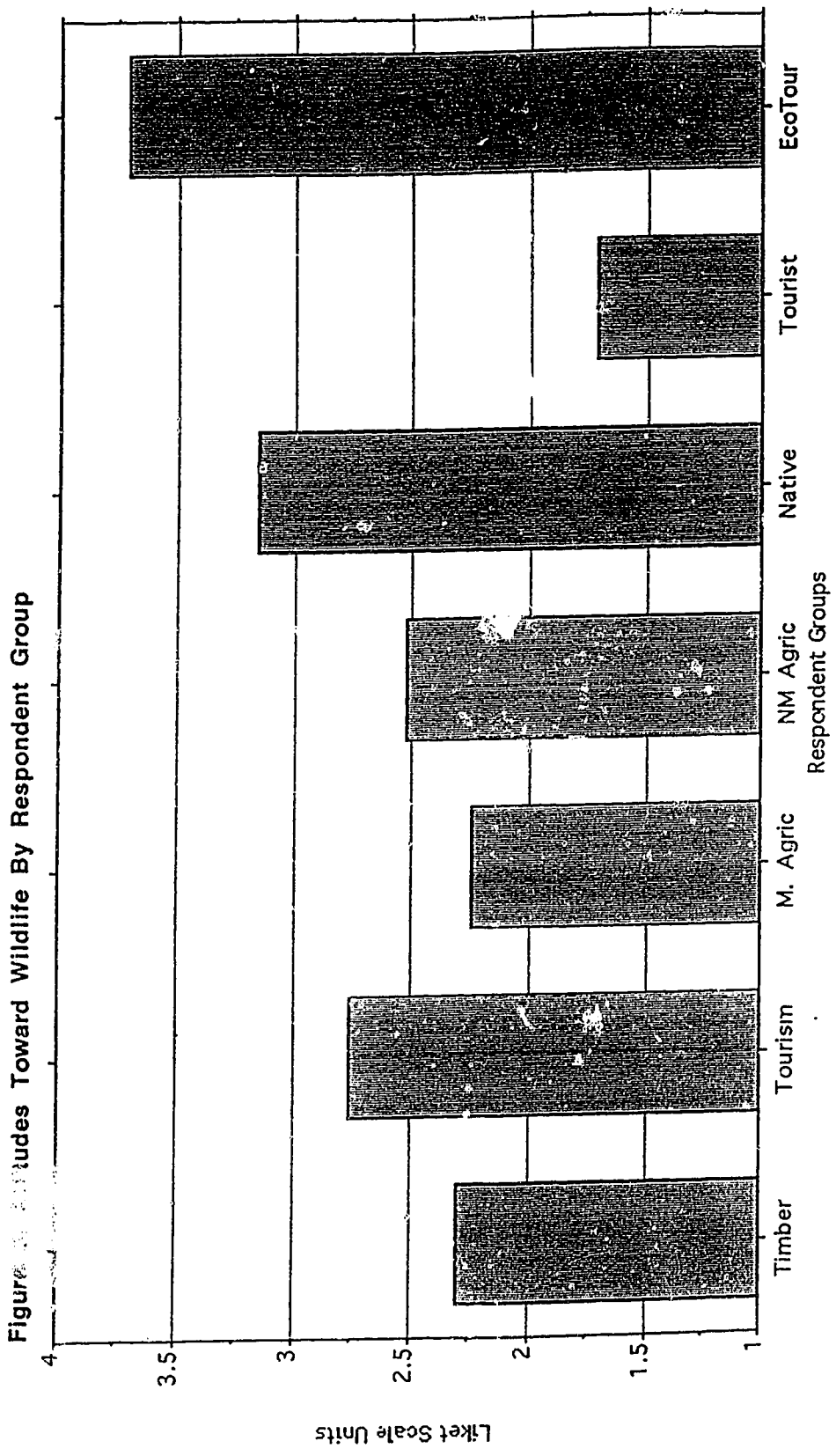


Figure [illegible]tudes Toward Wildlife By Respondent Group

Table 2. Correlation Matrix of Attitudes Toward Wildlife by Respondent Group

	Timber	Agric	Tourism	Native	Ecotour	Tourist
Timber	1					
Agric	.992	1				
Tourism	.706	.614	1			
Native	-.677	-.582	-.999	1		
Ecotour	-.599	-.497	-.99	.995	1	
Tourist	.752	.665	.998	-.994	-.978	1

Table 3. Correlation Matrix of Attitudes Toward Economic Importance of Study Area Industries by Respondent Group

	Timber	Agric	Tourism	Native
Timber	1			
Agric	.934	1		
Tourism	.855	.972	1	
Native	.954	.985	.912	1

Table 4. Correlation Matrix of Attitudes Toward Ecotourism by Respondent Group

	Timber	Agric	Tourism	Native	Ecotour	Tourist
Timber	1					
Agric	.752	1				
Tourism	.549	.88	1			
Native	-.762	-.279	-.175	1		
Ecotour	-.756	-.144	.085	.876	1	
Tourist	.727	.776	.897	-.568	-.28	1

2. Attitudes Toward the Economy, Industry and Employment

a. Specific Level of Explanation

NOTE: General tourists and ecotourists were not considered knowledgeable about economic conditions in the study area. Thus, their responses are not presented.

Employment

Question B1. There is a significant difference between respondent groups in attitude toward employment prospects in the study area (F = 3.57; D.F.: numerator = 3; denominator = 56; P < 0.01).

Significant differences were found in attitudes toward employment prospects in the study area between natives and other respondent groups. The tourism and agriculture groups considered employment prospects not at all promising and somewhat promising, timber considered prospects somewhat promising and promising, and natives considered employment prospects very promising (Table 1).

Question B2

A. There is a significant difference in perception of the current (F = 3.20; D.F.: numerator = 6; denominator = 56; P < 0.01) and future (F= 3.07; D.F.: numerator = 6; denominator = 56; P < 0.01) economic importance of study area industries

Significant differences were found between the perceived current and future economic importance of study area industries (Figure 4). The timber, oil/gas and agriculture industries were recognized to be far more economically important than tourism industries, yet were perceived to increase in economic importance at a lesser rate than tourism industries.

Question B2B. There is a significant difference between respondent groups in perception of the current (F = 4.15; D.F.: numerator = 6; denominator = 56; P < 0.01) and future potential (F = 2.38; D.F.: numerator = 3; denominator = 56; P < 0.05) for study area industries to increase in economic importance.

Respondent groups generally perceived all industries to be of equal economic importance except for tourism industries, which were perceived to be of low importance. However, tourism industries were perceived to be of relatively high economic importance by the tourism group. All other groups perceived tourism industries to be of low economic importance.

The tourism group perceived the tourism industry to be of moderate economic importance, yet upon probing, respondents from this group clarified their response by suggesting that they felt that the tourism industry, though important in physical presence, was not economically important.

Significant differences were found between the perceived potential of study area industries to increase in economic importance (Tables 5A, 5B). Tourism industries were perceived to have far greater potential than extractive resource industries to increase in economic importance. Nonetheless, tourism was perceived to remain a small economic contributor.

b. Intermediate Level of Explanation

Question B3. There is a significant difference in perception of the current ($F = 8.93$; D.F.: numerator = 1; denominator = 56; $P < 0.05$), and future ($F = 9.01$; D.F.: numerator = 1; denominator = 56; $P < 0.05$) economic importance of extractive resource industries vs. tourism industries.

Extractive resource industries (timber and agriculture) were perceived to be significantly more economically important than tourism industries. However, extractive resource industries were perceived to increase in economic importance significantly less than tourism industries (Figure 4; Tables 5A, 5B, 6). However, this increase in the economic importance of tourism industries was not perceived to result in significantly greater economic gain.

Collectively, resident respondent groups considered the future economic importance of the study area's extractive resource industries (timber, oil gas, agriculture/ranching) to decrease (N=180) or stay the same (N=63) (Figure 4; Table 5B). Forty-one percent (N=74) perceived these industries to decrease in economic importance. Thirty-seven percent (N=66) considered these industries to maintain their economic status. Few considered these industries to increase in importance in the future (N=40). Thirty-five of the 66 "stay the same" responses were regarding the future of the oil/gas industry. This author

speculates that the disproportionate number of "stay the same" responses for the oil/gas industry was because of respondents lack of familiarity with the oil/gas industry. Most oil/gas activity takes place in a region of the study area unfrequented by respondents, and oil/gas work is mostly conducted by non-locals who live in settlements created by and for the oil/gas industry. Statistics show the oil/gas industry to be stable in economic importance in northern Alberta, with an uncertain future.

The timber group perceived their industry to increase slightly in economic importance (Table 5B). The agriculture group perceived their industry to decrease dramatically. The tourism group perceived their industry to grow slightly.

Collectively, residents speculated that tourism industries will increase in the future (Tables 5B, 6). Forty-nine percent (N = 118) considered tourism industries to increase in the future. Twenty-eight percent and 23%, respectively, perceived these industries to stay the same or decrease in economic importance in the future.

The agriculture group had somewhat positive and negative attitudes toward the future of their own industry, and perceived themselves to be at a competitive disadvantage to other regions. They were pessimistic about the future of the timber industry (Table 5B). Most farmers (60%) in the study area are employed by the timber industry in the winter months as ground crews and truck drivers.

The timber group was more optimistic than other groups about the future of all northern industries (Table 5B). Fifty-three percent (N = 15) of the timber group perceived the economic importance of their industry to increase in the future. However, the timber group was split as to future employment prospects in the study area. Several weeks after the timber group was interviewed, the Footner Lake Forest, which employed the respondents, was amalgamated with the Peace River Forest, headquarters were moved to Peace River, and 17 employees were fired.

The tourism group was relatively optimistic about the future of all northern industries except the timber industry which they perceived to decrease in economic importance in the future. Although the tourism group perceived tourism to increase in the study area, they were very pessimistic about its potential to become a dominant economic force.

The native group was very pessimistic about the future economic importance of the timber industry, and considered other major industries, except tourism, to maintain their current economic status or decrease somewhat. Natives perceived the tourism industries to increase dramatically. Although all groups consider tourism industries to increase in economic importance, only natives and ecotourists perceived tourism to become a dominant industry in the study area. Regarding perceptions of future economic importance of non-tourism industries, native's held similar attitudes to other resident groups. In the future, extractive resource industries were perceived to decline.

Industrial activities deemed most important to the local economy (agriculture, timber, and oil and g), were forecast to decrease (timber and agriculture) or stay the same (oil and gas) in economic importance in the future (Figure 4). This suggests that non-native residents had little optimism for long-term economic prosperity in the study area. Given that future employment prospects were deemed only somewhat promising by non-natives, residents evidently place little hope of economic prosperity on those industries deemed to grow in economic importance (tourism). Thus, non-native residents perceived the tourism industries in general, including ecotourism and birdwatching, to grow in economic importance but not enough to fill the void created by a perceived future decline in the current economic mainstay industries (timber, agriculture, oil and gas). Tourism industries in general were looked upon as having little economic value.

Non-native residents' negative and somewhat positive attitudes toward the potential of tourism to contribute to the local economy may severely effect the potential of ecotourism as well as other conventional tourism industries such as adventure travel to establish a stronghold in the study area. Without support of residents, tourism industry development may be relegated to innovative extra-local entrepreneurs who recognize potential economic benefits in nature-based tourism. Under such a scenario, most profits generated by tourism may leak out of local communities.

Based on anecdotal responses from open-ended questioning, general tourists perceived employment and economic conditions in the north very differently from residents. General tourists perceived employment prospects and the future of extractive resource industries to be very promising. General tourists seemed to envision "the North" as an economic boom waiting to happen. They perceived timber, agriculture, and oil and gas resources to be virtually

inexhaustible. Ecotourists placed a great deal of potential for economic growth in various tourism industries, including ecotourism and birdwatching.

Positive correlations held for the timber, agriculture, tourism and native groups on attitudes toward the current and future economic prospects of study area industries (Table 3). All respondent groups considered extractive resource and tourism industries to be economically important and not important, respectively, and their future economic importance to decrease and increase respectively.

Table 5A. Attitudes Toward Present Economic Importance of Study Area Industries

Propositions	Cat	Timb Mean	Tour Mean	Agric Mean	Nativ Mean	Total Mean	F	< P
1. These industries are economically important	ECON					#		# @
1. Timber	ECON	3.91	3.51	3.69	3.70	3.70	1.45	n.s.
2. Oil and Gas	ECON	3.44	3.46	2.75	3.10	3.10	2.13	n.s.
3. Agriculture	ECON	3.81	3.46	3.83	3.3	3.61	1.87	n.s.
4. Hunting	ECON	2.00	2.23	2.11	1.77	2.00	1.83	n.s.
5. Trapping	ECON	1.21	2.00	1.78	3.77	2.10	4.25	.005
6. Tourism: sightseeing	ECON	1.71	2.92	1.94	1.55	2.00	3.11	.05
7. Bird Watching	ECON	1.66	1.75	1.45	1.33	1.48	1.51	n.s.

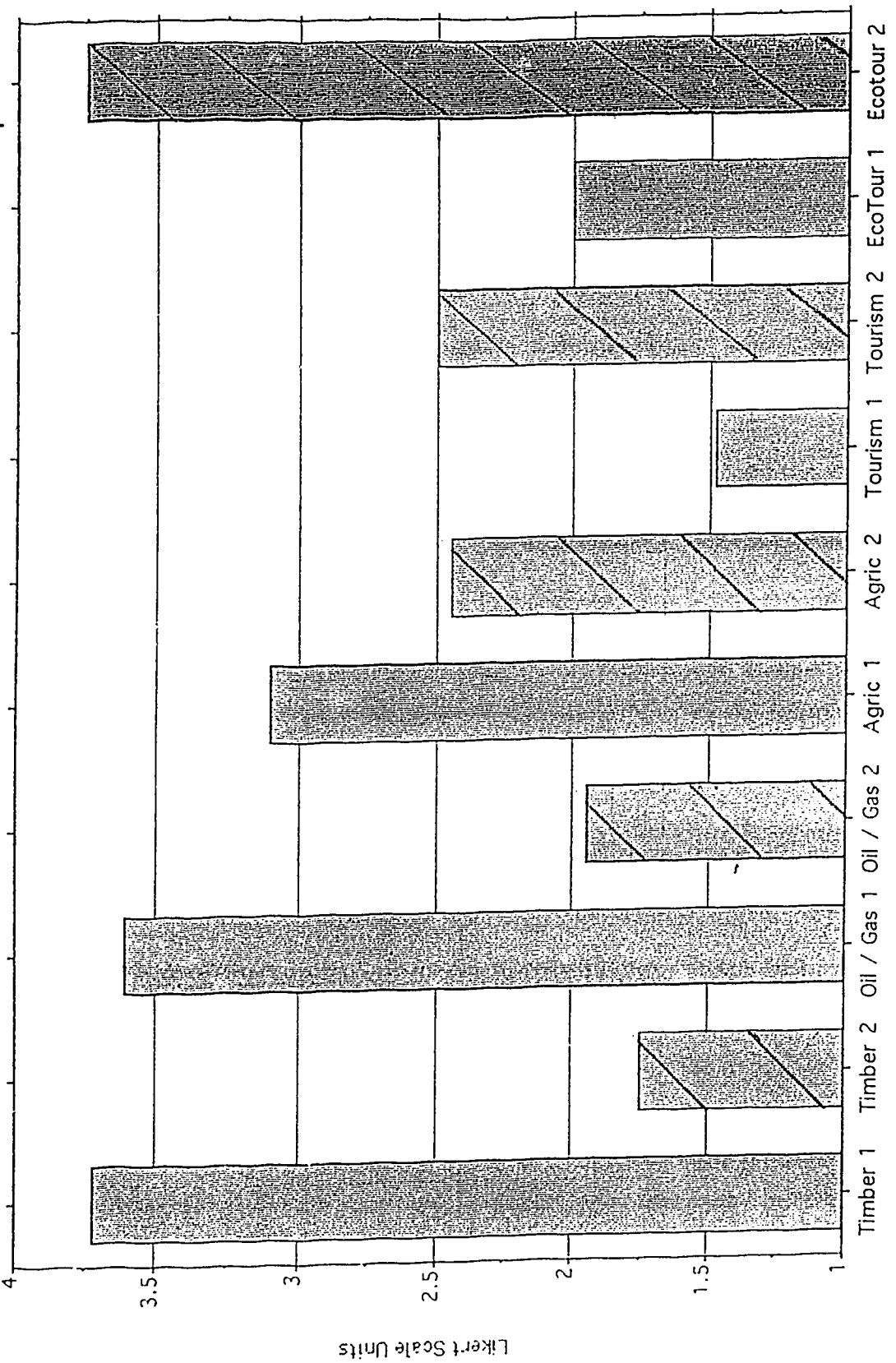
5B. Attitudes Toward the Potential of Study Area Industries to Increase in Economic Importance

Propositions	Cat	Timb Mean	Tour Mean	Agric Mean	Nativ Mean	Total Mean	F	< P
1. These industries will increase in importance	ECON					#		# @
1. Timber	ECON	2.75	1.61	1.25	1.37	1.75	1.59	n.s.
2. Oil and Gas	ECON	2.70	2.55	2.39	2.16	2.45	2.25	n.s.
3. Agriculture	ECON	2.62	2.33	1.23	1.64	1.95	1.73	n.s.
4. Hunting	ECON	3.24	3.31	2.73	2.77	3.03	1.81	n.s.
5. Trapping	ECON	1.21	2.00	1.68	1.22	1.53	4.01	.01
6. Tourism: sightseeing	ECON	3.44	4.00	3.57	4.00	3.75	3.24	.05
7. Bird Watching	ECON	2.81	3.29	2.87	3.41	3.09	3.40	.01

Table 6. Attitudes Toward Present Economic Importance of Study Area Extractive Resource Industries Compared to Tourism Industries and Their Potential to Increase in Economic Importance

Propositions Intermediate (*) and General (#) Levels of Explanation	Cat.	Timb Mean *	Tour Mean *	Agric Mean *	Nativ Mean *	Total Mean #	EcoT Mean *	F	<P
1. Resource industries are important to the economy	ECON	3.72	3.48	3.43	3.36	3.50	3.56	1.63	n.s.
2. Resource industries will increase in importance	ECON	2.50	1.88	1.75	1.75	1.97	1.50	3.90	.05
3. Tourism industries are important to the economy	ECON	1.78	2.22	1.82	1.54	1.84	2.56	4.03	.05
4. tourism industries will increase in importance	ECON	3.46	3.02	3.24	3.51	3.31	3.39	1.93	n.s.

Figure 4.
Economic Importance of Study Area Industries (1), and their Potential to Increase in Economic Importance



3. Knowledge of Wildlife

a. Intermediate Level of Explanation

Responses to individual wildlife identification questions (the specific level of explanation) are not presented because the data is more meaningful at the intermediate level of explanation. At the intermediate level of explanation wildlife results were collapsed into groups (songbirds, big game, owls, and sought-after owls) for clarification of intent (Figure 5). The intent was to determine the proportion of wildlife in each of the above groups which could be identified by respondents.

A. There is a significant difference between respondent groups in ability to identify wildlife ($F = 3.70$; D.F.: numerator = 5; denominator = 84; $P < 0.01$).

Significant differences were found in respondents' ability to identify wildlife. Natives and ecotourists had the greatest ability, while the timber, agriculture and general tourist groups had the least ability to identify wildlife (Table 7).

B. There is a significant difference between respondent groups in ability to identify groups of wildlife (*passerines* $F = 4.89$; : D.F.: numerator = 5; denominator = 84; $P < 0.001$, *owls* $F = 5.13$; D.F.: : numerator = 5; denominator = 84; $P < 0.001$, and *big game* n.s.).

There were significant differences in ability to correctly identify passerines, owls and big game (Figure 5, Table 7). Respondents correctly identified wildlife in the following order from most correct responses to least correct responses: big game; songbirds; owls. Thirty-one percent of study area residents, 7% of general tourists, and 93% of ecotourists correctly identified songbirds. Ninety-five percent of study area residents correctly identified big game, compared to 64% of general tourists and 100% of ecotourists. Nine percent of study area residents correctly identified sought-after owls, compared to 0% of general tourists and 67% of ecotourists (Table 7).

Study area residents identified 42% of all wildlife compared to 20% for general tourists and 84% for ecotourists. Collectively, 48% of all wildlife were

identified correctly (N=825) (all respondent groups and wildlife categories collapsed).

Two owls that are most abundant and visible (great gray and northern hawk owls), were least likely of all owls to be correctly identified by study area residents. Most respondents reported very infrequent sightings of big game, yet identified big game correctly significantly more often than passerines and owls. This suggests that knowledge of wildlife comes from sources such as media and printed materials in which big game is treated preferentially. Residents were rarely able to identify owls that are far more common and readily observed than big game. Residents were not unaware of owls, but apparently confuse them with other birds as is suggested by the common, yet incorrect, response that owls are more abundant in spring and fall during bird migrations. Further, this data suggests that owls may frequently go unnoticed even though they are visible by car during full daylight.

