

**ASSESSMENT OF ECOTOURISM ON COMMUNITY DEVELOPMENT: CASE
OF ECOTOURISM AND THE ELY COMMUNITY**

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Assessment of Ecotourism on Community Development:

Case of Ecotourism and the Ely Community in Minnesota

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ABSTRACT

Hassane Oumarou, Boubacar M.S., Natural Resources Management Program, College of Agriculture, Food Systems, and Natural Resources, North Dakota State University, April 2010. Assessment of Ecotourism on Community Development: Case of Ecotourism and the Ely Community. Major Professor: Dr. Chris Biga.

This study evaluated ecotourism in Ely, Minnesota, gateway to the Boundary Waters Canoe Area Wilderness and the International Wolf Center. The study used Flora and Flora's (2008) community capitals framework to assess ecotourism effects on the community's capitals namely, natural, cultural, financial, built, human, social, and political capitals. For each of these capitals; postal and email correspondences, phone calls, and internet searches were used to collect government surveys, statistics, and documentary and photographic data. These data were presented in tables and analyzed using a descriptive method. The analyses revealed a positive effect of ecotourism on all the capitals and suggested that the community capital framework is a suitable model for ecotourism assessment and that ecotourism is contributing to the development of the community of Ely. Suggestions for further research were also offered.

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DEDICATION

My sincere gratitude to Allah (the most merciful); this work is dedicated to my late father, Malam Kada who did not live to reap the fruit of his hard labor. May his soul rest in perfect peace. Amen!

To my dear mother, Altine, for her efforts and contributions towards my success in life.

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CHAPTER ONE: INTRODUCTION

The International Ecotourism Society defines ecotourism as “travel to natural areas that conserves the environment and sustains the well-being of local people” (Kiss 2004, p. 232). There are three characteristics of ecotourism: 1) “provides for environmental conservation”, 2) “includes meaningful community participation”, and 3) “is profitable and self sustaining” (Mader, 2010, n.p.). These characteristics are illustrated in Figure 1.1.



Figure 1.1. Definition of Ecotourism.

Source: Mader (2010).

Whereas community and well-being of local people are major tenets of ecotourism, researchers in Ecotourism have concentrated on whether or not ecotourism produces economic incentives for conservation (Lindberg, Enriquez, and Sproule, 1996). Therefore, little research has specifically focused on whether ecotourism has had positive impacts on community well-being in ecotourism destinations (Lindberg, Enriquez, and Sproule, 1996).

In addition, with the limited studies on ecotourism's impact on community development in the ecotourism literature, an exclusive community development framework has yet to be developed to evaluate the effects ecotourism on local people. Previous studies on ecotourism and development (e.g. Weaver, 2002; Stone and Wall, 2003) have used the frameworks developed by Ross and Wall (1999), and Weaver (2002). Ross and Wall's (1999) framework is a site based assessment and stems from the functions of ecotourism such as conserving natural resources, protecting natural areas, promoting tourism, and enhancing local economies. The framework integrates relationships among tourism, biodiversity, and the people in local communities. While Weaver's (2002) framework, which is still under development, is a planning and management framework aimed at providing a tool for ecotourism to achieve development objectives, at the present time it is not an assessment framework.

Looking to the larger community development literature, Flora and Flora (2008) have developed a community capitals framework that may be useful in assessing ecotourism's impact on local communities. They identify seven types of capital upon which community development can be sustainably built. These

types of capital are natural capital, cultural capital, financial capital, built capital, human capital, social capital, and political capital (Flora and Flora, 2008).

In this present study of community health and well-being in Ely, Minnesota, the gateway to the Boundary Waters Canoe Area Wilderness and the International Wolf Center, both popular ecotourism destinations in Northern Minnesota, ecotourism is evaluated from Flora and Flora's community capitals framework.