Figure 5. Percentage of Big Game (1) and Owls (2) Correctly Identified on Knowledge Test

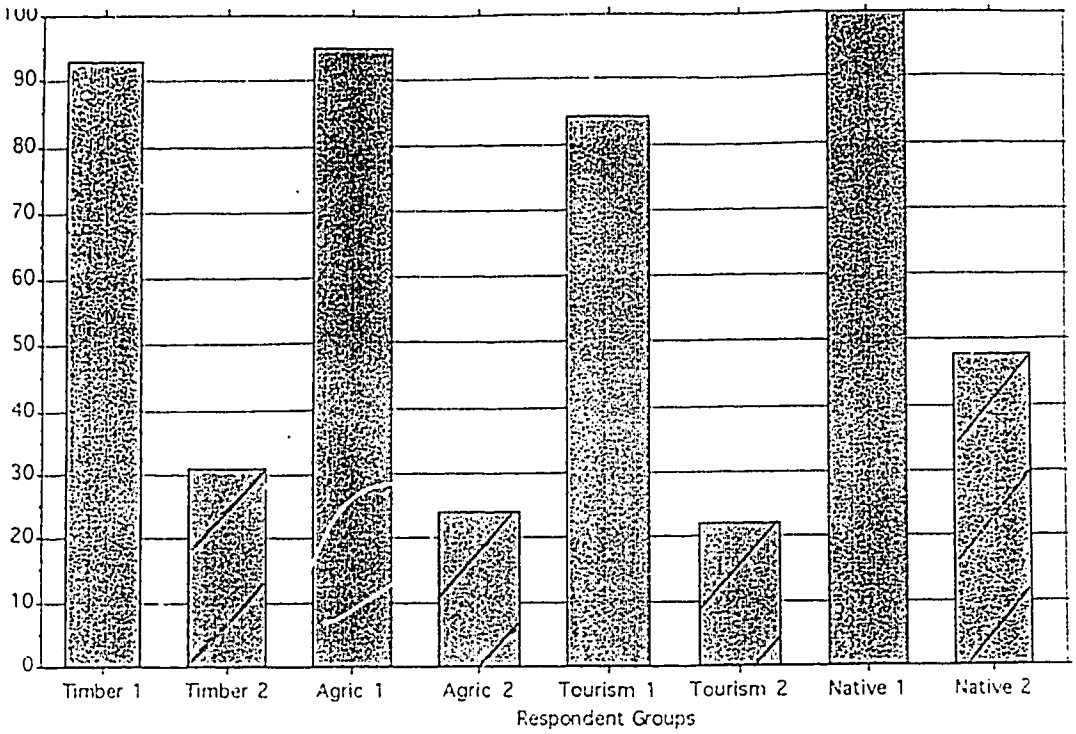


Table 7. Knowledge of Wildlife Identification by Respondent Group

Wildlife Knowledge correct Identification	Cat	Timb	Tour	Agric	Nativ	Total Res.	EcoT	Tourist
1. Songbirds	W.L.	20%	47%	20%	40%	31%	93%	7%
2. Big Game	W.L.	93%	93%	87%	100%	95%	100%	64%
3. Owls	W.L.	33%	27%	20%	47%	30%	78%	5%
4. Sought After Owls	W.L.	7%	0%	7%	13%	9%	67%	0%
5. Total Wildlife Identification Level	W.L.	39%	42%	34%	51%	42%	84%	20%

4. Attitudes Toward Ecotourism

a. Specific Level of Explanation

Question D1. There is a significant difference between respondent groups in perception of the study area's desirability to tourists (F = 4.11; D.F.: numerator = 5; denominator = 84; P < 0.001).

The general tourist, agriculture and timber groups perceived the study area to be far less desirable than did the tourism, native and ecotourist groups (Table 1; Figure 6). The tourism group perceived the study area to be less desirable than the native and ecotourist groups. The timber group perceived the study area to be least desirable.

Many respondents discounted the desirability of the study area by comparing it to the Rocky Mountains and to British Columbia. Typical responses were "why come here when they can go there?" and "what do we have to offer compared to these other places." Ecotourists and natives perceived the study area to be very desirable. Many native respondents were so concerned about the desirability of the study area that they expressed concern that not too many ecotourists visit the study area lest it become overcrowded.

Question D2. There is a significant difference between respondent groups in the perceived level of tourist crowding in the study area (F = 4.53; D.F.: numerator = 5; denominator = 84; P < 0.001).

The ecotourist and tourism group perceived the study area to be under - utilized by ecotourists while other groups perceived tourist visitation levels to be about right and too much (Table 1). The native group was hesitant to suggest that ecotourist utilization should increase substantially because of their concerns about ecotourist crowding and the potential for lack of respect paid them by tourists. However, many natives commented that if ethical codes mandated a limit to ecotourist crowding and respect for native cultural norms, they would support large increases in ecotourist visitation. Collectively, all groups except ecotourist and tourism were hesitant to encourage substantially increased ecotourist visitation.

Many respondents from the native, tourism, and ecotourist groups volunteered opinions about the effects of increased ecotourist visitation in the study area. These respondents perceived that their quality of life may decrease if ecotourist visitation and crowding increase. Many residents of the study area reported that qualities such as rural space, low population density, and lack of tourist crowding would be at risk if ecotourist visitation increased.

Question D4. There is a significant difference between respondent groups in attitudes toward social effects of ecotourism on citizens in communities in the study area (F = 2.89; D.F.: numerator = 5; denominator = 84; P < 0.025).

This question addressed whether ecotourism would have positive social and cultural effects on citizens of the study area (e.g., would ecotourism be disruptive to local social and cultural norms). General tourists, ecotourists, and the tourism group perceived ecotourism to have more social benefits to communities than did other respondent groups, viewing the social effects of ecotourism as good and very good (Table 1). The agriculture, timber and native groups suggested that ecotourism's social impacts were somewhat good and good. The native group was one of the most cautious regarding this question of social effects of ecotourism. Some natives viewed ecotourism as very good though most viewed it as not at all good and somewhat good because of a perception that tourists do not respect native cultural norms. However, natives suggested that if they were able to have regulatory control over ecotourism, it's social effects would be positive.

Collectively, respondents from all groups viewed ecotourism as having positive social effects on communities. These effects include, respect for local norms, economic diversification, increased employment, and cultural awareness. Social effects included incompatibility of ecotourism with local culture and tradition, lack of respect paid by ecotourists to citizens, and concern regarding the level of control citizens would have over the management of ecotourism. Many citizen concerns may be resolved with appropriate planning.

Question D5. There is a significant difference between respondent groups in the level of parochial community pride generated by owls and other wildlife ecotourism resources (F = 4.91; D.F.: numerator = 5; denominator = 84; P < 0.001).

There was a significant difference in the level of parochial community pride attributed to owls and other wildlife ecotourism resources between natives and ecotourists, and other respondent groups. Natives and ecotourists attributed more importance to wildlife as generators of community pride. Other groups considered wildlife not at all important and somewhat important as a source of community pride (Figure 7; Table 1). Collectively, respondents from all groups save ecotourists viewed wildlife as not at all important and somewhat important as a source of community pride.

The level of community pride generated by wildlife may be an important factor concerning ecotourism feasibility. Communities that do not celebrate and take pride in special features and unique attributes, such as wildlife, may experience great difficulty in developing an ecotourism industry because of high levels of parochialism. Parochialism (as defined in this thesis) is an indicator of disinterest in and lack of for appreciation for special features which may distinguish a community or region from another.

Question D6. There is a significant difference between respondent groups in the importance attached to owls and other wildlife as tourism resources ($F = 3.61$; D.F.: numerator = 5; denominator = 84; $P < 0.005$).

There was a significant difference in the perceived importance of owls and other wildlife as tourism resources between natives and ecotourists, and other respondent groups (Figure 8; Table 1). Natives and ecotourists considered wildlife as important and very important sources of tourism. Other groups viewed wildlife as not at all important and somewhat important. Collectively, respondents' from all groups had somewhat positive attitudes toward the importance of wildlife as tourism resources.

Question D7. There is a significant difference between respondent groups in attitudes toward wildlife ecotourism before and after information was given on it's potential economic benefits (n.s.).

This final attitudinal question asked respondents if wildlife in the study area could be an important source of tourism. No significant difference was found in attitudes toward the importance of owls among other wildlife in attracting ecotourists to northern Alberta before and after respondents were

presented with statistics on the economic merits of wildlife ecotourism (Figure 8; Table 1).

When presented with ecotourism economic and participation statistics which quantify the popularity and potential economic benefit of ecotourism, some respondents stated that they now attributed slightly more importance to ecotourism development in the study area. Native respondents generally did not change their opinion, which was already strongly supportive of ecotourism development potential. The general tourist's response was also unaffected by the economic and participation statistics. Ecotourists, who consider ecotourism to be very important, were unable to increase the level of importance they attached to ecotourism because the Likert Scale would not accommodate any increase beyond very important.

The tourism, timber, and agriculture groups considered wildlife tourism slightly more important after being read the economic statistics. Many respondents from the timber and agriculture groups responded that they did not believe the statistics were true.

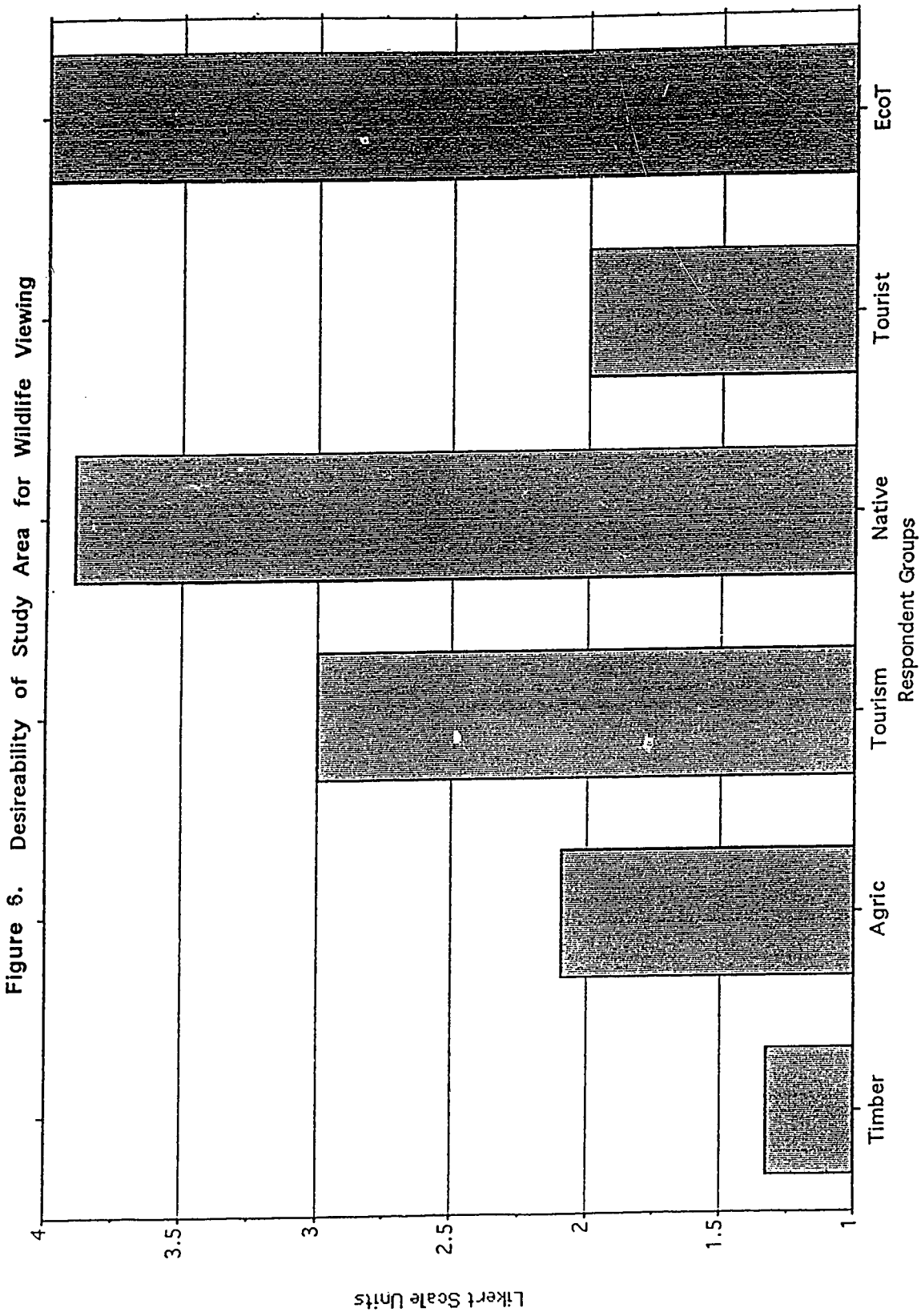


Figure 6. Desireability of Study Area for Wildlife Viewing

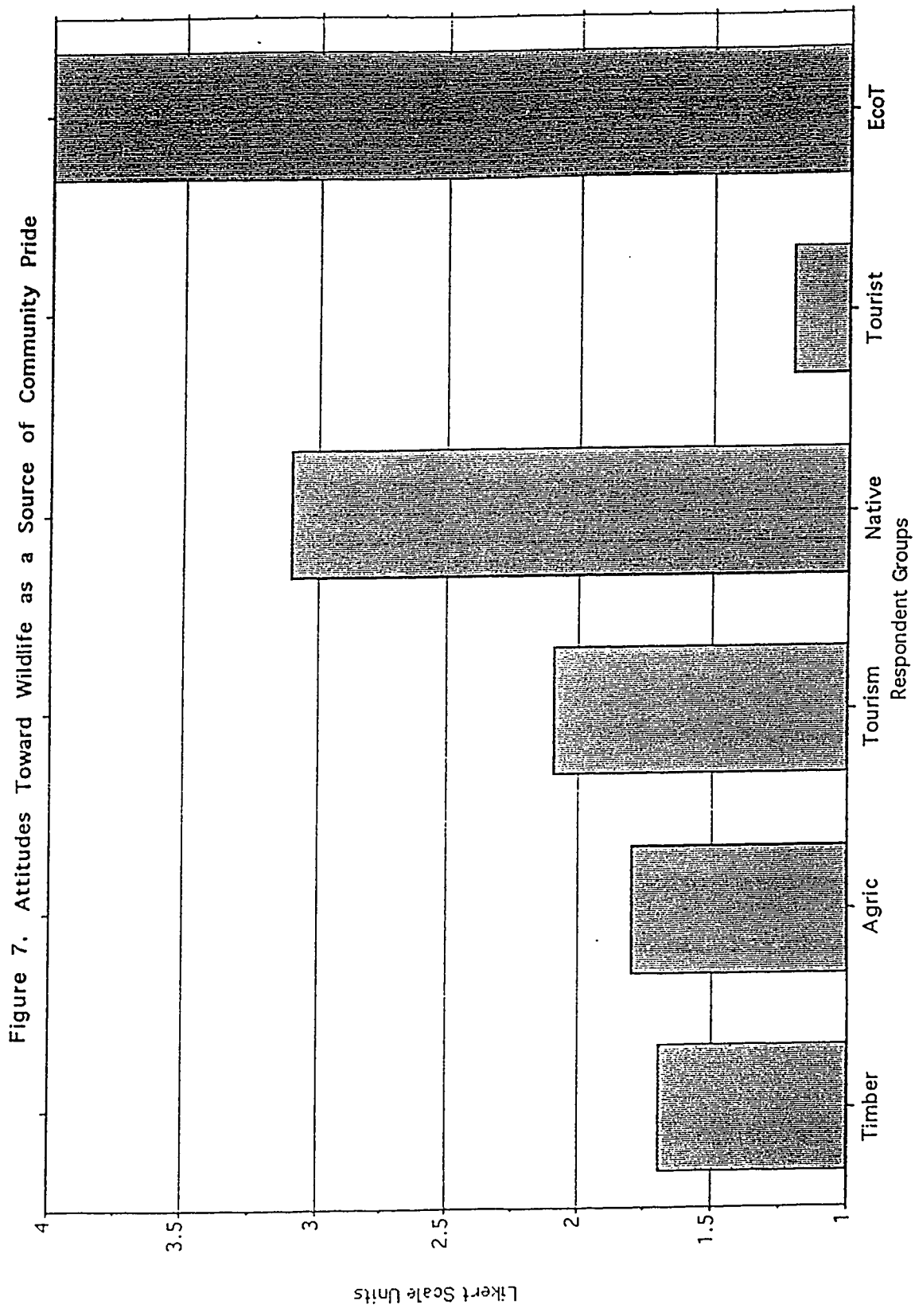
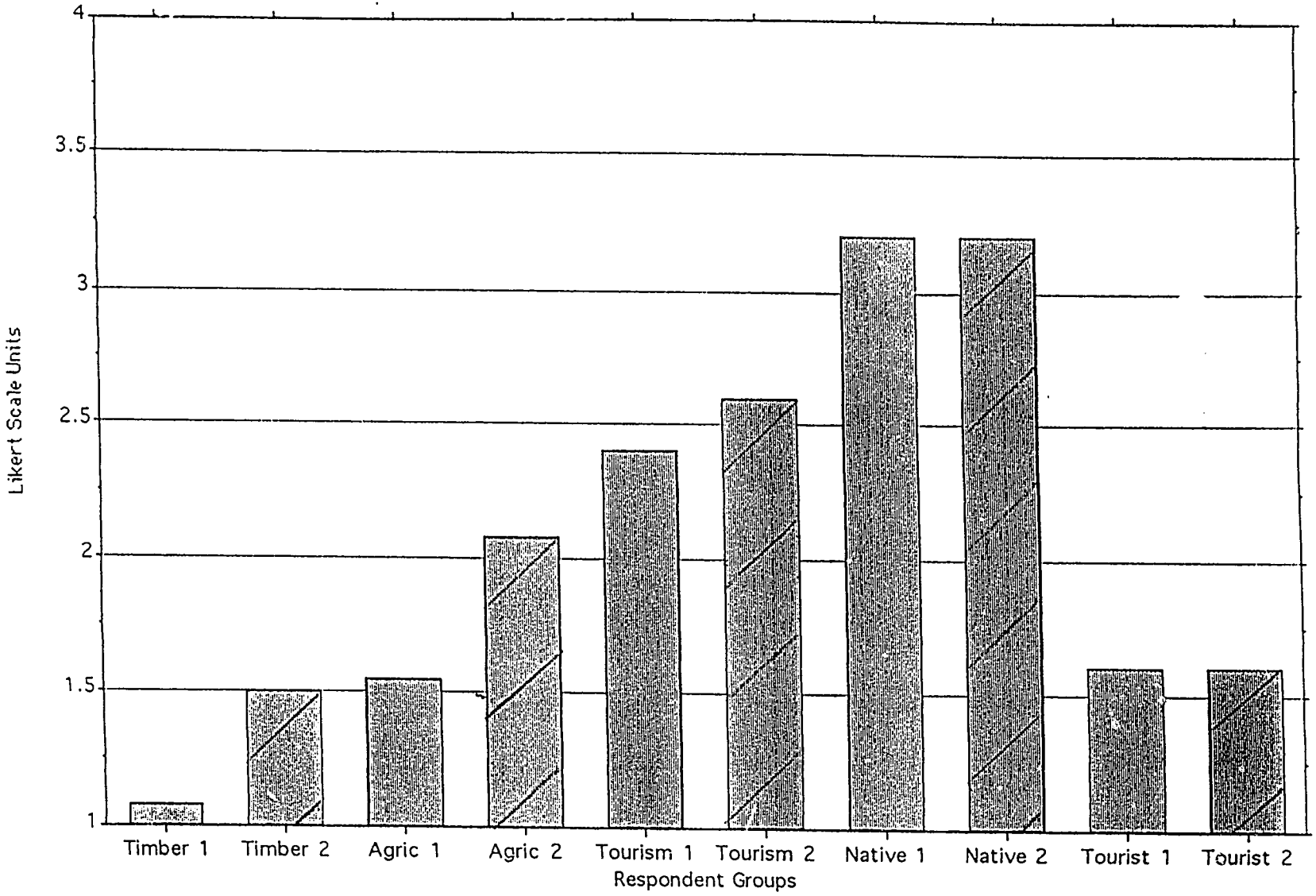


Figure 7. Attitudes Toward Wildlife as a Source of Community Pride
Likert Scale Units
4
3.5
3
2.5
2
1.5
1
Timber
Agric
Tourism
Native
Tourist
EcoT
Respondent Groups

Figure 8. Attitudes Toward the Importance of Wildlife for Ecotourism Before (1) and After (2) Respondents were presented with Positive Ecotourism Economic Statistics.



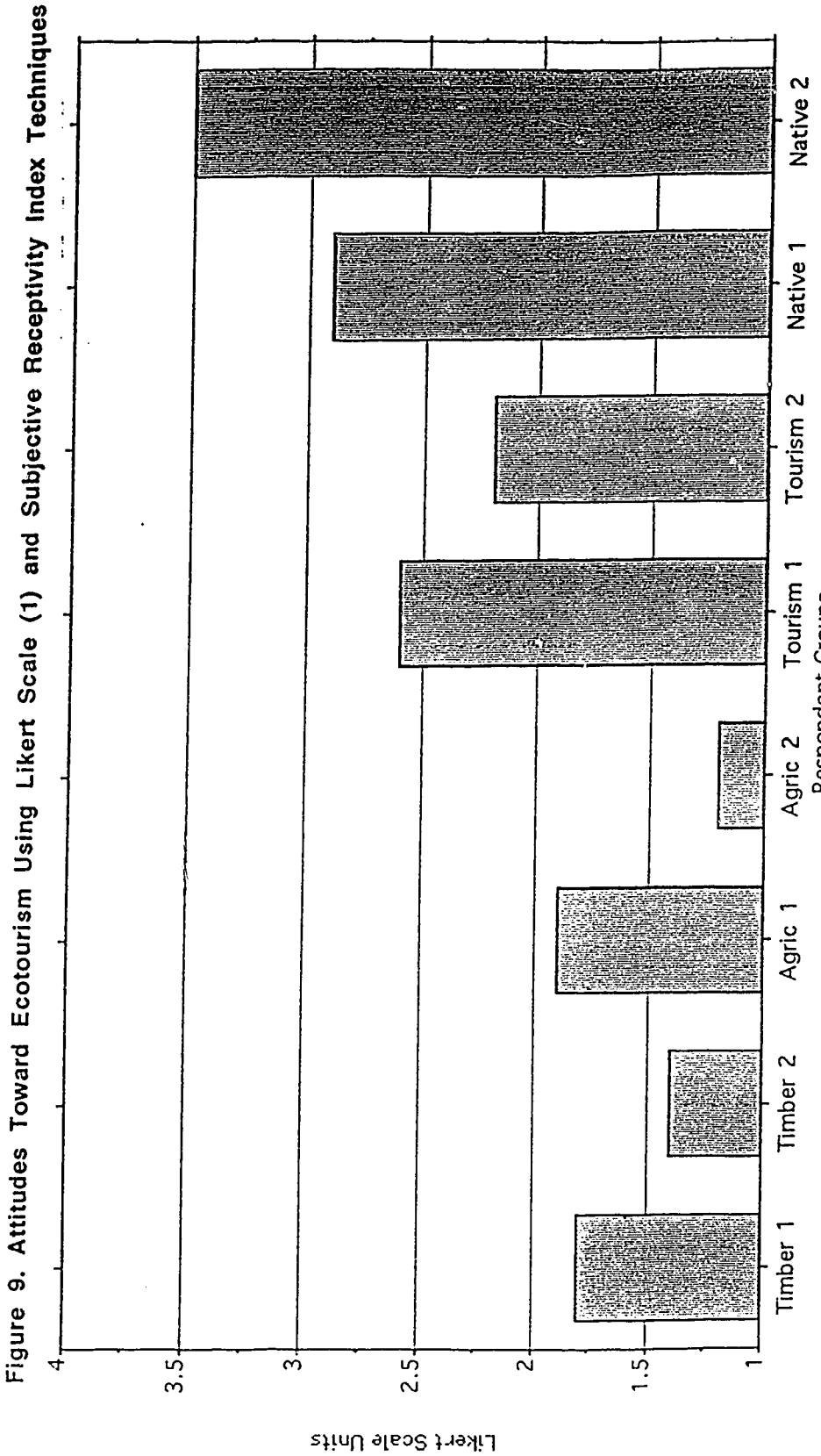


Figure 9. Attitudes Toward Ecotourism Using Likert Scale (1) and Subjective Receptivity Index Techniques

D. Results of Open-Ended Interviews on Attitudes Toward Ecotourism

1. Introduction

Open-ended survey results indicated that non-native respondents may harbor less positive attitudes toward ecotourism than was believed from Likert Scale responses, while native's may possess more favorable attitudes (Figure 10). Following is a description of the intent of open-ended questions:

Question one elicited responses on interviewee's willingness to participate in the creation of an ecotourism industry, and what effect this new industry would have on the industries in which they currently work. Question one was analyzed regarding the following criteria:
1. Respondent's willingness to play a role in establishing ecotourism;
2. The number of roles identified: (identification of 1 role = Minor, 2-3 roles = Medium, 4 or more roles = Active). Minor, medium and active ranks were developed intuitively based on natural divisions in the data.
3. How respondents would be effected by ecotourism.

Question two sought to determine if attitudes toward ecotourism were related to whether respondents perceived ecotourism to be a threat to, or would result in conflict with, extractive resource industries, through competition for natural resources.

Question three, which was only asked to the tourism group, sought to determine respondent's level of familiarity with ecotourism. Respondents were asked to define ecotourism and were asked if they were familiar with ecotourism literature.

Questions four and five, which were asked to the native group, sought to determine whether natives perceived ecotourism as consistent with their traditional beliefs and whether ecotourism was perceived to be a feasible development option for natives.

2. Open-Ended Questions

1. If nature tourism based on wildlife viewing became an important economic activity in this area, what role and how active a role could you, and the industry in which you work, play? How would you and your industry be effected? (asked to all respondent groups).

2. Is there a conflict between ecotourism and the timber / agricultural industries regarding converting forest into rotational timber and agricultural land. There is good reason to believe that many of these forests (especially the older age forests) are important for certain wildlife highly sought after for nature tourism. What is your perspective on thisissue? (asked to all respondents).

3. What does ecotourism mean to you? Do you keep up to date with ecotourism literature? (asked to the tourism group).

4a. Is ecotourism based on wildlife viewing consistent with traditional values and land use practices? (asked to native group).

4b. May ecotourism be a feasible economic development option for natives? (asked to native group).

3. Summary of Results for Open-Ended Questions

a. Question One

Thirty-seven percent (22 of 60) of resident respondents were not willing to play a role in ecotourism. Sixty-three percent (38 of 60) of resident respondents were willing to play a role in ecotourism. Of the 63% willing to play a role in ecotourism, 18% (11 of 60) were willing to play only a minor role (one ecotourism role identified). Respondents from the timber and agriculture groups were the dominant respondents from the "minor" category. Twenty-five percent (15 of 60) were willing to play a moderate role (two or three ecotourism roles identified). The native group and a limited number from all other groups were the dominant respondents in the moderate category. Twenty percent (12 of 60) were willing to play an active role (four or more ecotourism roles identified). Fifty-five percent of respondents suggested that they were not willing or only willing to play a minor role in ecotourism because they did not think ecotourism development was economically feasible. Representatives of the tourism group were the only respondents in the active category (Figure 10).

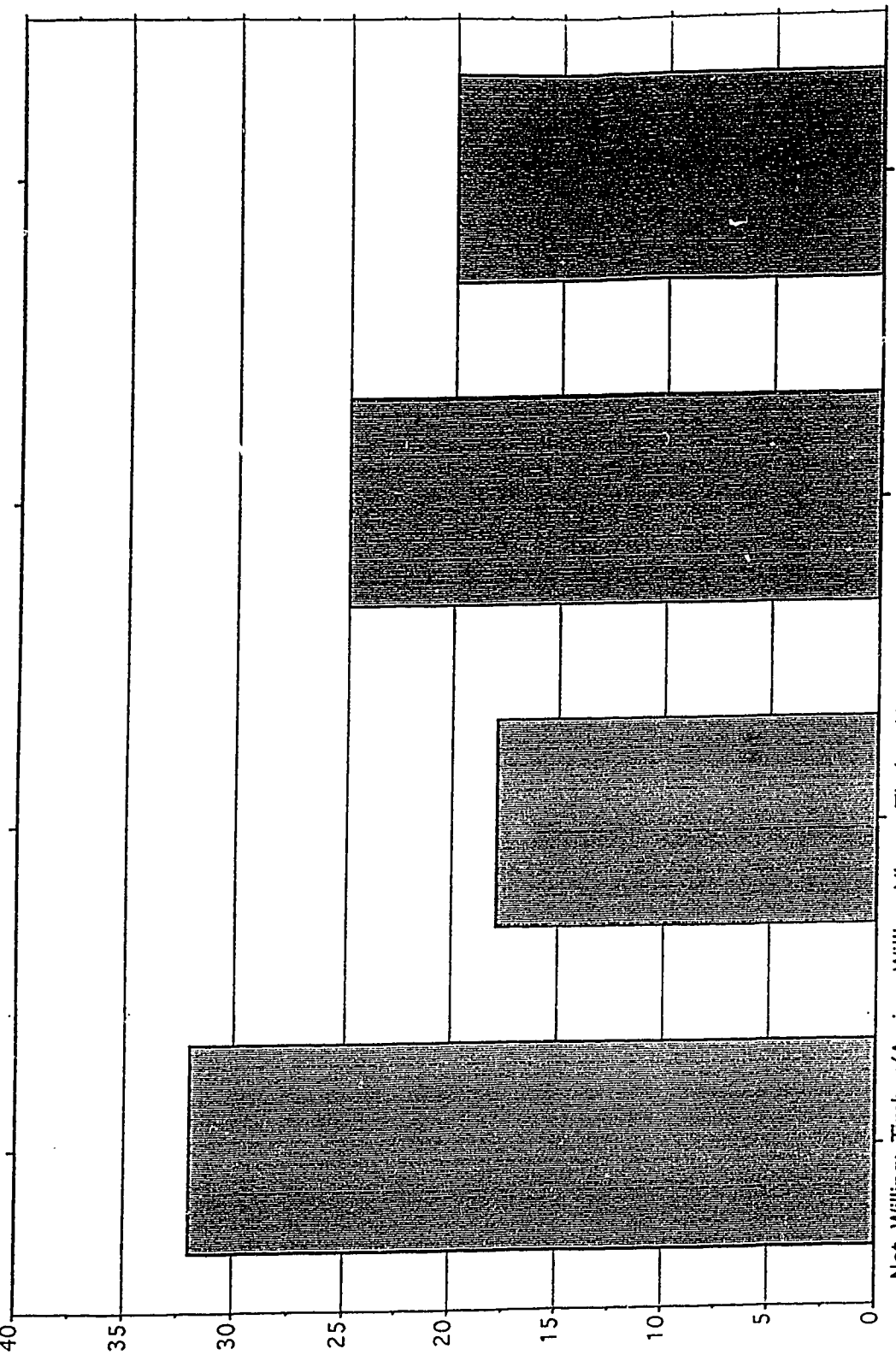


Figure 10. Percentage of Respondents Willing to Play a Role (Minor , Medium or Active) in Ecotourism Development by Respondent Groups Dominant in Each Category

b. Question Two

The agriculture and timber groups indicated that their might be a controversy with ecotourism over harvesting older age class forests; however, both groups suggested that the controversy was political rather than ecological. Combined, 87% of representatives from these two groups dismissed the possibility that the land management practices of their respective industries have a negative impact on some wildlife in old forests. The tourism and native groups felt that harvesting timber has a negative impact on some wildlife, and that there is a controversy between forest management and ecotourism. Combined, 100% of the tourism and native group felt that harvesting of older age forests has negative impacts on some wildlife.

Twenty percent of the agriculture group expressed some concern over a perceived negative impact of forestry on wildlife, yet were unwilling to apply similar criticism to agricultural practices. There is some legitimacy to this, however, as the impact of forestry on wildlife in the study area is currently greater than the impact from agricultural land clearing. Agriculturists also generally harvest younger age forests than the timber group, with a concomitant decrease in negative impact on wildlife.

Upon learning that many wildlife sought-after for ecotourism prefer older age class forests, many respondents from the timber and agriculture group became hostile, disagreed that some wildlife need older forests and suggested that these wildlife could move elsewhere if their habitat was harvested. Forest management practices in the study area favor harvest of older age class forests. This author, upon asking a timber employee where old growth was located within the study area was met with the following response: "If you want to know where the old growth is just look at the timber harvest planning map.....the old growth shows up as areas destined to be harvested in the near future" (Anonymous pers comm. 1992).

4. Results of Open-Ended Questions by Respondent Group

a. Timber - Question 1

Data for the timber group is provided both with and without making distinctions between government and private industry respondents. Eight interviews were conducted with government timber workers; seven interviews were conducted with private timber workers.

Collectively, 13% of the timber group were willing to play a role in the development of ecotourism. No differences were found between government and industry respondent's willingness to play a role in ecotourism. Seventy-two percent of private industry and 88% of government forest service respondents were not willing to play a role in ecotourism development. However, 100% of government respondents recognized they would be forced to play a role if ecotourism was developed in the study area. Government must play a role, according to one interviewee, because "we represent the voice of the public in the management of crown forest land, and because recreation is within the government mandate of forest management." The rationale for Alberta Forest Service respondent's unwillingness to participate was lack of time (57%) and lack of personal interest in ecotourism (71%).

Eighty-eight percent of government respondents identified two or three specific roles they could play, placing them in the moderate category of role complexity. These respondents suggested that provision of recreational opportunities would be their dominant role in ecotourism. In response to being asked what role they could play in facilitating ecotourism in the study area, government respondents suggested that they could add to and improve existing campsites in areas desired for ecotourism. Also, they suggested they could provide information on, and direct tourists to, ecotourism resources. However, most respondents suggested that the forest service may not be interested in participating in community education nor tourism marketing aspects of ecotourism because of the "politics" (preservation incentives) involved in ecotourism development.

In response to being asked what role they could play in facilitating ecotourism in the study area, private industry respondents suggested they could direct the public to wildlife resources and educate them about forestry. Respondents perceived ecotourism as an opportunity to demonstrate to the public that forests are managed with consideration for all wildlife resources. Private industry perceived themselves as knowledgeable about interpretation of wildlife resources and seemed interested in ecotourism from a public relations standpoint, and as a means to affect public image of the private timber sector. As with government, 86% of ecotourism roles identified by private timber respondents involved the provision of recreational opportunities. Private sector respondents suggested fewer roles than government respondents.

Seventy-one percent of private sector respondents voluntarily suggested that timber management activities would be negatively affected by ecotourism through increased competition for timber resources. They were extremely hesitant to endorse ecotourism due to perceived negative effects of ecotourism on forestry operations.

Timber - Question 2

Seventy-five percent of government respondents and 100% of private industry respondents suggested there was no basis to the hypothetical controversy, as posed, and, therefore, the question asked of them was invalid. Respondents did not deny that a controversy may arise, but implied that it would be invalid because current forest management is compatible with wildlife and ecotourism.

Many of the arguments given by respondents were unrelated to the issue of wildlife habitat requirements, but rather were given in defense of current forest management practices. Rationale for the timber group's attitudes toward the controversy, from most frequently to least frequently cited, included the following attitudinal statements:

1. There is enough old growth forest for the wildlife that need it (cited by 80% of respondents);

2. Old growth forests are unhealthy and will decay and die unless they are harvested (53%);

3. There will always be enough old growth in protected areas to maintain biodiversity (40%);

4. Wildlife dependent on old age class forests can go elsewhere i.e., they can go find other old growth or move into younger growth forest (33%);

5. We must provide forest fibre products based on consumer demand; (27%);

6. Old growth will be created through forest management practices (13%);

7. Wildlife will benefit if forest managers clean up old growth (i.e., harvest) (7%);

Two arguments were given by the two respondents who perceived that the controversy was valid:

1. Old growth should be identified and protected;

2. Forests should be managed in longer rotations to create old growth conditions;

In conclusion, despite differences in open-ended question responses between private and government timber interests, there were commonalties in their attitudes. Timber respondents were less positive about ecotourism, less willing to participate beyond a limited extent in ecotourism development, and perceived there to be considerable controversy and competition between forest management land-use practices and ecotourism industries. However, they felt that the ecological impacts of forest management in older forests were minimal or non-existent, and thus that the controversy was political.

b. Agriculture - Question 1

Forty percent of agriculturist's responded that they were unwilling to play a role in ecotourism, and demonstrated through their responses that they may have less positive attitudes than would be indicated through Likert Scale results. No agriculturists were willing to play a major role in ecotourism and few were willing to play a medium role. Rationale for the agricultural group's relatively low level of willingness to participate in ecotourism, from most frequently to least frequently cited, included the following attitudinal statements:

1) Tourists cannot be trusted (cited by 13% of respondents);

2) Wildlife are a problem on the farm, we don't want to encourage wildlife (13%);

3) Farmers are too busy already and have little time to participate in ecotourism (13%);

4) New people (tourists) and lifestyle change (the development of a new ecotourism industry) are not wanted (13%);

In response to being asked what role they could play in facilitating ecotourism in the study area, 60% of agriculturists suggested they were willing to play a role in ecotourism. Twenty-seven percent of agriculturists were moderately interested in ecotourism and suggested two or three roles. Thirty-three percent of agriculturists mentioned only one role. They were hesitant to play a role in ecotourism. Most role involved minor changes in farm practices. Most farmers reported that they were only willing to play a role in ecotourism because the farming community needs economic diversity.

From most commonly to least commonly cited, the farmers suggested they could:

1) Provide access to private land (cited by 20% of respondents);

2) Serve as guides (13%);

3) Offer farm accommodations (13%);

4) Build trails (7%);

5) Increase the number of accommodations in farming communities (13%);

6) Maintain hedgerows and windrows (7%);

7) Preserve land not suitable for agriculture (7%);

Eighty-seven percent of agriculturists interviewed suggested that ecotourism would have a negative effect on their industry. Like the timber group, they perceived that conflict over land-use would arise because of political rather than ecological priorities. They felt that the perceived preservation and conservation concerns of ecotourism were unfounded.

Agriculture - Question 2

Eighty percent of farmers said there was no basis to this hypothetical controversy. Like the timber group, many of the responses given were unrelated to the issue of wildlife ecology, but rather were given in defense of maintaining current agricultural and/or timber practices. Rationale for the agriculture group's attitudes toward this hypothetical controversy, from most frequently to least frequently cited, included the following attitudinal statements:

1) Farmers only harvest aspen and poplar, which are not as important for wildlife as the creek and river valley areas (author's note: creeks and river valley areas are mostly aspen and poplar) (cited by 27% of respondents);

2) Forests important for wildlife are not in the white zone (agricultural zone) (27%);

3) wildlife have space in forests elsewhere (27%);

4) Good wildlife habitat is not suitable for farming (20%);

5) There is very little agricultural land left to clear (13%);

6) Farmers need to expand operations because of low economic returns (7%);

7) Farmers needs are more important than the needs of wildlife (7%);

8) Farmers have no choice but to expand the agricultural land-base (7%);

Similar answers were given in response to this question from the timber group. Such answers are interesting as they are unrelated to the question at hand yet seem to be forthcoming from industries that would face the most competition with ecotourism for timber resources.

Twenty percent of agriculturists acknowledged that they believe a conflict will arise, but the conflict will be minor because agriculture and timber practices are not a large problem for wildlife. Only two attitudinal responses were given by this group:

1) Too much land is cleared for agriculture (13%);

2) A problem exists but farmers have a very low impact on wildlife compared to forestry (7%);

Twenty percent of farmers acknowledged that they believe agricultural practices should be improved to provide wildlife habitat, but did not consider agriculture practices to be a problem for wildlife. These farmers gave the following attitudinal responses:

1) Improve attitudes toward wildlife (7%);

2) don't kill predators (7%);

3) stop hunting for sport (7%);

In response to a follow-up question "How could agricultural practices be changed to provide wildlife habitat," seventy-three percent of farmers responded that agriculture practices are compatible with wildlife. From most frequently to least frequently cited responses, farmers stated:

1) Farmers have a right to clear land for agriculture (cited by 60% of respondents);

2) Farming practices are good for wildlife - look at all the coyotes, great horned owls and hawks using farmland (40%);

3) Farmers are paid not to combine crops and this is good for wildlife (13%);

4) Farmers welcome many wildlife on the farm (13%);

5) Most wildlife can live in what the farmer leaves behind and in windrows (13%);

c. Tourism/Service - Question 1

The tourism group gave the most elaborate and complex responses to the open-ended questions. However, most respondents suggested that there was only a minor role for ecotourism in the study area. This group also displayed a lack of knowledge of ecotourism and of appreciation for the expectations, needs and wants of ecotourists compared to general tourists.

In response to being asked what role they could play in facilitating ecotourism in the study area, 100% of the tourism group respondents stated that they were willing to play a role in ecotourism. Eighty percent of respondents from the tourism group identified four or more roles, placing them in the highest category of role complexity. The tourism group identified roles that were more complex and sophisticated than other groups.

The tourism group was the most creative and innovative of all groups in responding to the open-ended questions. Unlike other groups interviewed, the tourism group was more heterogeneous, with representatives from tourist information centres, tourism bureaus, historical societies, airports, and tourism lodge operators. However, respondents from the tourism group did not demonstrate an appreciation for the importance of considering the different needs of ecotourists compared to general tourists in the study area. Roles identified by the tourism/service sector were aimed mostly at a general tourist audience. For example, many respondents suggested that regarding wildlife ecotourism, they could arrange for guides to view and hunt such things as beaver, moose, and bear and that ecotourists would respond favorably to the development of traditional tourist facilities such as roads, golf courses, hotels, and restaurants. The fact that ecotourist's have different expectations, wants, and needs than general tourists was largely overlooked. Many responses to question one fell into one of three categories:

1) The beneficial social role of tourism in stemming community decline;

2) Provision of quality tourist services;

3) Product marketing;

Many responses did not necessarily involve a role for the respondent but rather focused on the benefits that tourism would bring to their respective

community. Many of the respondents in the tourism group were highly educated, long-term residents of the study area and were intimately involved in local community development. These responses included:

1) The ability of tourism to stimulate a community's economy and social well-being from within;

2) Hiring locals in the tourism industry;

3) Locally owned and operated tourism businesses;

4) Tourism may provide incentives to stop "brain drain" (out-migration of educated youth), poverty, inequality and apathy in small isolated communities;

5) Tourism may stimulate cooperation between communities.

Responses regarding the provision of quality tourist services included:

1) Improve services: air, hotel, restaurant, recreation;

2) Clean up communities to make them more attractive to tourists;

3) Improve road network: Fort Vermilion and La Crete are a dead end;

4) Kill wolves so wildlife that tourists want to see will become more abundant;

5) Train guides to accommodate tourist needs;

6) Develop local tourism promotion events;

7) Improve services and accommodations for tourists;

8) diversify opportunities available to tourists;

9) Offer tourism operator training and development course;

10) Build golf courses, parks, and resorts;

11) Develop ecomusee;

Product marketing roles were discussed only by employees of tourism information centres and hotel owners. The roles suggested included:

1) Product promotion and development;
2) Product marketing;
3) Advertising;
4) Networking through tourism associations and Alberta tourism;

In summary, it seems that the tourism group had the highest level of knowledge of, and willingness to participate in, ecotourism. They demonstrated an intimate knowledge of general tourism development strategies, yet very little knowledge of ecotourism marketing and product development. Many respondents seemed to be interested in tourism development for local economic diversification, community well-being, and local quality of life. The tourism group, however, considered demand for ecotourism to be low. Thus, although they suggested many roles in which they "could" participate in ecotourism, most thought there would be few opportunities because of low development potential.

c. Tourism - Service - Question 2

Eighty percent of the tourism group perceived a conflict between timber and agriculture interests and tourism interests. The tourism group generally perceived that the timber/agriculture industries were harvesting or converting forest into agricultural land at unsustainable levels, with concomitant negative effects on some wildlife. Rationale for the tourism group's attitudes toward the timber and agricultural industries, from most frequently to least frequently cited, included the following attitudinal statements:

1) Wildlife are being compromised by overcutting (cited by 60% of respondents);

2) Many harvested areas are not growing back as expected (33%);

3) Not enough concern is given to the impact of forestry on wildlife (33%);

Twenty percent of the tourism group perceived the forest management activities of the timber and agriculture industries to be beneficial to wildlife. Rationale for the tourism group's attitudes toward the timber and agricultural industries, from most frequently to least frequently cited, included the following attitudinal statements:

1) Harvesting timber is beneficial to many wildlife important for tourism (cited by 20% of respondents);

2) Wildlife can find other places to live (13%)

c. Tourism-Service - Question 3

Eighty-six percent of respondents' had little or no familiarity with ecotourism, and none kept up to date on ecotourism literature. The 13% who claimed familiarity had extremely limited knowledge of ecotourism and were able to provide only general descriptions based on recreational activity preferences rather than ecotourism ethics or recognition of the appreciative nature of ecotourism. Activities mentioned in the definitions included: hiking, canoeing, wildlife viewing, skidooing, hunting and fishing.

d. Native - Question 1

Natives differed markedly from other groups in the roles they saw themselves fulfilling in ecotourism and the effects ecotourism was perceived to have on their lives. Seventy-three percent of native's expressed willingness to play a role in ecotourism. Sixty-seven percent envisioned themselves fulfilling more than one role. Many natives went into considerable depth in explaining the role(s) they envisioned themselves playing. Roles fell into two categories -- outright ownership of an ecotourism business (cited by 20% of respondents) and the offering of guiding services (cited by 80% of respondents). Those who were unwilling to play a role in ecotourism were mostly influential older natives who were spiritual leaders and deeply traditional. The younger and somewhat less traditional generation viewed ecotourism as an entrepreneurial opportunity.