The present study is of great value and its findings very useful for several reasons. First, it gives ecotourism site managers and local government officials of the community of Ely additional means to make decisions about ecotourism advocacy and practice in Ely. These findings will give community leaders an estimate of the impacts of ecotourism on the community of Ely. Second, the results from this study will contribute to the growing ecotourism literature by providing an assessment model of ecotourism on community development that can be applied elsewhere. The purpose of this research was to determine the impacts of ecotourism on the development of the Ely community by building upon the community capitals framework of Flora and Flora (2008), and to develop a new model of ecotourism assessment on community development. This research investigated both positive and negative contributions ecotourism has had on the natural, cultural, financial, built, human, and political capital of the Ely community.

The assessment of the capitals of Ely was done as follows. Regarding the natural capital, data were collected on net change in wood harvesting in the Superior Natural Forest, pollution of local lakes, and the population of wolves.

The cultural capital data assessment was based on the prevalence and changes in the festivals, religions, and languages of Ely. The financial capital analysis was carried out on the credit unions and banks, their assets, households' income distribution, and per capita income. In analysis of the built capital the study focused on change in indicators such as housing units, hotels, resorts, camping grounds, businesses establishments, transportation systems, and other services and facilities. Human capital was assessed based on school enrollment, education attainment, and people's occupation. Social capital was evaluated on transformations of the social organizations of Ely. Political capital was investigated through the political contribution of communities to elections.

This present thesis is organized to include six chapters: introduction, literature review, study area, methodology, results and discussion, and conclusion and recommendations. The introduction defines ecotourism, states the need for the study, its importance, objectives, and purpose. The literature review collects existing information on ecotourism and the different capitals outlined by community capitals framework. The study area gives the geographical location of the study area, its history and tourism attraction. The methodology chapter describes the methods used in the study, explaining how data were collected and analyzed as well as why such methods were utilized. The result and discussion chapter summarizes and discusses the findings. The conclusion and recommendations chapter summarizes the study and gives suggestions for further studies.

CHAPTER TWO: LITERATURE REVIEW

Whereas the community capitals framework has not been specifically utilized in ecotourism research, several studies have examined the seven community assets of community capitals. This review provides a brief summary of Flora and Flora (2008) community capitals framework and incorporates the impacts of ecotourism on the seven community assets identified by them in their community's capitals framework.

2.1. Community Capitals Framework

Generally, capital is defined as a resource, an asset, wealth (money) or a strength that is available to be used to create other resources. In this thesis capital and asset are used interchangeably. Therefore, community capitals may refer to resources available for communities and on which other capitals can be built. Flora and Flora (2008) define seven types of capital upon which community development can be built. They include natural, cultural, financial, built, human, social, and political capital.

Natural capital is composed of the environmental resources that are extracted and used by communities. Plants, animals, landscape, climate, air, and water are components of a community's natural capital. Financial capital is defined as the money utilized to create other assets. Communities' financial capital is comprised of people's income, wealth, and the funds of credits and investment institutions available for the community. Human capital includes the

knowledge, skills, experiences, and health of individuals that contribute to their ability and capacity to sustain and enhance themselves, their family and the whole community. A community's human capital is therefore the community members' skills and ability, such as education, health, life experience, and leadership (Flora and Flora, 2008). Social capital may be defined as an interaction of individuals bound together through norms for mutual benefits (Bourdieu, 1986; Putnam, 1993; and Flora and Flora, 2008). Social capital includes leadership, trust, reciprocity, and bridging and bonding networks. Cultural capital includes the language people speak, the clothes they wear, the type of farming they do, and the rituals they perform (Flora and Flora, 2008).

A community's built capital refers to its infrastructures, permanent physical installations and facilities upon which stand all the community activities and including the community's roads, streets and bridges, airports and railroads, electric and natural gas utility systems, water supply systems, police and fire protection facilities, wastewater treatment and waste-disposal facilities, telephone and fiber-optic networks and other communication facilities, schools, hospitals, and other public and commercial buildings, as well as playgrounds and soccer or other athletic fields. A community's organizations and connections that enable the community to have voice and power constitute its political power. Political capital is a group's control capability in ensuring the flow of resources to all individuals; through the establishment and enforcement of rules and regulations (Flora and Flora, 2008).

These seven capitals are not mutually exclusive. They overlap in forming

the Community Capitals Framework outlined in Figure 2.1 and result concurrently in the establishment of healthy ecosystem, vibrant regional economies and social equity and empowerment (Flora and Flora, 2008).