Many natives also envisioned themselves fulfilling roles in developing ecotourism regulations, patterns of ownership, implementation methodology, and exercising native control of the industry (cited by 20% of respondents). Provided that their concerns about these issues were adequately addressed, natives were very willing to become involved in ecotourism. Most natives suggested that their role would be in the form of guiding services, as they considered themselves to have much to offer in the way of natural and cultural history interpretation skills. One concern frequently voiced by natives was that only select individuals (who own boats and outboard engines) will prosper from ecotourism. Several native elders suggested that ecotourism may not economically benefit those who need it most. Thus many natives viewed the financial constraints of start-up costs (boats, outboards and lodges) as being prohibitive. Natives overwhelmingly expressed frustration and confusion regarding their ability to become involved in ecotourism development and marketing.

Natives generally perceived ecotourism development as having positive effects for them personally, and on the native community as a whole, provided they have regulatory control over development. Unlike the timber and agriculture groups, natives did not perceive there to be a conflict of interest between native land use practices and ecotourism. Many natives were employed seasonally by the timber industry, but perceived the timber industry to be practicing poor forest management.

d. Native - Question 2

One hundred percent of the native group perceived there to be a conflict between timber interests and tourism interests. Natives overwhelmingly perceived forest management practices to be poor and agricultural land expansion to be inconsistent with the ecological requirements of wildlife and ecotourism. No distinction was made between management of old growth forests and younger forests. Rather, natives perceived all forest management to be poor. Rationale for the native group's attitudes toward the timber and agricultural industries, from most frequently to least frequently cited, included the following attitudinal statements:

1) Wildlife are being eliminated by overcutting (cited by 100% of respondents);

2) Many harvested areas are not growing back as expected. Many wildlife don't use these areas (80%);

3) Not enough concern is given to the impact of forestry on wildlife (53%);

d. Native - Question 4a

Fifty-three percent of respondents suggested that ecotourism is consistent with traditional values and land-use practices, while 47% said it is not consistent. Those who said ecotourism is inconsistent were concerned that natives with non-traditional values may become involved with ecotourism for entrepreneurship and further erode traditional values and spirituality in the reserves.

Native elders suggested that those natives with the requisite financial resources to become involved in ecotourism are those least respectful of traditional beliefs.

d. Native - Question 4b

Seventy-four percent of respondents suggested that ecotourism may be feasible because it is small scale, low cost, low in infrastructure requirements, and may be controlled by natives. However, many natives followed by suggesting that their financial restrictions would be a limiting factor in ecotourism development. Concern was raised by several interviewee's regarding the limited and seasonal nature of the jobs that would be produced.

One elder suggested that native people don't need "those" kind of jobs with limited seasonal employment. He suggested that natives leaders can provide better jobs for their people on the reserves.

Native's were the most positive of all groups in their attitude toward and willingness to accept ecotourism. The roles they identified lacked the complexity of the tourism group regarding marketing and product development. However, natives offered more specific details regarding guiding, indicating an appreciation for the type of experience desired by ecotourists.

Natives were concerned about patterns of ownership and control over the ecotourism industry, should it become established in the study area. Natives seemed unlikely to embrace ecotourism unless they control business ownership and activities on native land, and provided that financial assistance is provided for start-up costs. They were concerned about lack of respect for traditional values and potential for erosion of their culture as a result of ecotourism development.

5. Ecotourism Receptivity Index

At the conclusion of each interview, respondent's general predisposition toward ecotourism was estimated using a four-point Likert-Type Scale similar to those used in the formal questionnaire, the difference being that no question such as "how receptive are you to ecotourism?" was asked. Rather, the interviewer subjectively ranked each respondent based on collective responses elicited during the interview and also considered non-quantifiable estimates of receptivity such as facial expressions and gestures. Because of the subjective ranking system applied, data were not subjected to statistical treatment. Scaled indexes were combined by individual respondent group type (e.g., timber) and by all study area resident groups combined. Results indicate that all resident groups save natives were less receptive toward ecotourism in the study area than was indicated by formal survey questionnaire results (Figure 9). The scaled response for all resident groups save natives was 1.7 on a scale of one to four, or between the not at all receptive and somewhat receptive category. The native group was the only resident group more receptive toward ecotourism based on the subjective index (3.5) than based on formal Likert Scale questioning. Ecotourists were highly receptive toward ecotourism (3.6) and seemed aware of alluring special features in the study area. General tourist's,

however, were less receptive toward ecotourism than other groups (1.5) and generally did not perceive the study area to be attractive to tourists.

6. Thematic Visible Index Results

The prevalence of boreal and northern forest themes in public artwork and library collections were assumed to be an affective (versus cognitive) measure of appreciation of local natural history. Thus, the degree of manifestation of these themes was assumed to be an indicator of attitudes toward boreal and northern forests. Because this study primarily measured cognitive aspects of attitudes, a strategy to measure emotions was deemed necessary.

Public artwork was examined in the three primary study area communities (Fort Vermilion, La Crete and High Level) for themes demonstrating artistic and literary pride in boreal natural history themes. Of 245 works of art displayed in buildings with public access, including hotels, restaurants, shopping centres, libraries, banks, and government offices, 204 (81%), depicted natural history themes. Seventeen (4.9%), portrayed images of boreal natural history themes. One hundred eighty-seven (76.3%) portrayed other natural history themes not representative of boreal natural environments. Most artwork focusing on non-boreal themes were of generic mountain landscapes and tropical regions.

Themes representing natural history of boreal forest environments were examined in three public libraries as a cognitive measure and extension of learning regarding knowledge about and appreciation for boreal forest natural history. Of 359 books on some aspect of natural history, 53 (15%) focused specifically on, or had substantive reference to, some aspect of boreal forest natural history. Most books on natural history focused on general natural history, geographic regions stereotyped as special, such as oceans and tropical forests, and charismatic animal life.

V. DISCUSSION

A. Introduction

Much of this section focuses on discussion of respondents' attitudes, as revealed by the sample survey. Speculation is made as to the implications of respondents' attitudes for ecotourism planning and development. To discuss these implications in a meaningful way, this author offers unsubstantiated speculation on the direction of (from positive to negative along an attitudinal continuum), strength of, and conceptual linkages between attitudes toward ecotourism. One of the central tenets of this study was that, in this author's opinion, resident attitudes toward ecotourism and economic development should be known prior to ecotourism development. At a minimum, if ecotourism is to be developed, then attitudes and the probable causes of attitudes should be known. Ideally, for ecotourism development to proceed, an effort should be made to encourage highly favorable attitudes, especially from key groups such as tourism.

The relationship between attitudes and expressed behavior is a conceptual linchpin for this study. Behavior is often a manifestation of underlying attitudes although there are structural variables, such as social desirability and attitudinal intensity, that can negatively influence the prediction of behavior from attitudes. Nonetheless, predicting behavior toward ecotourism is imperative if predictions are, in turn, to be made regarding the feasibility of achieving more favorable attitudes toward ecotourism. This author offers further unsubstantiated speculation on the behavioral implications of attitudes toward ecotourism.

Justification for the need for economic diversification through ecotourism, as proposed in this study, is grounded in economic conditions and patterns of resource use in the study area. The study area is economically characterized by dependence upon extractive resource industries, relatively low economic diversity, and "boom-bust" type growth. Household incomes in the study area are the lowest in Alberta. The economic and cultural future of this isolated rural region may be improved by attempts to increase economic diversification, through ecotourism, as well as manufacturing, and other service industries.

B. Summary of Results

Most non-native study area residents had less knowledge of wildlife and ecotourism than ecotourists, and less positive attitudes toward ecotourism than ecotourists. The majority of non-native residents had somewhat positive attitudes toward ecotourism as a viable form of economic diversification and displayed modest interest in making personal contributions to spawn the development of this industry. Most residents perceived that the ecotourism industry will grow, but that it's economic importance will remain low. Although extractive resource industries employ most residents and are the foundation of the economy, the majority of residents had negative and somewhat positive attitudes toward the potential for these industries to increase or maintain their economic importance.

Attitudes toward wildlife, ecotourism and wildlife viewing were generally neutral and somewhat positive among non-native study area residents. Among non-native residents and general tourists, pride in natural boreal environments and wildlife was lower than among natives and ecotourists. Wildlife were not generally perceived to be a realistic tourist attraction and form of economic development. Residents gained moderate enjoyment from wildlife viewing but had little knowledge of non-game wildlife identification. The study area was deemed somewhat aesthetically and ecologically desirable. Non-aboriginal residents, particularly those working in extractive resource industries, were hesitant to encourage increased tourist visitation. Tourism was perceived by many to be a threat to current lifestyles. Tourists were often perceived to have unappealing characteristics, such as lack of respect for local norms. Many residents also perceived that although tourism would have an overall somewhat positive effect on communities it may disrupt social norms. Tourism was perceived by some, particularly the tourism group, to have more positive social impacts on local communities.

Economic decline was forecast to affect the timber and agriculture industries. Overall, the outlook expressed for the region's economic future was somewhat positive, and respondents had somewhat positive attitudes toward the region's future ability to generate employment. Although many respondents had neutral attitudes toward future economic conditions, ecotourism development was not generally perceived to be a realistic form of economic diversification. Most non-native respondents considered that ecotourism and

general tourism was currently, and would continue to be, not at all and somewhat economically important.

Attitudes toward ecotourism did not improve when residents were presented with statistics documenting the potential economic benefits of ecotourism (see questionnaire); respondents remained somewhat positive about the potential of ecotourism to generate employment and contribute to economic diversity. Many respondents (especially from the timber and agriculture groups) discounted the validity of the ecotourism economic statistics (see questionnaire), especially when applied to the study area.

1. Likert Scale Results by Respondent Group

The native and ecotourism groups, and to a lesser extent, the tourism group, had more positive attitudes toward wildlife and ecotourism than other groups and did not, generally, perceive ecotourism as a threat to their social and economic lifestyles. These groups' were more familiar with, and had more positive attitudes toward, wildlife in the study area and were more aware of, and willing to, accommodate tourists.

The timber and agriculture groups had less positive attitudes toward ecotourism than the tourism and native groups. It is this author's opinion that the timber and agriculture groups' attitudes are resistant to change, in part, because many perceived ecotourism as a threat to their lifestyles. For example, 71% of timber and 87% of agriculture respondents suggested that ecotourism would negatively affect forestry and agriculture operations through increased competition for forest resources and through restrictions on the traditional consumptive uses of such resources. They had less positive attitudes toward the value of economic diversification through ecotourism and considered the study area to be less aesthetically desirable. Economic development seemed welcome only if criteria of consistency with past economic development patterns (extractive resource use) and forest management practices were met. Seventy-one percent of timber respondents suggested that the politics involved with ecotourism development (preservation incentives resulting in increased competition for resources) caused them to doubt the compatibility of ecotourism and forestry.

Native attitudes differed most from other study area residents. Natives considered the study area to be very desirable for tourism. Some elders were hesitant to encourage ecotourism without a large degree of control over the

scale of development. Native elders were concerned about ecotourism's potential cultural impacts and loss of native political autonomy and land rights. They felt that ecotourism was consistent with traditional native beliefs, but that it could become inconsistent if natives did not have regulatory power over the industry. Natives seemed more aware than any other group of the attractiveness of the study area to tourists and were concerned about the area becoming over-developed for ecotourism, and any resulting negative ecological and cultural impacts.

General tourists had the least positive attitudes toward ecotourism and wildlife. They had negative and somewhat positive attitudes toward the desirability of the study area and felt that wildlife were not abundant enough for tourism. General tourists had poor knowledge of ecotourism and wildlife compared to other groups.

Ecotourists' attitudes were more positive than general tourists and non-native locals on all issues, including attitudes toward wildlife, ecotourism, and knowledge of wildlife. Ecotourists also had a relatively high level of knowledge about ecotourism and wildlife identification.

Although ecotourist and general tourist responses to employment and economic questions were not included in Table 1 because it was felt they did not have the requisite knowledge to answer the questions, their responses are, nonetheless, of interest. Ecotourists' and general tourists' attitudes toward employment and economic conditions in the study area were diametrically opposed. Ecotourists considered the economic future of the region to be less positive without economic diversification or more sustainable (smaller and locally owned and operated) extractive resource industries. They considered the extractive resource industries to decline in economic importance in the future. However, general tourists considered the economic future of the region to be bright because of an inexhaustible supply of natural resources.

Respondents (mostly from the tourism, native and ecotourist groups) who were more aware of the owl accumulations tended to have more favorable attitudes toward ecotourism, gained more enjoyment from wildlife viewing, had a greater knowledge of wildlife identification, and had less positive attitudes toward the extractive resource-based economy (Table 1).

Respondents (mostly from the timber, agriculture and tourist groups) who were least aware of the owl accumulations were least concerned about wildlife habitat loss and harbored the least positive attitudes toward ecotourism,

perhaps because of conservation and preservation goals which characterize this activity (Table 1).

2. Open-Ended Questions

It is the opinion of this author based on subjective comparison of verbal open-ended responses to Likert Scale responses that attitudes toward ecotourism seemed less positive than indicated by Likert Scaling for all groups except natives. Many non-native respondents demonstrated less faith in the potential for economic contributions to the study area economy from ecotourism; many felt that ecotourism would result in conflict over resource use, and many had less positive attitudes toward the attractiveness of the study area for tourism. For example 55% of all respondents (mostly from the timber, agriculture and tourism groups) suggested that they were not willing or only somewhat willing to participate in ecotourism because they did not consider it to be an economically important industry. The tourism group had more knowledge and awareness of ecotourism, product development and marketing than other groups, and demonstrated more desire in making personal contributions toward the development of an ecotourism industry. The tourism group suggested many general roles in which they envisioned participating in ecotourism development, but seemed somewhat unwilling to take action to achieve such development. When asked why they had not made serious efforts to lobby for ecotourism development, 60% suggested that the potential for economically viable ecotourism development was small.

Residents seemed to feel that ecotourism development was out of their control; decisions regarding economic development would be made by policy makers or non-local industrialists (as has been the case with most development in the recent past). However, there also seemed to be a sense of apathy, lack of enthusiasm, and lack of individual accountability in taking local action to increase economic development. For example, only 25% of respondents suggested that they would be willing to help with the planning and implementation of an ecotourism industry; rather, most suggested ways in which they could accommodate ecotourists once they arrived. Sixty percent of residents also felt that because of the low economic potential of ecotourism, they were not interested in actively partaking in ecotourism development.

Among many respondents from the timber and agriculture groups, there was resentment and anger regarding the potential for controversy to arise from

competing land uses and from the preservation-oriented principles of ecotourism. For example, 87% of the timber and agriculture groups defended forest management practices of their industries while 100% of the tourism and native groups were highly critical of the environmental record of the timber and agriculture industries. Ironically, 20% of the agriculture group forecast that the timber industry would decline because of over-harvesting.

The native group generally (60%) considered ecotourism as consistent with their cultural and spiritual beliefs and considered ecotourism as a viable development option (74%). Many natives perceived that they did not have access to capital for such development and expressed concern over the difficulty they would have in accessing the ecotourism market (60%).

In summary, it is this author's opinion based on subjective interpretation of open-ended data that the majority of non-native study area residents had negative and somewhat positive attitudes toward ecotourism.

In this discussion, data results will be discussed in the context of socio-psychological factors, such as the direction and strength of attitudes toward ecotourism, related to the feasibility of increasing positive attitudes. More specifically, results will be discussed in the context of:

1. The likelihood of attitudes toward ecotourism becoming more positive.
2. The feasibility of changing attitudes through cognitive and affective learning.
3. Parochialism which may contribute to prevailing attitudes toward ecotourism.
4. The implications of attitudes toward ecotourism for:
   a) rural development
   b) relationships between conservation, preservation and resource exploitation
   c) relationships between tourism development and host communities
5. Techniques for developing ecotourism with minimal environmental and social impacts.
6. Patterns likely to occur in the innovation/adoption/diffusion process given the:
   a) characteristics of the ecotourism innovation
   b) components of the adoption process
   c) attributes which affect the rate of innovation adoption

C. Discussion

Based on results of the survey questionnaire, among resident respondent groups, the timber and agriculture groups displayed the least positive attitudes toward ecotourism and wildlife while natives had the most positive attitudes. Among non-resident groups, general tourists had the least positive attitudes while ecotourists displayed the most positive attitudes.

Given this author's opinion that attitudes should be studied more comprehensively and possibly should improve prior to ecotourism development, attitudes and attitude change are also discussed in the context of socio-psychology theory. As suggested, attitudes may be intimately connected and exist on a scale of centrality from central to peripheral with implications for attitudinal resistance to change (Triandis 1971). An attitude will change 1) if change also occurs in related attitudes; 2) if attitude(s) are not central (i.e., not connected to basic needs such as food, shelter and companionship); 3) or if attitude(s) are not directly related to social group identity and ego (Kliejnas 1969). Thus, an attitude will change if the beliefs and associations which characterize the attitude also change.

Attitudes with more connections with, and consequences for, related attitudes (such as those associated with basic needs, employment and social groups) are more resistant to change (Kliejnas 1969). This highlights the importance of examining attitudes to speculate on relationships between employment, attitudinal strength and direction, and on the role of social group identity and ego-involvement in attitude formation and attitude change. These factors have implications to attitude resistance to change and behavior manifestation. Many social scientists speculate that work-place dynamics and social groups commonly play a formative role in attitude formation and maintenance of attitudes (McGuire 1957; Kliejnas 1969). Though no empirical evidence exists to support the following speculation, it is the opinion of this author that, in the study area, attitudes toward ecotourism are also influenced by occupation, and the dynamics and dominance of attitudes initiated and maintained by social groups.

It is this author's unsubstantiated opinion that attitudes favoring appreciative resource use, such as ecotourism, in the study area may be constrained because most dominant industries are dependent upon extractive resource use. Because of the theoretically presumed, yet in this study unproved, intimacy between employment, social group identity and ego (McGuire 1957;

Kliejnas 1969), it is possible that industrial consumptive attitudes are instrumental to workers' values (and therefore resistant to change). One central feature of attitudes centrality and resistance to change concerns their connectedness to other attitudes (beliefs). The more implications and consequences an attitude has with other beliefs, the more central the attitude. Further, existential attitudes concerning a person's identity are considered to have more connections and consequences than non-existential beliefs. Because ecotourism was probably not perceived to result in existential nor hedonistic benefits, it is possible that attitudes will be resistant to change. This author recommends that future follow-up studies examine socio-psychology theory which holds that existential attitudes concerning a person's identity in the physical and social world (such as through employment and social groups) may be resistant to change.

Even if less positive and negative attitudes toward resource management practices could be expressed, there may be few incentives to translate attitudes favoring ecotourism into behavior because of negative implications to social group identity. For example, the above mentioned respondents who questioned current resource management practices seemed cautious about expressing their feelings to co-workers; they looked over their shoulder to ensure no others were listening before they responded. Thus it is the opinion of this author that select employee attitudes are constrained.

It is also the unsubstantiated opinion of this author that many respondents may have supported the extractive resource-based economy because it has a long-term presence in the study area and is a known generator of employment; whereas, the economic potential of ecotourism is unknown. Extractive resource industries have been the bulwark of economic development and provider of employment in the study area for many years (NADC 1990a). Thus it is possible that any resistance to change (in this case in the form of ecotourism) may be due to it being an unknown source of employment and development.

Based on empirical data results and the above speculation, a subjective schematic comparison of attitudinal direction with attitudinal intensity was developed to speculate on attitudinal strength from positive to negative and direction from strong to weak (Figure 11). Determination of attitudinal direction was assessed subjectively based on this author's observations of respondents during open-ended questioning.

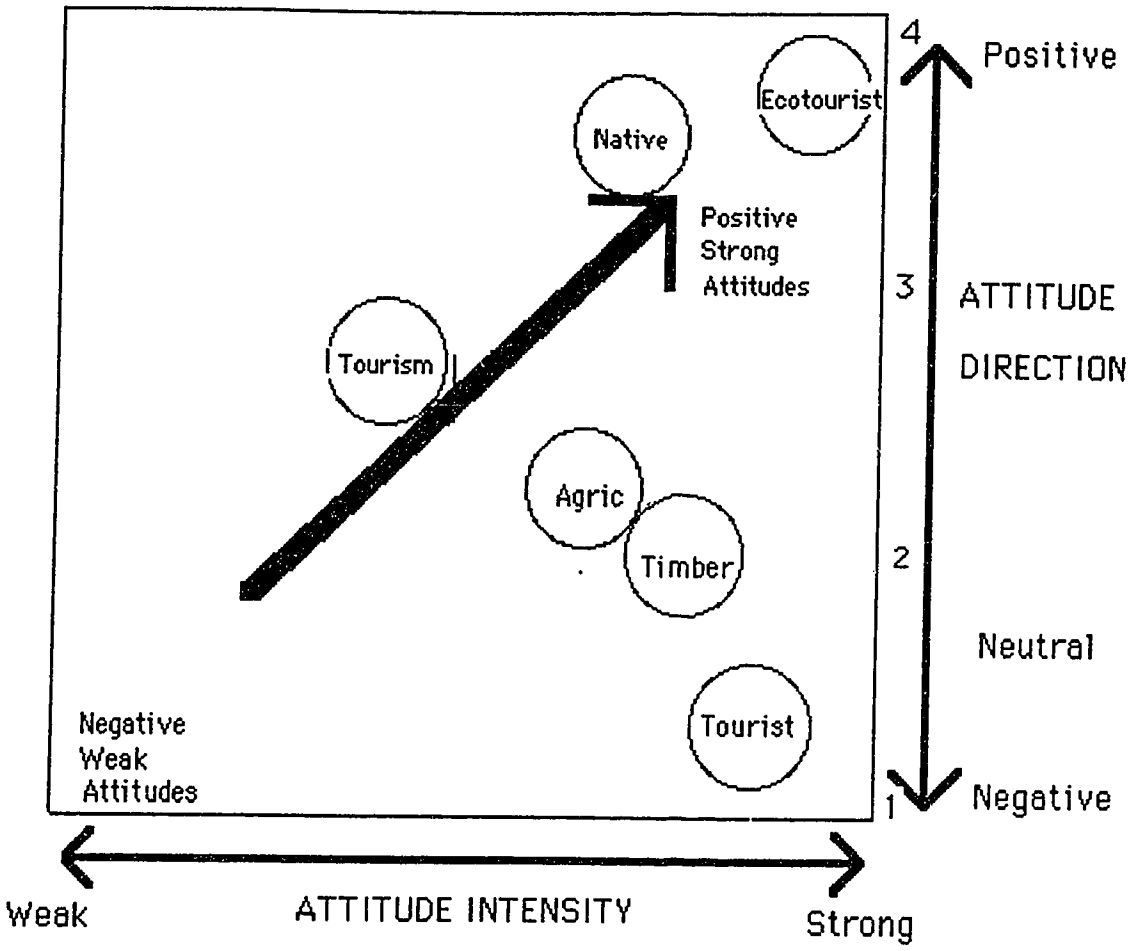
The timber, agriculture and tourist groups' attitudes were subjectively ranked as least positive and most central, and the tourism group's attitudes were assessed as neutral, but least intense, and therefore, most flexible. It is the opinion of this author that the respondent group with most flexible attitudes (tourism) should be targeted as the most likely candidate for attitude change in the short-term

It is this author's opinion that the large number of respondents with lower levels of awareness of, and appreciation for boreal forests and wildlife, and of the potential economic benefit resulting from ecotourism, may be an obstacle hindering ecotourism development. However, concern about the economic future of the study area may provide an avenue for improving attitudes toward ecotourism. Discussing the economic merits of ecotourism with residents may be the most feasible strategy to improve attitudes.

Positive and negative correlations from Likert Scale results, as indicated in Tables 2, 3, and 4, seemed to be enhanced by the subjective data results from open-ended questions. Thus, evidence seems to strengthen correlations between attitudes toward ecotourism, positive attitudes toward wildlife, and knowledge of wildlife. Open-ended question results seemed to indicate that attitudes toward ecotourism were less positive than indicated by Likert Scaling techniques. It is this author's unsubstantiated opinion that open-ended question results suggested that: 1) the timber and agriculture groups had the least positive attitudes and the least appreciation for the economic and ecological values of ecotourism; 2) the tourism group's attitudes toward ecotourism were somewhat positive; and 3) the native group's attitudes toward ecotourism were very positive

Attitudes toward ecotourism were accompanied by other attitudes to which attention must be paid if ecotourism development is pursued in the study area. Respondents harboring the most positive attitudes toward ecotourism tended to have the most positive attitudes toward wildlife and higher knowledge of wildlife, and seemed not to perceive ecotourism to be a social and economic

Figure 11. Attitude Intensity and Direction Toward Ecotourism



threat to current lifestyles. Respondent's harboring less positive attitudes toward wildlife were more likely to have less positive attitudes toward ecotourism and less knowledge of wildlife.

Although this author speculates that there exist few incentives to foster the development of more positive attitudes toward ecotourism in the short-term, there are possibilities for encouraging support for ecotourism in the long-term. Many respondents demonstrated that their positive attitudes toward the extractive resource-based economy have limits (e.g., perceived over-harvesting of resources and future economic decline). Thus, less positive attitudes toward ecotourism may improve with time if perceptions about the economic future of the study area are realized. The assumption that less positive attitudes toward ecotourism may change with time is further bolstered by the fact that remote northern economies have limits to economic diversification potential. Extractive and appreciative uses of natural resources are the only realistic sources of diversification, aside from various forms of government subsidization for remote rural northern regions. Other industries such as manufacturing and secondary and tertiary resource industries are unlikely to be established, except on a very small scale, because of urban competition and great distances to target markets (see references and discussion on rural economic decline in Theoretical Framework). Thus, isolation from major economic markets and limited potential for economic diversification may, in the end, bolster the opportunity for ecotourism to become established. Discussion of these economic realities with study area residents should be actively encouraged in consideration of continued long-term economic well-being.

However, increasing the level of knowledge about the limits of rural economies, and about boreal natural history and wildlife, with the aim of encouraging attitude change, may be met with limited success. Burrus-Bammel (1978) took the position that there is little evidence to support the premise that acquisition of knowledge can change attitudes. However, Swan (1977) supports the claim that knowledge acquisition and experience may change attitudes and behavior. Swan's premise is contingent upon the prerequisite that the experience component include affective dimensions such as development of emotional and spiritual ties to wildlife, for example, through respect, common concern and recognition of the intrinsic value in other life forms (Kellert 1983). Attempts to change attitudes cognitively without an individual also developing emotional feeling or concern about the issue may meet with limited success.

Thus affective orientations combined with knowledge acquisition should be encouraged in the hopes of achieving long-term attitude change.

Affective strategies for encouraging attitude change aside, attitudes about the future of the local economy may provide the most effective long-term incentive for ecotourism development. Most study area respondents and general tourists perceived ecotourism to be an industry of little economic significance. However, given study area residents' concerns about future economic conditions, developing support for ecotourism is more likely if ecotourism can be sold as a tool for economic diversification, rather than as an incentive for improved resource management. Many timber and agriculture respondents questioned ecotourism, in part, because of its conservation and preservation incentives, and the conflicts this may pose for extractive resource uses. Residents may be more likely to welcome ecotourism if it can be sold as an industry of significant economic impact. The challenge may lie in demonstrating that ecotourism is economically viable. This is particularly difficult with ecotourism because, rather than being a large-scale discreet industrial presence, it consists of many small operators who are often geographically segregated. It may prove difficult to demonstrate the collective economic value of such a non-centralized industry with broad geographic distribution.

This author assumes that few residents recognize the social and economic implications of the "rural dilemma" (the need for economic diversification in rural areas - see theoretical framework). Thus, garnering support for ecotourism based on economic rationale is also unlikely unless residents' concern about the sustainability of the study area economy is realized through awareness of the social and economic implications of current rural development trends. However, it is the opinion of this author that when economic hardship became a reality for timber dependent communities in the Pacific Northwest, few communities were effective in achieving economic diversification.

D. Socially and Environmentally Responsible Tourism Development

As indicated in the theoretical framework, select tourism developments may not have favorable reputations for social and environmental responsibility among some hosts (Liu and Var 1986, 1987; Zube and Busch 1990). These authors suggested that tourism in their study areas frequently resulted in environmental degradation and low-wage service sector employment, leaving

some residents hesitant to encourage tourism. However, this author argued that ecotourism has theoretical ethical codes which clearly stipulate that development must have extra-ordinary benefits to local citizens and natural environments, as compared to other resource development. However, rarely are all of these theoretical protocols reflected in practice. Thus, it is possible that ecotourism may not be fully embraced in select areas unless theoretical ethical codes (particularly those involving economic benefits to local citizens) are realized.

In theory ecotourism ventures should have several common characteristics: they operate on a small scale; visitation is strictly regulated; access may be monopolized to a particular area by single operators limiting negative ecological impacts; local people are fully utilized in the project's operation and planning, and are well paid by local standards, making tourism an attractive and respected occupation; ecotourism ventures are often more expensive than other nature tours and a percentage of profit is donated to local community projects, ecological research or scholarships (Passoff 1991).

Given the practical shortcomings of ecotourism, it is important to clearly articulate to citizens that ecotourism, in theory, sets itself apart from other development in terms of its ethical responsibility to natural, cultural, and economic environments. Natives were quite concerned about negative environmental and social impacts of tourism, and about maintaining economic control of tourism development in native areas. Thus efforts should be made to demonstrate to natives that ecotourism has different development protocols than traditional forms of tourism. As citizens are made aware of ecotourism ethics, and ecotourism projects are demonstrated to be environmentally sustainable and economically viable, attitudes may improve.

Nonetheless, because most study respondents seemed unaware of the negative aspects of current rural rural development trends and relatively unaware of the environmental implications of such development, it seems unlikely that arguments justifying ecotourism on the grounds of environmental and social responsibility will be accepted by residents. It is possible that through demonstration of responsible and economically lucrative ecotourism ventures, that attitudes toward ecotourism will improve.

E. Innovation and Adoption Potential

Based on data gathered on public attitudes toward ecotourism, inferences are made regarding the characteristics of potential innovators. This knowledge may be helpful for entrepreneurs and change agents such as NADC in learning about the citizens they should be targeting if ecotourism is introduced as an economic diversifier in northern Alberta communities.

As with any innovation, the success of ecotourism in bearing economic fruit to local residents is dependent upon public attitudes and their willingness to adopt this new concept (Rogers 1983). Ecotourism innovation characteristics and the variables that influence its rate of adoption (see below) (Rogers and Shoemaker 1971) are prominent factors which may facilitate or limit citizens' ability to capitalize on the given innovation. Thus the feasibility of ecotourism in relation to innovation characteristics and the variables that determine an innovation's rate of adoption will be discussed in the context of attitudes toward, and development feasibility of, ecotourism. The five innovation characteristics previously discussed are: relative advantage; compatibility; complexity; trial component; and observability. The three variables that determine an innovation's rate of adoption are: perceived attributes of the innovation; communications channels; and extent of promotion efforts.

1. Ecotourism Innovation Characteristics

Ecotourism innovation characteristics may have profound effects on rate of adoption. The characteristics and their relevance to the problem follow:

Relative advantage: Non-native respondents did not perceive ecotourism to have many advantages which would warrant development. Environmentally, it was perceived (timber and agriculture groups) to cause conflict, and economically it was perceived (timber, agriculture and tourism) to be of low value.

Compatibility: Non-native respondents perceived ecotourism to be compatible with dominant forms of resource use if preservationist goals of ecotourism were compromised. However, it is unclear whether ecotourists would be as inclined to travel to view wildlife in landscapes managed for timber, oil and gas, and agriculture.

Complexity: Natives, and to a lesser degree all other respondents, perceived ecotourism to be complex, primarily because of lack of information about the

innovation, and the perceived difficulty in marketing to clients who are geographically dispersed.

Trial component: It will be difficult to physically demonstrate the economic value of ecotourism because of the small scale of individual ecotourism operations. Further, ecotourism trials will be difficult to demonstrate to the geographically dispersed audience of discrete cultural and social groups as exists in the study area. Many trials may have to be established to demonstrate economic value. Media sources could be used to aid the observability of the trial component by distributing factual economic statistics. However, because the majority of communication in the study area is interpersonal, this strategy may be met with limited success. Note: this author began a trial ecotourism operation in the study area but tried to limit its observability so as to limit research bias.

Observability: Again because of the small scale of ecotourism operations, they are difficult for a geographically dispersed audience to observe on other than a local scale. Media may be an important outlet for dissemination of information about ecotourism; however, media sources are not widely distributed among residents.

The Characteristics of the ecotourism innovation are such that it may not be perceived as viable by potential innovators. Ecotourism may be perceived as having few relative advantages, and it may possibly be perceived as incompatible and too complex.

2. Ecotourism Innovation Variables

Ecotourism innovation variables may also have profound effects on the rate of adoption. The characteristics and their relevance to the problem follow:

Perceived attributes of the innovation: These attributes refer to the above five characteristics.

Communications channels: mass media or interpersonal: Most local communication within the study area is interpersonal. Thus, mass media attempts to market the innovation to study area residents may prove ineffectual.

Extent of promotion efforts: At the local level, promotion of the innovation is the responsibility of the tourism group. Given their relative lack of knowledge and enthusiasm to develop ecotourism, it is the opinion of this author that local promotion efforts may be limited. At the regional level, Alberta Tourism and the Land of the Mighty Peace Tourism Association has demonstrated a serious interest in ecotourism but seems to have left responsibility for local promotion

and entrepreneurship to local tourism groups; a regional ecotourism development plan is lacking.

Because of the relatively less positive attitudes of the timber, agriculture and tourist groups, lack of knowledge of the tourism group, and the lack of access to innovation information from the native group, it is the opinion of this author that ecotourism innovation and adoption is unlikely in the short-term, but possible in the long-term (10 years or more in the future). Further, lack of local promotional efforts by change agents such as Alberta Tourism and the Land of the Mighty Peace Tourism Association will inhibit the development of ecotourism. Characteristics of the innovation will likely remain relatively unknown until change agents successfully demonstrate the economic value of ecotourism through observable trial operations and make innovation/adoption information available to citizens, especially natives. To adopt ecotourism, citizens must know it's relative advantage, compatibility and complexity, and have access to observable trial demonstrations, all of which are unlikely to be generated by residents given the relative lack of interest and knowledge.

The native group, the group which in this authors opinion may be the most likely to capitalize on or encourage entrepreneurs to develop ecotourism, may be faced with difficult decisions regarding adoption. Although the native group is the most likely, in theory, to progress through the Adoption Diffusion Process to achieve or encourage ecotourism innovation, they also face the most difficult task in receiving enough support and guidance. Their isolation from dominant change agents, lack of basic infrastructure, lack of access to critical components of the adoption diffusion processes, and difficulty in acquiring the knowledge about adoption of ecotourism may slow successful innovation. Even if natives adopted ecotourism, their observability as change agents would be limited by their isolation. For example, few non-natives in the study area are aware of the ecotourism business operated by natives in extremely isolated Fort Chipewyan. Although natives have realized several of the variables which could accelerate the rate of innovation adoption (relative advantage and collective decision-making processes), their lack of access to communication channels, traditional social system, and isolation from promotional efforts make adoption difficult (see discussion of innovation/ adoption theory in theoretical framework). Thus, the native position on ecotourism is paradoxical because they are simultaneously the most likely and least likely to capitalize on ecotourism.

F. Tourism, General Tourist and Ecotourist Group Attitudes

Attitudes of the tourism, general tourist and ecotourist groups are particularly relevant to this study. The tourism group is probably perceived as a credible information source as they are local ambassadors of tourism. Thus they may have a disproportionate demonstration effect (a unique ability to demonstrate ecotourism to the public and therefore great power to cast ecotourism in a positive or negative light) on attitudes of other study area residents. Ecotourist and general tourist attitudes are particularly relevant because their attitudes indicate market potential and the importance of target marketing.

An understanding of different attitudes toward ecotourism, wildlife, boreal forests, and economic conditions between ecotourists and study area residents may yield insights as to the potential for ecotourism and as to the importance of ecotourism marketing. If the basis of ecotourist and study area resident attitudes were known, clues may be found as to the potential for ecotourism development and innovation. Questions such as "why do ecotourists have more positive attitudes toward boreal forests and wildlife?" may yield such clues.

If attitudes toward ecotourism are to improve and be manifested into behavior consistent with ecotourism development, residents should be encouraged to learn more about natural history and the economic potential of ecotourism.

The tourism group, as contrasted with the native group, is the most likely to realize ecotourism development. Attitudinal improvement is more likely for this group because of their somewhat positive attitudes (Table 1). It is this author's opinion that the tourism group should have highly positive attitudes toward ecotourism if they are to rally for ecotourism development. Unfortunately, it is also this author's opinion that the tourism group's attitudes are not positive enough for them to do so. The tourism group is most likely to actively support ecotourism development because they have access to all information and knowledge channels, as defined in the adoption diffusion innovation process (see theoretical framework), and they had somewhat positive attitudes toward ecotourism. Thus the attitudes of the tourism group may be the most likely to improve and become more positive toward ecotourism. Even though the native group may appear the most likely to capitalize on ecotourism, the tourism group has other advantages which may make them more likely to realize the

ecotourism innovation. Perhaps an innovative technique can be found to bring the native and tourism groups together for pilot demonstrations of ecotourism.

General Tourist's Attitudes

Although explanations for their attitudes are based on conjecture, analyzing common assumptions and misperceptions of general tourists may help explain their negative and somewhat positive attitudes. General tourists' attitudes toward wildlife may be reflective of their lack of wildlife encounters in the study area. Many general tourists seemed disappointed by how little wildlife they saw alongside major highways through the study area. Further, in the experience of this author as a natural history interpreter, many general tourists visiting Canada's north may perceive wildlife to be abundant and pristine nature to be expansive and not threatened by extractive resource use (many of the tourists interviewed confirmed this feeling through personal communication after completion of the interview). These general tourists may also hold unrealistic expectations of wildlife as being abundant only if visible by car on major transportation routes (many of the tourists mentioned that they were not impressed with wildlife in the area because they had not seen any.) It is the unsubstantiated opinion of this author that when their expectations are not met, and when environmental degradation is not obvious, general tourists may be less concerned about wildlife habitat loss, perceive wildlife as naturally scarce, and nature as not being threatened by extractive resource use.

G. Relationships Between Socio-Economic Variables

Comparison of socio-economic characteristics of respondents (age, sex, and education) to attitudes proved inconclusive for all groups except ecotourists. As supported by past research and as this study demonstrated, high education level is relatively consistent among ecotourists. Ecotourists were the highest educated group, with an average education level of 16 years. The average education level of study area residents was 10.5 years. Education level proved to be of little value in relation to attitudes toward ecotourism. The native group, which had an average education level half that of ecotourists, held many similar attitudes.

H. Open-Ended Question Results

Open-ended questions revealed valuable additional insight as to the degree, scope of, and foundations of attitudes toward ecotourism. It is the unsubstantiated opinion of this author that open-ended results suggest that the timber, agriculture and tourism groups had less positive attitudes toward ecotourism and higher levels of parochialism toward boreal forests, wildlife, and ecotourism, while natives had more positive attitudes. For example 53% of the timber group considered old growth to be unhealthy and near death, and 27% of agriculturists considered forests near agricultural land as unimportant for wildlife. The primary insight from open-ended questioning was that many residents seemed less positive toward ecotourism because of the threat it was perceived to pose to their current lifestyles. For example, 87% of the timber and agriculture groups gave defensive responses when asked whether ecotourism would be a threat to their respective industries; they defended forest management practices of their industries. One hundred percent of the tourism and native groups perceived there to be a conflict between ecotourism and the land use practices of forestry and agriculture. When asked if ecotourism development may result in conflict over resource uses, many respondents, particularly from the timber and agriculture groups, became hostile and defensive. For example, 27% of the timber group suggested that consumer demand rather than wildlife must be the driving force behind forest management (several respondents became visibly upset when responding to this question). Further, 27% of agriculturists suggested that the forests they harvest for agriculture expansion are not important for wildlife. These reactions indicated the degree of polarity between extractive and appreciative users. The respondents suggested that the call for natural resource conservation and preservation by ecotourism advocates was unfounded, and that ecotourism development would be a threat to local industry because of competing interests in the utility of natural resources.

Natives and the timber and agriculture industries held nearly opposite attitudes as to the implications of forest harvest on wildlife. Natives perceived declines in wildlife to be due, almost exclusively, to forestry and agriculture, when many declines may be due to fire suppression, hydro development and over-hunting. Most respondents from extractive resource sectors, however, argued that wildlife can move elsewhere when their habitat is harvested.

Common responses from the timber and agriculture groups regarding wildlife and habitat included the following statements: 1) Old growth forest will die soon anyway; 2) enough old forest is protected; 3) white zone (agriculture) forests are not as important for wildlife; 4) the forests must be cut out of economic necessity. Further, many respondents from the timber and agriculture groups made gross generalizations that wildlife prefer habitat manipulated by extractive resource uses such as timber. Many wildlife, particularly select songbirds, do not respond favorably to large scale permanent habitat manipulations, including rotational timber production and agriculture (Whitcomb et al. 1981; Blake and Carr 1984; Robbins et al. 1989) . Wildlife that do prefer manipulated habitat are also more common and more visible. Further, wildlife that are dependent upon specific habitat types such as old growth forests may suffer population declines due to rotational timber production. Also, contrary to the view of many respondents in the timber, agriculture and tourism groups, it is the opinion of this author that ecotourists prefer viewing wildlife in natural environments and show preferences for viewing wildlife that are not associated with managed or early successional habitat.

I. Thematic Visibility Index

Themes in public artwork and library collections were assumed to be an affective (versus cognitive) measure of appreciation of local natural history. Thus, the degree of manifestation of these themes was assumed to be an indicator of attitudes and parochialism toward boreal forests. Strategies to measure affective orientations were deemed necessary because this study primarily measured cognitive aspects of attitudes.

It is the opinion of this author that lack of appreciation of natural boreal forest environments was reflected by a lack of boreal themes in public artwork and in library collections. If ecotourism development is to be encouraged, efforts should be made by community planning authorities and other citizens to increase the quantity of artwork and library material reflecting boreal forest natural history themes. Presence of such themes may foster more appreciation of boreal natural history, leading to more positive attitudes toward ecotourism. It is assumed that an increase in artwork and library collections based on boreal natural history themes would have a correlative effect on attitudes toward ecotourism. Also, appreciation of boreal natural history should be encouraged through adult and youth education programs. For example the High Level

Tourist Information Centre and Museum could offer evening classes and weekend nature excursions. Public artwork and library collections based on boreal natural history themes may serve as future indicators of attitudinal shift. Comparative studies on the relationship between attitudes, artwork and library collections could not be found.

To this author's knowledge, natural history thematic analyses of public artwork and library collections have not previously been conducted. Thus the data presented is anecdotal and without supportive correlative research. Nonetheless, this author would intuitively expect that if pride was taken in local natural history, themes representing this pride would be manifested in public displays of artwork as well as in library collections. The degree of this manifestation is the ultimate question regarding the conclusions made from results of thematic visibility indexes. For example, what proportion of artwork and/or library collections celebrating local natural history is necessary for a researcher to conclude that a community has pride in local natural history? Of course, this question cannot be answered. However, a researcher can make a general distinction between a paucity versus an abundance of thematic displays. In the case of this study, displays of local natural history themes seemed depauperate to what this author would expect if great pride was taken in the local natural environment. This conclusion is supported by results of the survey questionnaire and by anecdotal observations of thematic displays from communities in other natural regions, such as the American deserts, the mountain parks region of Canada, and, on a smaller scale, communities which celebrate wildlife such as the butterflies of Monterey, California, the swallows of San Juan Capistrano, California, and the birdwatching at Point Pelee National Park, Ontario. In these regions, communities celebrate local natural history themes through artwork.

VI. CONCLUSIONS AND RECOMMENDATIONS

Citizen attitudes toward development should be a primary consideration for development proposals such as ecotourism. Ideally, strategies to encourage favorable attitudes toward ecotourism should be encouraged to achieve maximum citizen support prior to ecotourism development. Consideration of attitudes may result in development which more accurately reflects and incorporates citizen issues and concerns into planning and development processes. If the basis of ecotourist and study area resident attitudes were known, clues may be found as to the willingness of citizens to embrace ecotourism. Many rural development researchers speculate that the long-term success of development in rural areas may increase if citizens' attitudes are considered, mitigated, and incorporated into development planning (Arnstein 1969; Pateman 1970; Wengert 1985). Attitudes favoring extracting resources, though not inconsistent with ecotourism, should be reconciled with ecotourism's preservation needs prior to development to limit ideological polarization of those with different attitudes toward resource development.