Community Capitals



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Figure 2.1. Community Capitals Framework.

Source: Goreham, A. G., Tweeten, K., Taylor, C. E., and Fier, B. (2009).

2.2. Ecotourism And Community Capitals

This section describes the link between ecotourism and the community capitals, focusing on the collection and integration of previous research findings

on the effects of ecotourism on natural, cultural, financial, built, human, social, and political capitals.

2.2.1. Ecotourism and natural capital

In the academic literature, ecotourism has been found to have both positive and negative impacts on natural capitals. Brandon (1996) noted that ecotourism benefits natural capital in four ways: generation of funds for management of national parks; creation of incentives for conservation through creation of jobs; provision of local economic development funds; and tourists' advocacy for conservation. Ferraro and Simpson (2002) found that ecotourism provides funds for developing countries to conserve their natural environment. For instance, they explained that between 1988 and mid 1995, the World Bank invested up to \$1.25 billion in loans, credits, and grants in biodiversity projects in the developing world. Dimantis (2004) noted that ecotourism preserves and protects biodiversity and encourages preservation of natural areas through motivation and the creation of incentives. Hearne and Santos (2004) stated that ecotourism creates incentive for conservation of natural capital.

On the other hand, negative impacts of ecotourism have been reported by several researchers. Buckley (2001) and Dimantis (2004) argued that ecotourism harms the local ecosystem in which it operates. Buckley (2001, 2004) argued that ecotourism negatively affects the local soils, vegetation, and animals. He noted that use of vehicles and hiking by tourists cause soil compaction, reduce organic matter and nutrient content and expose soils to surface runoff.

Vehicles also cause trampling of vegetation thereby reducing vegetation cover and killing of some plants. Furthermore, he argued that ecotourism might cause animal disturbances, water and noise pollution and waste accumulation. Dimantis (2004) stated that ecotourism disturbs animals, causes soil compaction and pollution of water, soil, and air. Also, Merriam and Smith (1974) who studied the impacts of visitors on campsites in the Boundary Water Canoe Area found out that most vegetation at campsites was killed by chopping of exposed roots, tree trunks and limbs, and damage from campfires. In addition, King and Mace (1974) discovered a higher presence of coliform bacteria in the waters near campsites, in a study of water quality in the Boundary Water Canoe Area.

2.2.2. Ecotourism and cultural capital

Ecotourism is viewed to affect local culture both negatively and positively (UNESCO, 1976; Brandon, 1996; Hardyment, 2003; Dimantis, 2004; Darowski, et al., 2006; and Chambliss et al., 2009). As negative effects, Brandon (1996) argued that ecotourism might affect culture in four ways: cultural commoditization (treating of people and their symbols as commodities), social structure (pattern of social lives), cultural knowledge (information that people possess) and cultural property (sites, monuments). Brandon (1996) argued that cultural commoditization could destroy people's culture. Brandon (1996) also stated that ecotourism brings cultural change to communities; breaks down community and destroys local cultural relationships. This happens as a result of local young

people following tourists' fashion as they see it has fewer restrictions than their traditional culture's fashion. This practice influences local youth to abandon their traditional culture. Also, family structures are changed. This is because youth that gain money from the sales of crafts and through employment see that their daily income is far greater than what their parents working in farms gain in a month. Therefore, they do not follow their parents' advice regarding conserving traditional values and practices (Brandon, 1996).

Furthermore, Brandon (1996) asserted that ecotourism's effect on cultural knowledge results in extinction of indigenous cultural capital such as storytelling. This is because youth engaged in the new jobs (e.g., working in ecotourism projects) brought in by ecotourism lose interest in local culture (Brandon, 1996). Moreover, the longtime interaction between tourists and local people encourages youth to adopt tourists' culture rather than their own native culture. Finally, modern technologies including TV, radios, and phones brought in by tourists and or ecotourism to cater to tourists encourages local people to be less dependent on their oral traditions (Brandon, 1996). Brandon (1996) also reported that prevalence in ecotourism practices result in reduction in knowledge of traditional medicine and crop strains. Although protected areas protect and restore cultural sites (UNESCO, 1976), Brandon (1996) stated that ecotourism may destroy such cultural properties.