It is the opinion of this author that an economically lucrative ecotourism attraction exists in the study area, the successful development of which is partially dependent upon citizen attitudes toward ecotourism. Because most non-native citizens do not strongly support the development of ecotourism, ameliorative action should be taken to mitigate for less positive attitudes prior to development.

This author speculates that less positive attitudes toward ecotourism are partly related to consumptive and utilitarian attitudes toward wildlife and natural resource development. It is this authors opinion that these attitudes have resulted in narrow perspectives of the utility of natural resource development and wildlife and a perception that the study area has less aesthetic attraction than other areas such as the mountain parks. This author suggests that citizen attitudes affect potential of ecotourism to contribute to economic and ecological well-being. Thus, recommendations are based on the need for, and feasibility of working with citizens such that concerns about ecotourism are approached constructively.

The importance of studying attitudes toward natural resource development such as ecotourism is not fully recognized in natural resource development policy, nor rural economic development policy. Yet an understanding of attitudinal orientations of citizens may be a vital consideration

in achieving respect for citizens, a harmonization of future resource development strategies, and improved citizen involvement processes. Rural development researchers speculate that the economic and cultural success of industries introduced to rural areas may be based partly upon the presence of popular support from within the communities, upon a genuine attempt to understand citizen attitudes, and also upon social and economic impacts.

Ecotourism developers are increasingly encouraged to establish in communities that are supportive of the industry. For citizens who are less supportive, ecotourism developers are encouraged to engage in citizen involvement processes prior to development to attempt to reconcile differences. If these expectations are not fulfilled, ecotourism hosts may be less than maximally satisfied with development.

Ecotourism operators increasingly adhere to strict codes of ethics regarding the exploitation of wildlife and consider it vital to have support from communities in which they operate. If these expectations are not met, ethical operators may be less likely to establish in the study area because, from their view, lack of local support may translate into risk in the success of their respective business ventures. Although citizens seem relatively unconcerned about development ethics and environmental stewardship, ecotourism ethics should nonetheless be advocated in the hope of encouraging citizens to question rural development paradigms.

This author suggests that citizen attitudes toward ecotourism development should be a primary consideration for government agencies responsible for tourism development. Local support for resource development strategies such as ecotourism may result in harmonization of future resource development projects. Support from the local tourism group is essential, given that they serve as ambassadors for tourism in the study area. Government tourism agencies should place special emphasis on working with representatives of local tourism agencies and tourism groups. It is this author's opinion that the tourism group did not have enough awareness and enthusiasm for ecotourism to successfully lobby for its development.

Legislated change in land-use practices and zoning (such as through Special Places 2000) for extractive resource industries and government agencies may be necessary to encourage ecotourism development. Changes in land-use policy may be necessary to demonstrate to study area residents that accommodating appreciative resource use will not necessarily result in a

conflict of interest nor present an economic and social threat to the timber and agriculture industries.

It is the opinion of this author that development should occur at only a small-scale at this time, and only when mitigated through education and citizen involvement. More in depth examination of attitudes should occur prior to large-scale ecotourism development. Further, less positive attitudes should be mitigated through education and citizen involvement in planning processes to achieve a higher level of harmonization between attitudes. Further, large-scale development of ecotourism in the study area should be considered, at best, a distant possibility. Knowledge of the economic benefits of forest preservation and improved multiple resource use and the development of affective orientations toward boreal natural history may be pivotal prerequisites for successful ecotourism development.

Policy recommendations were developed based on the feasibility of achieving maximum favorable attitudes toward ecotourism prior to development. Recommendations are aimed at improving the level of integration of, and concern for, local citizen attitudes in natural resource development, and at encouraging increased local ownership and control of development. Recommendations focus on 1) strategies for implementing ecotourism and on the importance of understanding attitudes and behavior toward ecotourism; and 2) increasing the compatibility between appreciative and consumptive economic development.

Recommendation 1. A more complete appreciation for and understanding of, attitudes of study area residents toward ecotourism is vitally important to the success of ecotourism development.

Recommendation 2. Innovation characteristics and variables which were identified as problem areas must be reconciled with ecotourism development. As discussed, the innovation characteristics most likely to limit successful ecotourism innovation include: relative advantage; compatibility; complexity; trial component; and observability. The innovation variables most likely to limit ecotourism innovation include: perceived attributes of the innovation; communications channels; and extent of promotion efforts. Tourism

promotion agents should act on the concerns I have raised with each above innovation characteristics and variables.

Recommendation 3. If ecotourism development is pursued, Alberta Tourism has a responsibility to ensure that residents are aware of ecotourist's expectations and are aware of appropriate techniques for provision of services. Ecotourist's are more discriminating than most general tourists, require unique tourism developments and have specific expectations. Further, successful marketing of ecotourism products requires niche marketing (see ecotourism section in chapter one), and an intimate knowledge of ecotourist's expectations. The attractions residents perceived as being popular among ecotourists demonstrates their lack of knowledge of ecotourism. If ecotourism development is to be successful, considerable effort must be expended to educate local ecotourism operators.

Recommendation 4. The native and tourism groups should be encouraged to become involved in ecotourism. These groups were more receptive to ecotourism than other residents of the study area. Natives were most supportive of ecotourism but their support was conditional. They were concerned about the impact of ecotourism on their culture and lifestyle. Thus, natives were concerned about regulatory control over ecotourism development. The tourism group was not convinced that demand for ecotourism exists and that ecotourism could be a viable economic development option for the study area. Thus, these two groups need assurances that their concerns regarding ecotourism development will be met. Further, the tourism group needs to improve their knowledge of ecotourism and the economic potential of ecotourism to contribute to local economic well-being.

Recommendation 5. For ecotourism development to occur, forest management policy must be adapted to ensure:

1. maintenance of a diversity of forest age classes based on historic trends
2. maintenance of reproductively viable populations of the wildlife upon which ecotourism depends
3. creation of harvest exclusion zones to accommodate ecotourism development

It is the opinion of this author that current forest land-use policy in the study area is contradictory to the requirements of ecotourism, may contribute to less positive attitudes toward ecotourism and wildlife, and may be responsible for future decline of wildlife resources important for ecotourism. Lack of appreciation for boreal natural history may be linked to current forest management practices. Change in forest management policy allowing for increased diversity of forest user groups and protection of older age class forests may, in the long-term, result in increased recognition of intrinsic values and ecological requirements of boreal forests.

Recommendation 6. Timber and agriculture representatives should be educated as to the impacts of forest management and harvesting of older forests on ecological processes and on the development prerequisites of other forest resource industries such as ecotourism.

Recommendation 7. Efforts should be made by community planning authorities to increase the quantity of artwork and library material reflecting boreal forest natural history themes.

Recommendation 8. Economic development agencies such as NADC and Alberta Tourism should encourage staff to increase their knowledge level of, and develop more positive attitudes toward ecotourism development. Further, they should become knowledgeable of ecological and attitudinal prerequisites (as suggested by this author) for ecotourism development.

Recommendation 9. Alberta tourism and NADC should support the development of pilot ecotourism projects for demonstration. Given the cultural and geographical isolation of the respondent groups as identified in this thesis, pilot projects should be developed in geographical locations reflective of settlement patterns. As successful ecotourism projects are demonstrated, residents may take pride in maintaining the ecological integrity of natural environments, knowledge of wildlife identification will improve, and parochial attitudes to boreal natural environments will decrease. It follows that as attitudes improve, locally sponsored ecotourism development will proceed on a larger scale, resulting in increased economic benefit.

Recommendation 10. Study area residents should be encouraged to gain knowledge regarding the economic and social impacts, and ethical codes of ecotourism, as well as the ecological benefits of improved resource management. For example, interpretive natural history programs, excursions and educational presentations on the importance of diversified economies and forest conservation may be used as a vehicle for knowledge acquisition. The Forest Service, in conjunction with local ecological researchers and school teachers could develop and sponsor such presentations and outings.

Recommendation 11. The basis of attitudes prevalent within timber, agriculture and oil and gas industries should be studied. Extractive resource industries may have a powerful influence on attitudes toward boreal forests and ecotourism. Thus, an attempt to realize attitudinal change among representatives of these industries should be considered of primary importance if parochialism is to decrease and attitudes toward ecotourism to improve.

Recommendation 12. Although this study measured attitudes at only one point in time, it is recommended that subsequent longitudinal studies be conducted so that changes in attitudes toward ecotourism through time can be documented. Such longitudinal studies are necessary to determine changes in attitudes.

None of these recommendations will be successful in isolation. All recommendations are inter-dependent and synergistic and must occur concurrently if ecotourism development is pursued. Ecotourism development that is sensitive to local concerns will require considerable effort. Thus far in Alberta, willingness by agencies responsible for economic development planning to commit to the level of ecotourism promotion deemed necessary by this author has not been forthcoming.

VII. Bibliography

Abelson, R. 1972. Are attitudes necessary? Attitudes, conflicts and social change. Academic Press. New York, New York. 265 pp.

Ahmed, M. 1984. Attitudes of tourists in a tourism destination area. Annals of Tourism Research. 11:123-134.

Alberta Agriculture. 1987. 1986 census of agriculture for Alberta, I.D., M.D., and County data by region. Edmonton: Stats Branch, Alberta Agriculture.

Alberta Energy and Natural Resources. 1981. Integrated resource plan: lower Peace River (regional overview), Edmonton AB. Resource Evaluation and Planning, Alberta Energy and Natural Resources. 83 pp.

Alberta Energy and Natural Resources. 1985. Jean D'Or Prairie sub-regional integrated resource plan, Edmonton AB. Resource Evaluation and Planning, Alberta Energy and Natural Resources. 47 pp.

Alberta Energy and Natural Resources. 1971. Integrated resource plan: lower Peace River region. Resource Evaluation and Planning. 75 pp.

Allen, R. 1988. The conservation and tourism dynamic. Journal of Environmental Studies 28:18-22.

Allport, G. 1967. Attitudes: readings in attitude theory and measurement. M. Fishbein (ed.). John Wiley and Sons, Inc. New York, New York. 186 pp.

Allport, G. 1935. A study of values. Boston. Houghton Mifflin Co.

Alvord, D.J. 1972. Achievements and attitudes. Science Teacher 39(4):36-38.

American Birding Association. 1990. Winging it. Vol. 3. 43 pp.

Anonymous, 1992.

Apedaile, L.P. 1992. Working harder, getting more efficient and losing prosperity: arguments for new rural coalitions and social contracts or on getting the problem right. Staff Paper 92-01. Department of Rural Economy, University of Alberta: Edmonton, Canada. 23 pp.

Arnstein, S. 1969. A ladder of citizen participation. J. Am. Instit. Planners, July 1969. p 220-233.

Banff Crag and Canyon. 1992. The NRCB and Three Sisters. March 15, 1992. pg. III.

Beilckus, C. and W. More. 1972. Attitude behavior relationships. J. Soc. Psych. 37(2): 123-145.

Bell, J. 1990. The cashless society. Arctic Circle, November/December. p 17-21.

Blake, J.G. and J.R. Karr. 1984. Species conservation of bird communities and the conservation benefit of large versus small fragments. Biol. Cons. 30:173-187.

Boem, D. 1970. Beliefs, attitudes and human affairs. Brooks/Cole Publ. Co. Belmont, Ca. 183 pp.

Bone, R.M. 1991. The geography of the Canadian north: issues and challenges. Oxford University Press. 157 pp.

Boo, E. 1990. Ecotourism: the potentials and pitfalls. Wickerman Printing Company. World Wildlife Fund. Baltimore, Maryland. Vol. 1 of 2. 71 pp.

Bowles, R.T. 1982. Little communities & big industries. Toronto: Butterworths. 220 pp.

Bowman, M. 1975. Assessing college student's attitudes towards environmental issues. J. Env. Ed. 6(2):1-4.

Bradbury, J.H. 1979. Towards an alternative theory of resource-based town development in Canada. Economic Geography 55:147-66.

Bradbury, J.H. 1980. Towards an alternative theory of resource-based town development In Canada. McGill University, Montreal. 175 pp.

Brown, T. 1984. The concept of value in resource allocation. Land Economics 60 (3):238-246.

Bryan, H. 1980. Sociological and psychological approaches for assessing and categorizing wildlife values. *In* Wildlife Values, eds. W.W. Shaw and E.H. Zube. Centre for Assessing Non-commodity Natural Resource Values. Institute Ser. Rep. No. 1. 70 pp.

Budowski, G. 1976. Tourism and environmental conservation: conflict, coexistence or symbiosis. Environmental Conservation 3:27-31.

Burrus-Bammel, L. 1978. Information's effect on attitude: a longitudinal study. J. Env. Ed. 9(4): 41-50.

Butler, J. 1984. The myths, the reality and the challenges of managing for the non-consumptive wildlife user. Paper presented on behalf of Canada at The Workshop on the Management of Non-game Species and Ecological Communities, June 11-12, Lexington, Kentucky. 6 pp.

Butler, J. 1992. Ecotourism: its changing face and evolving philosophy. Paper presented at the 1992 World Parks Congress. IUCN. Caracas, Venezuela. 7 pp.

Butler, J., and G.D. Fenton. 1987. Bird watchers of Point Pelee National Park, Canada: Their characteristics and activities, with special consideration to their social and resource impacts. Alberta Naturalist 17(3):135-146.

Butler, J. and G. Hvenegaard. 1988. The economic values of bird watching associated with Point Pelee National Park, Canada, and their contribution to adjacent communities. Paper presented at the Second Symposium on Social Science in Resources Management. University of Illinois, Urbana, Illinois. June 6-9. 23 pp.

Butler, J. and A. Miller. 1993. Will birders contribute to the protection of boreal forests? Wild Bird Jan.-Feb. pp. 47-49.

Butler, R. 1980. The concept of a tourist area cycle of evolution: implications for management of resources. The Canadian Geographer 24(1):5-12.

Butler, R. 1986. The impact of tourism: divots, depression and dollars. *In* Tourism and the Environment - Conflict or Harmony? Proceedings of a symposium sponsored by Alberta Tourism. March 18-19. Calgary, Alberta.

Butler, R. 1989. Alternative tourism: trojan horse or pious hope? World Leisure and Recreation 31(4):9-17.

Canmore Leader. 1992. Citizen involvement at Three Sisters? May 21, 1992. pg. xi.

Canadian Agriculture and Rural Restructuring Group. 1989. Sustainable rural communities in Canada. Proceedings of a rural policy seminar. Canadian Council on Rural Development: Saskatoon, SK. 127 pp.

Canadian Council of Forest Ministers. 1993. Compendium of Canadian Forestry Statistics: 1993. National Forestry Database. Canadian Council of Forest Ministers. 86 pp.

Canadian Council on Rural Development. 1975. Tourism and outdoor recreation in rural development. Canadian Council on Rural Development: Ottawa, Ontario. 112 pp.

Canadian Council on Rural Development. 1977. Relationship of Canada's forests to rural employment and community stability. Canadian Council on Rural Development: Ottawa, Ontario. 142 pp.

Canadian Tourism Action Planning. 1990. CTAP Process Handbook. Alberta Tourism. 123 pp.

Ceballos-Lascurain, H. 1988. The future of ecotourism. Mexico Journal. January 27, 1988. 13 pp.

Chadwick, B.A., H.M. Bahr, and S.L. Albrecht. 1984. Social science research methods. Prentice-Hall, Inc., New Jersey. 454 pp.

Christaller, W. 1963. Some considerations of tourism location in Europe. Papers and Proceedings of the Regional Science Association. 12:95-105.

Christian, P.D. 1969. Northern development; the problems of a single enterprise town. London: University of Western Ontario. 221 pp.

Cook, W. 1987. Compatibility of tourism and wilderness. Unpublished document. University of Alberta, Department of Forest Science. 17 pp.

Copithorne, L. 1979. Natural resources and regional disparities. Hull, Canada: Economic Council of Canada. 243 pp.

Co-West Associates. 1981. Socio-economic overview of northern Alberta. Prepared for Northern Alberta Development Council. 157 pp.

Cox, B.A. 1985. Prospects for the northern Canadian native economy. Polar Record 22(139): 393-400.

Dancik, B., L. Brace, J. Stelfox, and B. Udell. 1990. Forest management in Alberta: report of the expert review panel. Pub. No. I/340. Alberta Energy/ Forestry Lands and Wildlife. Edmonton, Alberta. 128 pp.

Dasmann, R.F. 1988. The environmental impacts of tourism. University of California Press: Santa Cruz. pp. 18-52.

Dasmann, R. F., Milton, J. P. and P.H. Freeman. 1973. Ecological principles for economic development. John Wiley and Sons. 271 pp.

Dawes, R. M. 1972. Fundamentals of attitude measurement. John Wiley & Sons. 165 pp.

Deece, J. 1967. General psychology. Allyn and Bacon Inc. Boston. Mass. 557 pp.

Detomasi, D. D. 1986. Growth and decline in Alberta towns: some policy and planning implications. Alberta Journal of Planning Practice #4, Fall 1986. pp. 17.

Detomasi, D.D., and J.W. Gartrell. 1984. Resource communities: a decade of disruption. Westview Press. Boulder, Colorado. 213 pp.

Devall, B., and G. Sessions. 1985. Simple in means, rich in ends: practicing deep ecology. Gibbs Smith. Layton, Utah: 173 pp.

Devall, B. 1988. Deep ecology. Gibbs Smith. Layton, Utah: 145 pp.

Dolsen, D. 1986. The catch - and - release trout management program in Alberta: an analysis of angler response and relevant biological and social science variables. Unpubl. MSc, Thesis. Department of Forest Science. University of Alberta. 200 pp.

Doxie, G.V. 1987. Tourism in Niagara-on-the-Lake, Ontario: A case study of resident visitor interactions. G.V. Doxie and Associates, York University, Toronto. 79 pp.

Drake, S. 1989. Development of a local participation plan for ecotourism projects. US EPA doc 2214. 20 pp.

Driver, B.L., P.J. Brown, G.H. Stankey, and T.G. Gregoire. 1987. The ROS planning system: evolution, basic concepts and research needed. Leisure Sciences 9:201-212.

Dwyer, J.F., J.R. Kelly, and M.D. Dowes. 1977. Improved procedures for valuation of the contribution of recreation to national economic development. Water resources Center Report 128. University of Illinois, Urbana. 218 pp.

Economic Council of Canada. 1978. Natural resources and regional disparities: a skeptical view. Ottawa: Economic Council of Canada. 78 pp.

Erize, F. 1987. The impact of tourism on the Antarctic environment. Environment International 13:133-136.

Farrell, B., and D. Runyan. 1991. Ecology and tourism. Annals of Tourism Research 18(1):26-40.

Fennell, D. 1990. A profile of ecotourists and the benefits derived from their experience. Master's Thesis, Department of Recreation and Leisure Studies, University of Waterloo, Ontario. 175 pp.

Fennell, D., and P. Eagles. 1990. Ecotourism in Costa Rica: a conceptual framework. Journal of Park and Recreation Administration 8(1):23-34.

Filion, F.L. 1988. Managing for sustainable development: the strategic role of economic and social aspects of wildlife. Paper presented at the Second International Wildlife Symposium: Economic and Social Aspects of Wildlife. Aculpulco, Mexico. May 17-20. 31 pp.

Filion, F.L., E. Duwors, R. Reid, P. Boxall, E. Hobby, P. Bouchard, P. Gray, and A Jacquemot. 1992. The importance of wildlife to Canadians in 1987 Trends in participation in wildlife-related activities, 1981 to 2006. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario.

Filion, F.L., E. Duwors, R. Reid, P. Boxall, E. Hobby, P. Bouchard, P. Gray, A Bath, and A Jacquemot. 1993. The importance of wildlife to Canadians in 1987: highlights of the 1991 survey. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario.

Filion, F.L., A. Jacquemot, and R. Reid. 1985. The importance of wildlife to Canadians: an executive overview of the recreational economic significance of wildlife. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario. 19 pp.

Filion, F.L., S.W. James, J. Ducharme, W. Pepper, R. Reid, P. Boxall, and D. Teillet. 1983. The importance of wildlife to Canadians: highlights of the 1981 national survey. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario. 40 pp.

Filion, F.L., S.W. James, J. Ducharme, W. Pepper, R. Reid, P. Boxall, and D. Teillet. 1991. The importance of wildlife to Canadians: highlights of the 1981 national survey. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario. 47 pp.

Filion, F.L., G. E. J. Smith, T.J.F. Lash, and P. Fogarty. 1980. Valuation of migratory birds--qualitative and quantitative research. Social Studies Division, Canadian Wildlife Service, Environment Canada, Ottawa, Ontario. 133 pp.

Fishbein, M. and I. Ajzen. 1975. Belief, attitude, intention and behavior: an introduction to theory and research. Addison-Wesley. Reasing, Mass. 578 pp.

Fletcher, A. 1990. People and parks: origins of a disharmony. Paper presented at the Fourth Symposium on Social Science in Resources Management. University of Illinois, Urbana, Illinois. June 6-9. 13 pp.

Fletcher, S., W. White, and W. Phillips. 1991. An economic analysis of Canadian prairie provinces' forest dependent communities. University of Alberta. Department of Rural Economy Project Report No. 91-05. 43 pp.

Fletcher, S., W. White, W. Phillips, and L. Constantino. 1992. An economic analysis of Canadian prairie provinces' forest dependent communities. Project Report No. 92-11. Department of Rural Economy, University of Alberta: Edmonton, Canada. 37 pp.

Forestry Canada. 1993. Selected forestry statistics: Canada, 1993. Information report E-X-46. Policy and Economics Directorate. Forestry Canada. 231 pp.

Freese, B. 1967. Elementary statistical methods for foresters. Agricultural handbook 317. USDA Forest Service, Madison, Wisconsin. 87 pp.

Freemark, K.E. and H.G. Merriam. 1986. Importance of area and heterogeneity to bird assemblages in temperate forest fragments. Biol. Consv. 36:115-141.

Friedman, A. 1970. Market factors affecting the viability of four single enterprise communities in Manitoba." *In* Occasional Papers by Friedman, Matthiasson and Chow, and Siemens. Series 5: No.1. Centre for Settlement Studies, University of Manitoba. Winnipeg. 43 pp.

Frost, J.E. 1985. Visitor perceptions of management restrictions during Glacier Park's bald eagle concentration. M.A.Thesis. University of Montana, Missoula. 78 pp.

Getz, D. 1983. Capacity to absorb tourism: concepts and implications for strategic planning. Annals of Tourism Research 10:239-263.

Gilson, M. 1989. Rural traditions and a changing society. *In* Sustainable Rural Communities in Canada. Gerler, M. E., & Baker, H. R. (Eds.). The Canadian Agriculture and Rural Restructuring Group. Saskatoon Saskatchewan, Canada. 131 pp.

Godschalk, D.R. and F.H. Parker. 1975. Carrying capacity: a key to environmental planning? Journal of Soil and Water Conservation. 30(4):160-165.

Gold, S. 1980. An introduction to behavioral geography. Oxford press. Oxford 511 pp.

Government of the Northwest Territories. 1991. Response of the government of the Northwest Territories to the recommendations of the special committee on the northern economy. 47 pp.

Greenwald, A., T. Brock, and T. Ostrom. 1968. Psychological foundations of attitudes. Academic Press. New York. 407 pp.

Grinnell, J. 1917. Field tests and theory concerning distributional control. Amer. Nature. 51:115-128.

Haden, M. 1990. Farmers' attitudes and agricultural land expansion in Improvement District 23, Alberta. Master of Arts Thesis. Dept. of Geography, University of Alberta, Edmonton. 147 pp.

Haigh, R.J., and D.S. Gill. 1992. Achieving sustainability in resource dependent communities: some implications for policy. Staff Paper 91-10. Department of Rural Economy, University of Alberta. Edmonton, Canada. 23 pp.

Haigh, R.J. , and D.G. Murri. 1992. Survival strategies in rural Canada: the need for new paradigms. Staff Paper 90-08. Department of Rural Economy, University of Alberta. Edmonton, Canada. 13 pp.

Haigh, R.J., and A.L. Kisko. 1992. Rural decline and the farm crisis: two marginally related issues. Staff Paper 89-08. Department of Rural Economy, University of Alberta. Edmonton, Canada. 21 pp.

Hall , D.A. and J.T. O'Leary. 1989. Highlights of trends in birding from the 1980 and 1985 national surveys of wildlife-associated recreation. Human Dimensions in Wildlife Newsletter, 8(2):23-24.

Hammond, H. 1990. Seeing the forest through the trees. Catalyst Press. Vancouver, British Columbia. 257 pp.

Hannon, S.J. 1994. Nest predation and forest bird communities in fragmented aspen forests n Alberta. Proceedings of the workshop on birds in the boreal forest. Prince Albert, SK. 237 pp.

Harrison, G.H. 1979. Bird watching: fastest growing family fun is an industry. Science Digest 86 (Oct.) :74-80.

Hastings, B.C. and W.E. Hammitt. 1986. Visitor knowledge about wildlife and wildlife management in Great Smoky Mountains National Park. Proc. of the First Nat. Symp. of the Soc Sci. in Res. Mgt. Corvallis, OR. 18 pp.

Haulot, A. 1985. The environment and social value of tourism. International Journal of Environmental Studies 25:219-223.

Hepburn, M.A. 1974. Providing an analytical framework for environmental social studies. J. Env. Ed. 5(4):25-28.

Hendee, J.C. and C. Schoenfield, eds. 1973. Human dimensions in wildlife programs. Wahington D.C.: Wild. Mgt. Inst. 17 pp.

Hendee, J.C. 1972. Challenging the folklore of environmental education. J. of Env. Ed. 3(3):12-23.

HLA Consultants. 1990. Marketing watchable wildlife tourism in Alberta for Alberta tourism. Alberta Forestry, Lands and Wildlife. 47 pp.

Holling, C.S., G.B. Dantzig, and C. Winkler. 1986. Determining optimal policies for ecosystems. Pages 453-473 in Systems analysis in forestry and forest industries. M. Kailio ed., Volume 21, TIMS Studies in the Management Sciences. Amsterdam, the Netherlands.

Hough, J. 1987. Obstacles to effective management of conflicts between national parks and surrounding human communities in developing countries. Environmental Conservation 15:129-136.

Hovland, C.I., Janis, I.L., and H.H. Kelly. 1953. Communication and persuasion. New Haven, Conn.: Yale Univ. Press.

Hvenegaard, G. 1989. Economic values of bird watching at Point Pelee National Park, Ontario. Master's Thesis. Department of Forest Science, University of Alberta, Edmonton, Alberta. 194 pp.

Ingram, D.C., and P.B. Durst. 1989. Nature-oriented tour operators: travel to developing countries. Boulder, Colorado Travel and Tourism Research Association. 23 pp.

Inskeep, E. 1987. Environmental planning for tourism. Annals of Tourism Research 14(1):118-135.

Insko, C. 1967. Theories of attitude change. Appleton-Century-Crofts. New York. 213 pp.

Ironside, R.G. 1982. Northern development: Northern returns. Kulturgeographische in Kanada. Bamberger Geographische Schriften. Bd. 4. Bamberg. 41 pp.

Ironside, R.G. 1990. Regional development aid in the peripheral region of northern Alberta. (eds.) P. J. Smith and E. L. Jackson, A World of Real Places: Essays in Honour of William C. Wonders, pp. 105-120. Studies in Geography, Department of Geography. University of Alberta.

Isaac, S. and W. Michael. 1987. Handbook of research and evaluation. EDITS Publishers, San Diego, CA. 234 pp.

Iverson, R. 1975. An analysis of the interrelationships of environmental knowledge and environmental concern. Ph.D. Thesis. Univ. Montana. 237 pp.

Jackson. E.L. 1987. Outdoor recreation participation and views on the environment and development. Leisure Sciences 9:235-250.

Jacquemot, A., R. Reid, and F.L. Filion. 1986. The Importance of wildlife to Canadians: the recreational economic significance of wildlife. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario. 76 pp.

Jacquemot, A. and F.L. Filion. 1987. The economic significance of birds in Canada. pp. 15-21, *in* Diamond, A.W., and F.L. Filion, eds. The Value of Birds. International Council for Bird Preservation Technical Publication No. 6, Cambridge, England. 267 pp.

Jean. K. 1990. Rural development. Altman Plenum Press. New York, New York. 303 pp.

Johnsgard, P.A. 1988. North American owls: biology and distribution. Smithsonian Institution Press. Washington, D.C. 295 pp.

Kastner, J. 1986. A world of watchers. Alfred A. Knopf. Inc., New York, New York. 241 pp.

Kellert, S.R. 1979. Public attitudes toward critical wildlife and natural habitat issues. Phase 1. Report to USDI, Fish and Wildlife Service, Washington, D.C. 178 pp.

Kellert, S.R. 1980a. Activities of the American public relating to animals. Phase II. Rep to U.S.D.I., Fish and Wildlife Serv., Washington, D.C. 138 pp.

Kellert, S.R 1980b. Contemporary values of wildlife in North American society, *In* Wildlife Values, ed. W.W. Shaw. Centre for Assessing Non-commodity Natural Resource Values, Institute Ser. Rep. No. 1. pp. 31-60.

Kellert, S.R. 1983. Affective, cognitive, and evaluative perceptions of animals, *In* Behavior and the Natural Environment, ed. I. Altman. Plenum Press. New York, New York. pp. 241-267.

Kellert, S.R. 1985. Birdwatching in American society. Leis. Sci. 7(3):343-360.

Kliejnas, P.T. 1969. Attitudes toward object and attitudes toward situation as predictors of behaviors. Unpubl. MSc Thesis. Michigan State Univ. 234 pp.

Kretch, D., Crutchfield, R.S., and E.L. Ballachy. 1962.Individual in society: A textbook of social psychology. Toronto: McGraw Hill Book Co. 289 pp.

Krohn, R. 1992. Personal Communication.

Krohn, R. 1993. Personal Communication.

La Crete Economic Development Board. 1987. La Crete economic study. Scott and Fenrich Consultants Inc. Edmonton, AB. 73 pp.

LaHart, D.E. 1978. The influence of knowledge on young people's perception about wildlife. Final Report to the National Wildlife Federation. Florida State University, Tallahassee, FL. 114 pp.

LaHart, D.E. and C.W. Barnes, 1978. The influence of knowledge and animal related activities on consumptive and non-consumptive resource orientation. Proceedings of the Annual Conference of the Southeast Association of Fish and Wildlife Agencies. 32:783-789.

Leopold, A. 1966. A Sand County almanac. New York: Ballantine Books. 193 pp.

Leukel, F. 1976. Introduction to physiological psychology. C.V. Mosby Co. St. Louis Missouri. 514 pp.

Lewis, H.T., and T.A. Ferguson. 1988. Yards, corridors and mosaics: how to burn a boreal forest. Human Ecology. 16:57-77.

Liu, J. and T. Var. 1986. Resident attitudes towards tourism impacts in Hawaii. Annals of Tourism Research 13:193-214.

Liu, J. and T. Var. 1987. Resident perception of the environmental impact of tourism. Annals of Tourism Research 14:17-37.

Machlis, G., and M. Bacci. 1992. Is ecotourism ideologically-biased, elitist, short-sighted, anti-democratic, and unsustainable? Paper presented at the 1992 World Parks Congress. IUCN. Caracas, Venezuela. 5 pp.

Manecon Partnership. 1991. Wildlife viewing in Alberta: a survey of interests and involvement. Summary report for Alberta Forestry, Lands and Wildlife, Alberta Tourism, Alberta Recreation and Parks. 93 pp.

Manning, R.E. 1986. Studies in outdoor recreation: a review and synthesis of the social science literature in outdoor recreation. Corvallis: Oregon State University Press. 179 pp.

Manning, E. W. 1986. Towards sustainable land use: a strategy. Working Paper no. 47. Ottawa: Lands Directorate, Environment Canada. 43 pp.

Marsh, J.S. 1985. Wilderness tourism and the environment: conflict or harmony? Symposium by the Society of Canadian Environmental Biologists, Alberta Chapter. pp.47-59.

Marsh, J.S. 1987. Tourism and conservation: case studies in the Canadian north. *In* Arctic Heritage: Proceedings of a Symposium, *eds* J.G. Nelson, R. Needham, and L. Norton. pp. 298-322. Association of Canadian Universities for Northern Studies. Ottawa.

Maslow, A.H. 1970. Motivation and personality. Harper and Row. New York. 132 pp.

Mason, R.G. 1967. The use of information sources in the process of adoption. Rural Sociology. 29:40-42.

Mathiesen, A., and G. Wall. 1982. Tourism: economic, physical, and social impacts. London: Longman Group Limited. 247 pp.

Maw, R. 1989. Visitor attitudes, perceptions, and knowledge concerning bears and bear management practices, Waterton Lakes National Park, Canada. PhD. Thesis. Department of Forest Science, University of Alberta, Edmonton, Alberta. 150 pp.

McConnell, K.E. 1985. The economics of outdoor recreation. pp. 677-722. *In* Kneese, A.V. ed. Handbook on Natural Resource and Energy Economics, Vol. II. Elsevier Science publishers B.V.

McGrath, J.E. 1964. Sociopsychology - a brief introduction. Halt, Rinert & Winston. New York 166 pp.

McGuire, W.J. 1957. Order of presentation as a factor in "conditioning" persuasiveness. New Haven Conn.: Yale University Press.

Meyers, D.G. 1983. Social psychology. McGraw Hill. New York. 320 pp.

Milbrath, L.W. and R.C. Sahr. 1975. Perceptions of environmental quality. Soc. Ind. Res. 1:397-438.

Mihalic, D.A. 1974. Visitor attitudes toward grizzly bears in Glacier National Park, Montana. Master's Thesis, Michigan State University. 125 pp.

Miller, A. 1994. The boreal research station: progress report and data results. Department of Renewable Resources. University of Alberta, Edmonton, Alberta. 39 pp.

Miller, R.J. 1968. Fort Vermilion-La Crete study. Economics Division, Alberta Agriculture. Edmonton. 67 pp.

Miller, D. 1991. Handbook of research design and social measurement. Fifth Edition. Newbury Park, California: Sage. 522 pp.

More, T.A. 1979. The demand for nonconsumptive wildlife uses: a review of the literature. USDA Forest Service. Gen Tech. Rep. NE-52, Broomall, Pennsylvania. 16 pp.

Moore, D.E. 1983. The effects of guided experiences with animals on the beliefs, attitudes, behavioral intentions and knowledge of children. PhD. diss. Univ. of Wyoming. 198 pp.

Morse, D.H. 1989. American warblers: an ecological and behavioral perspective. Harvard University Press. Cambridge MA. 466 pp.

Muir, J. 1894. The mountains of California. New York. The Century Company 389 pp.

Murphy, P.E. 1985. Tourism: a community approach. Methuen. New York. 141 pp.

Murri, D., and R.J. Haigh. 1989. The changing rural community. Alberta Rural Development Studies. Rural Education and Development Association, Edmonton, Alberta. 37 pp.

Muth, R.M. and J.C. Hendee. 1980. Technology transfer and human behavior. J. For. 78:141-144.

Nash, R. 1976. Wilderness and the American mind. New Haven: Yale University Press. 245 pp.

Nero, R. 1991. Personal Communication.

Northern Alberta Development Council. 1981. Socio-economic overview of northern Alberta. Co-West Associates. 270 pp.

Northern Alberta Development Council. 1984a. Research report: summaries of research reports. Vol. III, 1983-1984. Manecon Partnership. Edmonton, Alberta. 125 pp.

Northern Alberta Development Council. 1984b. Northern perspectives: summaries of research reports Vol III 1983-1984 (NADC 1985 Challenge North) 73 pp.

Northern Alberta Development Council. 1985a. Economic development opportunities in northern Alberta: overview report. Currie, Coopers and Lybrand management Consultants, and J.F.T. Scott and Associates. 97 pp.

Northern Alberta Development Council. 1985b. Challenge north: conference report. 37 pp.

Northern Alberta Development Council. 1990. Northern perspectives: northern Alberta into the '90s. Northern Alberta Development Council. 75 pp.

Northern Alberta Development Council. 1991a. Northern perspectives: northern Alberta into the '90s. Northern Alberta Development Council. 37 pp.

Northern Alberta Development Council. 1991b. Northern perspectives: northern Alberta into the '90s. Conference Summary Report. Northern Alberta Development Council. 53 pp.

Northern Alberta Development Council. 1991c. Trends in northern Alberta: 1970-1990. 73 pp.

Northern Alberta Development Council. 1991d. Trends in northern Alberta: a statistical overview 1971-1979. 65 pp.

Northern Alberta Development Council. 1991e. Profiles of regions and communities in northern Alberta: northwest. 153 pp.

Oelschlager, M. 1991. The idea of wilderness: from prehistory to the age of ecology. New Haven and London: Yale University Press. 477 pp.

O'Riorden, T. 1971. Perspectives on resource management. Pion. London: 195 pp.

Passoff, M. 1991. Ecotourism re-examined. Earth Island Journal 6(2):28-29.

Pateman, C. 1970. Participation and democratic theory. Cambridge University Press, Cambridge, MA. 207 pp.

Pearce, D. 1985. Tourism and environmental research: a review. International Journal of Environmental Studies 25:247-255.

Pearce, D. and R.M. Kirk. 1986. Carrying capacity for coastal tourism. UNEP Industry and Environment 9(3-6).

Pennington, D.C. 1986. Essential social psychology. Edward Arnold. London. 239 pp.

Perrault, J. 1990. Population projections for Canada, provinces and territories 1989-2011. Cat. No. 91-520, Statistics Canada, Minister of Supply and Services, Ottawa.

Pigram, J. 1980. Environmental implications of tourism development. Annals of Tourism Research 7:554-577.

Pirt, G. 1976. Attitudes toward wildlife: development and testing of measurement scales. Northern Nat Res. Mgt. Pract. Nat Res, Inst. 98 pp.

Plog, S.C. 1973. Why destination areas rise and fall in popularity. Paper presented at the Southern California Chapter of the Travel Research Association. Los Angeles. 9 pp.

Proshansky, H. and B. Seidenberg. 1965. Basic studies in social psychology. New York: Holt, Rinehart, and Winston, Inc. 243 pp.

Ramsey, C.E., and R.E. Rickson. 1976. Environmental knowledge and attitudes. J. Env. Ed. 8:10-18.

Rea, K.J. 1968. The political economy of the Canadian north. Toronto: University of Toronto Press. 271 pp.

Rea, K.J. 1976. The political economy of northern development. Science Council of Canada Background Study No. 36. Science Council of Canada. Ottawa. 43 pp.

Rees, W. 1985. Stable community development in the north: and econo-ecological approach. University of British Colombia Planning Papers: School of Community and Regional Planning. 47 pp.

Richards, M.T. 1980. An economic measure of nonconsumptive wildlife values. PhD. Dissertation. University of Arizona, Tuscon. 162 pp.

Richardson, L. 1985. Rural development. Free Press, New York, N.Y. 235 pp.

Robbins, C.S., D.K. Dawson, and B.A. Dowell. 1989. Habitat area requirements of breeding forest birds of the middle atlantic states. Wildl. Monogr. 103:1-34.

Robinson, J.L. 1954. The northern extension of the pioneer fringe of agriculture on the great plains of Canada. Proceedings: XVII Congress, International Geographical Union, Washington, D.C. 657-662.

Rogers, M. 1962. Destination areas cycle of evolution. Papers and Proceedings of the Regional Science Association. 12:95-105.

Rogers, M. and E. F. Shoemaker. 1971. Communication of innovations: a cross-cultural approach. 2nd edition. Free Press, New York, N.Y. 173 pp.

Rogers, M. 1983. Diffusion of innovations, Free Press, New York, N.Y. 152 pp.

Rokeach, M. 1968. Beliefs, attitudes and values: a theory of organization and change. Jossey-Bass Inc. San Francisco, CA. 210 pp.

Rollins, E. 1992. The recreation opportunity spectrum revisted. Annals of Tourism Resarch 21(441-452).

Romeril, M. 1985. Tourism and the environment: towards a symbiotic relationship. International Journal of Environmental Studies 25:215-218.

Rosenberg, R. 1960. Attitude theory. Free Press, New York, N.Y. 159 pp.

Ross, M. and C. Usher. 1986. Rural economic decline. Staff Paper 87-03. Department of Rural Economy, University of Alberta. Edmonton, Canada. 23 pp.

Rowe, J.S. and G.W. Scotter. 1973. Fire in the boreal forest. Quatern. Res.3(3):444-464.

Runte, A. 1987. National Parks, the American experience. Lincoln: University of Nebraska Press. 273 pp.

Sadler, B. 1990. Building a northern/circumpolar perspective on sustainable development, *ed* .E. Smith, Sustainable Development Through Northern Conservation Strategies. University of Calgary Press. 128 pp.

Sandford, R.W. 1991. Tourism, environment and the aesthetics of place. *in* R.W. Sandford, *ed.* 15th Annual Assembly of the Environmental Advisory Council: A Celebration of Place. Banff, Alberta. 147 pp.

Sagoff, M. 1988. Some problems with environmental economics. Environmental Ethics 10:55-75.

Sax, J. 1985. Mountains without handrails. The University of Michigan Press, Ann Arbor. 152 pp.

Scace, R.C., E. Grifone, and R. Usher. 1991. Ecotourism in Canada. Vol. 1. Unpublished report for the Canadian Environmental Advisory Council. 73 pp.

Schreyer, R. and R.C. Knopf. 1984. The dynamics of change in outdoor recreation environments: some equity issues. Journal of Park and Recreation Administration, 2:9-19.

Scofield, M. 1978. The complete outfitting and source book for bird watching. The Great Outdoors Trading Company, Marshall, California. 192 pp.

Shaw, W.W. and E.H. Zube. 1980. Wildlife values: a workshop on assessing methodologies and information needs. pp. 4-10. *In* Wildlife Values, eds W.W. Shaw, and E.H. Zube. Centre for Assessing Non-commodity Natural Resource Values, Inst Ser. Rep. No. 1.

Shaw, W.W. and W.R. Mangun. 1984. Nonconsumptive use of wildlife in the United States. U.S.D.I. Fish and Wildlife Service Resources Publication 154, Wash. D.C.. 20 pp.

Shaw, W. 1987. The recreational benefits of wildlife to people. *In* D.G. Decker and G.R. Goff (Eds.). Valuing Wildlife: Economic and Social Perspectives. Boulder, Colorado: Westview Press Inc. 197 pp.

Sherif, J. 1965. Attitude theory. Schriber & Sons. New York. 180 pp.

Small, M.F. and M. L. Hunter. 1988. Forest fragmentation and avian nest predation in forested landscapes. Oecolgia. 76:62-64.

Smith, V. 1976. Hosts and guests: the anthropology of tourism. Philadelphia: University of Pennsylvania Press. 176 pp.

Stabler, J.C. 1984. Development planning north of 60: requirements and prospects. Department of Economics and Political Science. University of Saskatchewan. 97 pp.

Stankey, G.H, and S.F. McCool. 1989. Beyond social carrying capacity. *In* Understanding Leisure and Recreation: Understanding the Past, Mapping the Future, eds. E.L. Jackson and T.L Burton. State College, Pennsylvania: Venture Publishing. 479 pp.

Statistics Canada. 1992. 1991 census of Canada - Population and dwelling characteristics: age, sex, marital status. Minister of Supply and Services Canada. Ottawa, Ontario (Cat. 99-101).

Stoll, J.R. and L.A. Johnson. 1984. Concepts of value, non-market valuation, and the case of the whooping crane. Trans. North Am. Wildl. and Nat. Resour. Conf. 49:382-393.

Swan, J.A. 1977. The psychological significance of wilderness. J. Env. Ed. 8(4):6-7.

Swanson, M. 1992. Ecotourism: embracing the new environmental paradigm. Paper presented at the 1992 World Parks Congress. IUCN. Caracas, Venezuela. 7 pp.

Swinnerton, G.S. 1991. People parks and preservation: sustaining opportunities. Environment Council of Alberta. 89 pp.

Swinnerton, G.S. 1989. Recreation and conservation. *In* Understanding Leisure and Recreation: Understanding the Past, Mapping the Future. pp. 517-566. eds. E.L. Jackson and T.L. Burton. Venture Publishing. State College, Pennsylvania. 479 pp.

Takahashi, L. 1987. Ecotourism development protocols. Trans. North. Am. Wildl. and Nat. Resour. Conf. 53:341-344.

Teibout, C.M. 1956. Exports and regional economic growth. Journal of Political Economy Vol 64, No. 2.

The Ecotourism Society. 1992. The ecotourism society mission statement and code of ethics: guidelines for operators 43 pp.

Tobias, M. 1989. The next wasteland: can the spoiling of Antarctica be stopped? The Sciences 29(2):19-24.

Tourism Industry Association of Canada. 1992. Code of ethics and guidelines for sustainable tourism. 32 pp.

Triandis, H.C. 1971.Attitude and attitude change. Toronto: John Wiley, Inc. 213 pp.

United States Fish and Wildlife Service 1993. 1991 national survey of fishing, hunting, and wildlife associated recreation. U.S. Government Printing Office.

Vickerman, S. 1988. Stimulating tourism and economic growth by offering new wildlife recreation opportunities. Trans. North. Am. Wildl. and Nat. Resour. Conf. 53:414-423.

Wall, G. 1989. Perspectives on recreation and the environment. *In* Understanding Leisure and Recreation: Mapping the Past, Charting the Future. pp. 453-480. *eds.* E.L. Jackson and T.L. Burton. Venture Publishing. State College, Pennsylvania. 479 pp.

Walter, J.A. 1982. Social limits to tourism. Leisure Studies 1:295-304.

Watson, L. 1990. Nature tourism. USDA OS EPA doc. 49 pp.

Wengert, N. 1985. Citizen participation: practice in search of a theory. Nat. Res. J. 25th Anthology 1985 (70): 39-57.

Wicker, A.W. 1969. Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. J. Soc. Issues 25(4): 41-78.

Wiedner, D. and P. Kerlinger. 1990. Economics od birding: a national survey of active birders. American Birds. 44:209-213.

Wilcove, D.S. 1985. Nest predation in forest tracts and the decline of migratory songbirds. Ecology. 66:1211-1214.

Witter, D.J. 1980. Wildlife values and applications and information needs in state wildlife management agencies. *In* Wildlife Values, ed. W. W. Shaw. Centre for Assessing Non-commodity Resource Values, Institute Ser. Rep. No. 1. pp. 83.

Whitcombe, R.F. C.S. Robbins, J.F. Lynch, B.L. Whitcombe, M.K. Klimkiewicz and D. Bystrak. 1981. Effects of forest fragmentation on avifauna of the eastern deciduous forest. In: Burgess, R.L. and D.M. Sharpe (eds) Forest dynamics in man-dominated landscapes. Springer, NY. pp. 125-205.

Young, M. 1992. People and parks: factors for the sucess of community based ecotourism in the conservation of tropical rainforests. Paper presented at the 1992 World Parks Congress. IUCN. Caracas, Venezuela. 17 pp.

Young, M. 1973. Negative impacts of tourist visitation. Papers and Proceedings of the Regional Science Association. 19:116-123.

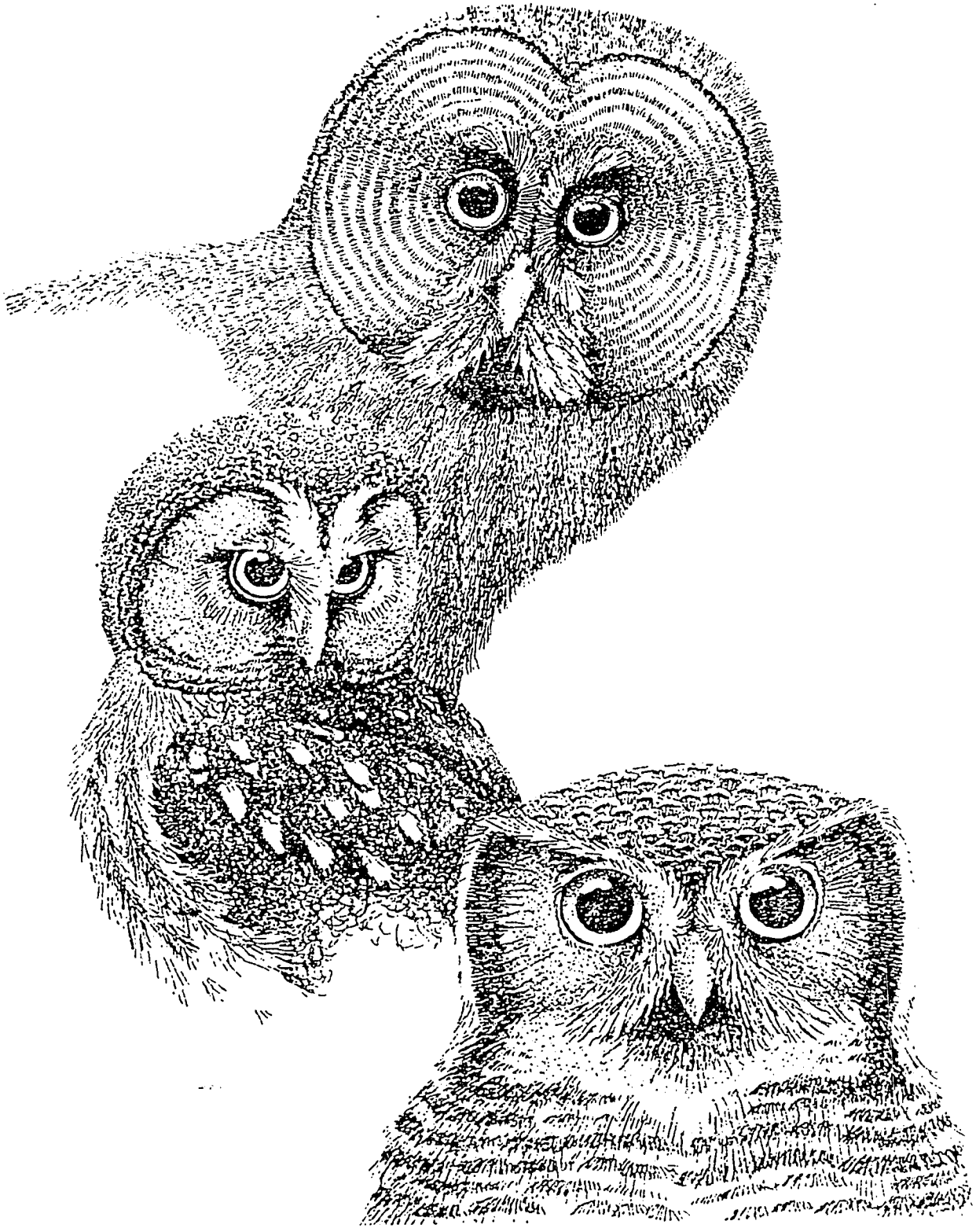
Zanden, J. 1984. Social psychology. 3rd Edition. Random House. New York 567 pp.

Ziffer, K. 1989. Ecotourism: the uneasy alliance. Conservation International. Ernest and Young, Washington, D.C. 39 pp.

Zube, H. and M. Busch. 1990. Park-people relationships: an international review. Landscape and Urban Planning 19:117-131.

Appendix A.

Photographic Plates



Great Gray (top), Boreal (Middle), and Northern Hawk (Bottom) Owls

Appendix B.

Definition of Terms

The following are definitions to be used for some of the more important and most often used terms found throughout this document.

Appreciative (Non-consumptive) vs. Consumptive Development: Consumptive development involves the direct consumption of natural resources to support themselves and as a primary component of the development. Mining, forestry, agriculture and manufacturing are examples of consumptive development. Appreciative development also involves consumption of natural resources but only incidentally for construction of facilities, travel, or trail building, for example. In this thesis, the terms "appreciative" and "non-consumptive" are considered synonyms.

Natural Resources: Natural resources are raw natural products that can be used profitably for capital or asset accumulation.

Ecotourism: Ecotourism, though having no single precise definition, always involves appreciative, non-consumptive, nature-oriented travel.

Bird Watching / Birding: A recreational activity involving the observation or study of birds in their natural habitat, most often with the use of binoculars.

Wildlife Viewing: An increasingly popular recreational activity in which select wildlife are sought out for viewing purposes. Recently an industry has developed around the offering of wildlife viewing experiences to tourists.

Recreational Non-consumptive Wildlife Uses: Recreational uses of wildlife which do not result in intentional removal of an animal from its environment by the participant. Richards (1980) refers to these uses as human benefits derived from wildlife while not taking their lives for sustenance or pleasure. These activities include bird watching, wildlife observation, wildlife photography, nature walks and study, and bird feeding.

Conservation 'The term "conservation" as used in this thesis transcends the common definition of optimum use of resources over time, to include maintenance of environmental quality and preservation, as defined by Green (1981). The themes to conservation include a biocentric and anthropocentric perspective (Swinnerton 1989).

Resource: The term "resource" is defined as "a culturally defined abstract concept, which hinges upon man's perception of attaining certain socially valued goals by manipulating elements of the biophysical environment." (O'Riorden 1971, p.520).

Recreation and Tourism: Leisure activities that involve participation in non-work events outside the home. Tourism has a spatial component separating it from recreation (Mathieson and Wall 1981; Murphy 1985). Tourism is leisure activity which takes place at least 50km from the participants place of primary residence. Recreation can take place greater than 50km from a primary residence, but most often refers to activities undertaken in proximity to a primary residence. Most authors consider recreation and tourism to be similar. These terms are considered inter-changeable

Appendix C.

Respondent Groups

Respondents were grouped according to different levels of explanation: specific and intermediate. At the intermediate level of explanation, respondents were grouped dichotomously: study area residents and visiting tourists. At the specific level of explanation, respondents were grouped according to the dominant economic sector in which they were employed and, if tourists, whether they were tourists or ecotourists. An explanation of the economic sector and tourist groupings follows.

Timber: The timber group consisted of eight respondents employed by the Alberta Forest Service (AFS) and seven from private timber companies ranging from small family owned businesses to Daishowa - Marubeni (the largest timber company in Alberta). The timber sector employs approximately 12 percent of the local population (NADC 1990).

Agriculture: The agriculture group consisted of respondents from family-owned farms. Eight farmers were of Mennonite background and seven from other racial or religious groups. The agriculture sector employs approximately 20 percent of the local population (NADC 1990).

Tourism: The tourism group consisted of a diverse sample of respondents employed in various tourism businesses or agencies. These include Alberta Tourism, tourist lodge owners (only those lodge owners catering to both tourists and ecotourists were interviewed), employees of tourist information centers, and representatives of tourism promotion boards. The tourism sector employs approximately 20 percent of the local population depending on how broadly it is defined (NADC 1990). I include services which directly cater to tourists such as the hotel and food and beverage industries.

Native: Although not an actual economic group, the natives in the study area arguably have a unique economic system as they are extremely isolated, work part-time in many industries, and most (67%) are unemployed (Great Bear Health Study 1993). A large proportion (30%) are employed directly through the Little Red

River First Nations (Sewepegaham pers comm.). The sample native group consisted of members of the Little Red River Cree First Nation (John D'Or and Fox Lake Reserves) and the Tall Cree First Nation (North Tall Cree Reserve). This sector comprises approximately 27 percent of the local population (NADC 1990).

General Tourist: The general tourist group consisted of visitors to the High Level Tourist Information Center in High Level. Most of the tourists were stopping over at the center while on their way to or from the Northwest Territories. The study area was not the destination for these tourists

Ecotourist: The ecotourist group consisted of 10 tourists visiting the study area for nature appreciation and wildlife viewing. The study area was a destination for these tourists

Appendix D.

Wildlife Inventory

The concentrations of winter owls and spring songbirds in the study area have become one of Alberta's best-kept wildlife secrets. Owl and songbird inventory techniques and results are presented to verify that concentrations of certain species exist. The intent of wildlife inventory was to locate owls and songbirds to bolster the validity of the primary tenet of this study: that ecotourism based on wildlife viewing may be a viable economic development alternative for the study area.

Historical reports from Dr. J. R. Butler's graduate students and from local birding enthusiasts within the study area suggest that daily concentrations of owls in select areas exceed any known assemblage (Nero 1991 pers comm.). This author conducted owl inventory's to document owl assemblages and define study area boundaries in late winter from 1992 through 1994 (Butler and Miller 1993). Owl concentrations were not verified by owl inventory until 1993, and then only during February and March. Owl concentrations are indicated on the study area map (Figure 1).

After owl concentrations areas were identified, songbirds in the study area were identified as a possible ecotourism asset. Sought-after songbirds were initially documented by university researchers in 1993 (Miller 1994). Songbirds in the study area have since become the focus of university research on wildlife-habitat relationships. Concentrations of many rare and/or sought-after songbirds are found in old growth conifer stands on islands in the Peace River. The fine map resolution needed to show the exact locations of songbird concentrations prohibited placement of these ecotourism resources on the study area map.

Owl Inventory's were conducted during the first week of March in 1993 and 1994. Survey dates were refined according to the timing of peak owl concentrations in February and early March. Inventory sites were initially located based on recommendations of local birding enthusiasts. Local birders identified concentration areas of great gray owls, northern hawk owls, and, to a lesser degree, boreal owls and snowy owls. All sites were reported to occur along roadways in the study area. These three areas of owl concentrations served as inventory routes. Inventory was conducted by vehicle with the number of owl sightings serving as an index of owl abundance. The routes were censused four times during the first week of March in 1993 and 1994. Surveys were conducted in the morning and evening based on the diurnal habits of the owl species under consideration. Two surveys were conducted each day; one

survey was conducted between 0800 and 1100 and one between 1700 and 2000 hours at each site. Combined, the survey routes covered 53 kilometres of road. Surveys were not conducted during precipation or if wind speed exceeded 20 kilometres per hour.

Although the number of owls varied markedly between years, the number of owls observed in the survey areas was always greater than those observed via casual observation outside the survey areas. In 1993 and 1994, the number of owls, particularly great gray owls and northern hawk owls, observed in the owl concentration areas was markedly greater than outside the concentration areas. In 1994, all three concentration areas combined produced a daily maximum of 31 great gray owls, 10 northern hawk owls, 5 snowy owls and 2 boreal owls. The maximum number of owls observed on each survey (three routes combined) was 19 great gray owls, 4 northern hawk owls, 4 snowy owls and 2 boreal owls The average number of owls observed per day (two surveys combined) during the two year survey effort was 12 great gray owls, 3 northern hawk owls, 2 snowy owls and 1 boreal owl. The average number of owls observed per survey during the two year survey effort was 8 great gray owls, 2 northern hawk owls, 2 snowy owls and 1 boreal owl. All surveys were conducted by author.

In 1993, the Boreal Research Station, sponsored by Western Canada Wilderness Committee and the University of Alberta, was opened in the study area. Numerous University researchers began conducting biological research at the station. Research focusing on habitat utilization of old growth dependent songbirds has documented the distribution and abundance of sought-after birds including Cape May, bay breasted, and blackburnian warblers. Bird surveys were first conducted in 1993 and replicated in 1994. 110 bird point count stations, placed at 200 metre intervals and 100 meters from the stand edge, were located in 17 stands and surveyed four times during June of each year. All birds heard and or seen within 50 metres and outside fifty metres from the point count centre were recorded. Results indicate that select stands contain an abundance of select sought-after birds including Cape-May, bay-breasted, and Conneticut warblers, northern and three-toed woodpeckers, (Miller unpubl. data).

In conclusion, wildlife inventory has located, but not scientifically verified, wildlife sought-after by ecotourists. It is the opinion of this author that the wildlife species identified (see above) represent a significant ecotourism attraction capable of drawing ecotourists to the study area for wildlife viewing.

Appendix E.

Survey Instrument

Attitudes Toward Ecotourism

Economy and Wildlife:

Implications to Northern Development

and

Integrated Resource Management

in a Canadian Boreal Region

>A Face to Face Attitudinal Survey of Northern Albertans<

Name of Respondent _____

Address _____

Telephone Number _____

Survey Administered By _____

Date and Time of Survey _____

Hello, my name is Andy Miller. I'm a student at the University in Edmonton doing a study on Albertans in High Level, La Crete, and Fort Vermilion. My study aims to assess your attitudes toward economic development, particularly ecotourism, and wildlife in this area.
Are you familiar with ecotourism? If no: ecotourism is tourism based on experiencing the natural features and cultures of an area. Some examples of ecotourism are canoeing, hiking and watching wildlife.

This study is part of a cooperative project supported by:
*Forest Science Department at the University of Alberta
*Alberta Forestry Lands and Wildlife
*Canadian Wildlife Service
I am grateful for your time to participate in this survey.
THIS QUESTIONNAIRE IS CONFIDENTIAL WHEN COMPLETED

*The first few questions involve your feelings about wildlife and boreal forests in northwestern Alberta

A1. Do you participate in outdoor leisure activities in this region? Which ones?

_____

A2. How enjoyable is wildlife viewing to you?

Not At All Enjoyable	Somewhat Enjoyable	Enjoyable	Very Enjoyable
1	2	3	4

A3. About how often do you see wildlife (non-hunted varieties) while making trips in this area? (barter % with them). What kinds of wildlife do you see most often?

_____

A4. Some people suggest that wildlife are very abundant in this area. How abundant do you think wildlife are in this area ?

Not At All Abundant	Somewhat Abundant	Abundant	Very Abundant
1	2	3	4

A5. Some people suggest that owls are very abundant in this area. How abundant do you think owls are in this area?

Not At All Abundant	Somewhat Abundant	Abundant	Very Abundant
1	2	3	4

A6. In this area, what time of year do you notice most owls?
Winter____ Spring____ Summer____ Fall____

A7. Are you concerned about loss of wildlife habitat in the area?

Not At All Concerned	Somewhat Concerned	Concerned	Very Concerned
1	2	3	4

A8. Do you think wildlife viewing is important in preserving nature?

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

*the next questions involve your feelings about economy and industry

B1. Do you feel that future employment prospects in this area are promising?

Not At All Promising	Somewhat Promising	Promising	Very Promising
1	2	3	4

B2. What I would like to do now is ask you about a number of industries in this area.
a) How economically important are each of the following industries now?
b) How important will these industries be in the future? Will they increase, decrease or stay the same?

A. timber industry

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

B. oil/gas

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

C. agriculture/ranching

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

D. sport hunting

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

E. trapping

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

F. camping and sightseeing by tourists

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

G. bird watching

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

H. others _____

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

B3. Do you feel the economic future of this region is promising?

Not At All Promising	Somewhat Promising	Promising	Very Promising
1	2	3	4

*The following questions involve identification of wildlife

C1. Please identify as many of these photos of wildlife as you can by common name. When done, we can come back to look at them again if you like.

Yes/No black-capped chickadee

Yes/No evening grosbeak

Yes/No yellow warbler

Yes/No coyote
Yes/No wolf

Yes/No caribou

Yes/No black bear

Yes/No great gray owl

Yes/No great horned owl

Yes/No boreal owl

Yes/No snowy owl

Yes/No northern hawk owl

*Additional Comments Section:_____

_____

_____

*The following questions involve your attitudes about ecotourism

D1. Do you beleive that this area is desireable by tourists for wildlife or nature viewing?

Not At All Desireable	Somewhat Desireable	Desireable	Very Desireable
1	2	3	4

D2. Do you believe the number of sightseeing tourists using this area is:

far from enough	not enough	too much	far too much
1	2	3	4

D3. Which wildlife or natural features in this area would be the biggest draw for travelers?

_____

D4. If travelers came from hundreds of miles away to see wildlife in this area, would it be good for the local community?

Not At All Good	Somewhat Good	Good	Very Good
1	2	3	4

D5. How important do you think owls, among other wildlife, in this area could be as a source of community pride?

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

D6. How important do you think that owls in this area, among other wildlife, could be as a source of tourism to draw tourists here from hundreds of miles away?

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

Introduction to D7: Four owls that are abundant in this area are among the twelve most sought after birds in North America. Birdwatching is the number one growth industry and most popular leisure activity in North America. Birdwatchers contribute $30 billion to North American economies annually.

D7. Considering the above information to be true, how important do you think that owls in this area, among other wildlife, could be as a source of tourism to draw tourists here from hundreds of miles away?

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4

*The last few questions are about yourself

1. Gender _____

2. What is your birth year? _____

3. What is your highest educational level? _____

4. Tourists only: What is your country, province, state of origin? _____

Questions to Timber Industry Group

1. If nature tourism based on wildlife viewing became an important economic activity here, what role could the timber industry, and yourself play? How would the timber industry be effected?

2. Forest management practices favor harvest of older forests. There is good reason to believe that older aged forests are important for certain wildlife highly sought after for nature tourism. Do you think there may be controversy between Timber Management and ecotourism?

Questions to the Agriculture Group

1. If nature tourism based on wildlife viewing became an important economic activity here, what role could the agricultural industries, and yourself, play. How would the agricultural industries be affected?

2. Forest management practices favor harvest of older forests. There is good reason to believe that older aged forests are important for certain wildlife highly sought after for nature tourism. Do you think there may be controversy between Timber Management and ecotourism?

Questions to the Tourism Group

1. If nature tourism based on wildlife viewing became an important economic activity here, what role would the Tourism industries, and yourself, play. How would the tourism industry be affected?

2. Forest management practices favor harvest of older forests. There is good reason to believe that older aged forests are important for certain wildlife highly sought after for nature tourism. Do you think there may be controversy between Timber Management and ecotourism?

3. What does ecotourism mean to you? Do you keep up to date on ecotourism literature?

Questions to Indigenous Native Peoples

1. If nature tourism based on wildlife viewing became an important economic activity here, what role could native peoples play, and how would they be affected (attract tourists to this area through managing reserve land to support unique wildlife, offer, guiding services, accommodation services, etc.)?

2. Forest management practices favor harvest of older forests. There is good reason to believe that older aged forests are important for certain wildlife highly sought after for nature tourism. Do you think there may be controversy between Timber Management and ecotourism?

3. Is nature tourism based on wildlife viewing consistent with traditional values, and land use practices?

4. Is nature tourism be a feasible economic development option for native peoples?

Subjective Ecotourism Receptivity Index

How important do you think that owls in this area, among other wildlife, could be as a source of tourism to draw tourists here from hundreds of miles away?

Not At All Important	Somewhat Important	Important	Very Important
1	2	3	4