Hardyment (2003) studied the environmental and socio- cultural impact of ecotourism in the Toledo District in Belize, in two different ecotourism projects: the Toledo Ecotourism Association (TEA) and the Toledo Institute for

Development and Environment (TIDE). In his analysis he stated that, a tour guide reported that ecotourism weakened their culture, in that, for instance, local youth adopt tourists' ways of dressing. Hardyment (2003) also discovered that ecotourism negatively affected people's social lifestyle, beliefs and farming styles in Toledo. He noted the proliferation and massive consumption of alcoholic beverages (brought in for tourists' consumption) in the villages of Toledo districts. He also noted that in some of the villages of the district many people have been converted to Christianity leading the local religion and belief systems to disappear. Hardyment (2003) also noted that TEA members' traditional farming lifestyles are affected because they do not have as much time to devote to their farms. Their time in farms is regulated by the tourists' presence in the village.

Aside from the negative effects of ecotourism on culture as argued by UNESCO (1976), Brandon (1996), and Hardyment (2003), ecotourism also presents some benefits to culture. Brandon (1996) noted that ecotourism might reinvigorate local skills and practices by providing less disturbing jobs. Hardyment (2003) reported that the TEA chairman asserts that tourism has improved mutual understanding between local TEA members and tourists, releasing them from their old beliefs in which they believe tourists are just land hunters; while one member of the association said that the villagers have improved their English language skills while interacting with tourists. Hardyment (2003) stated that another tour guide from the TSA reported that as tourists were buying local crafts, villagers were encouraged to preserve their cultural diversity. Dimantis (2004) noted that local arts, and traditions and cultural activities are

restored by funds generated by ecotourism. Also, Darowski, et al. (2006) who reported that the tourism industry is destroying Hawaiian culture by reallocating some culturally significant sites such as burial lands in order to build infrastructures such as hotels, stated that the shift from tourism to ecotourism is focusing efforts on the community rather than on the tourists and putting less pressure on the Hawaiian culture and environment. Chambliss et al. (2009) reported that the 2009 Space Coast Birding & Wildlife Festival held in Brevard County, Florida, had been more successful than the 2008 one in terms of economic activities. It was the first time this festival had registered more than \$1,000,000 in profit. Individual events numbered 223 and offered a wide diversity of activities including field trips, photo workshops, seminars, keynote lectures, and kayaking). More than 3,500 people came from 37 different U.S. States as well as Argentina, Canada, China, Ecuador, Panama, South Africa, Uganda, and the United Kingdom to take part to the festival.

2.2.3. Ecotourism and financial capital

The economic impacts of ecotourism include direct, indirect and induced impacts (Boo, 1990; Horwich et al., 1993; Brandon, 1996; Lindberg, Enriquez, and Sproule, 1996; Peters, 1998; Fennell, 1999; Archabald and Naughton-Treves, 2001; Kiss, 2004; Ogutu, 2002; Hardyment, 2003; Dimantis, 2004; Darowski, et al., 2006; Gurung and Seeland, 2008; Stronza and Gordillo, 2008; and Leonard, 2008).

Brandon (1996), Fennell (1999), and Dimantis (2004) identified the direct economic benefits from ecotourism to be entry fees, concession fees, royalties, tax fees, and donations. Boo (1990), Horwich et al.(1993), Lindberg, Enriquez, and Sproule (1996), Schaller (1996), Hardyment (2003), Dimantis (2004), Gurung and Seeland (2008), and Stronza and Gordillo (2008), found ecotourism indirect's benefits to include ecotourism related businesses (tour companies, hotels, restaurants, shops, sales of handicrafts, leasing of lands, etc.) and jobs (tour guiding, boat driving, guarding/housekeeping, cooking, managing, in ecologes, hotels and restaurants, environmental educators and employees in eco-centers etc). For instance, Horwich et al. (1993), discovered that in 1990 the community of the Baboon Sanctuary, in Belize registered total expenses from tourists as about US \$21,605, of which " 8.7 % on transportation, 9.8 % on guiding, 20.2% on accommodations, 43.2 % on meals, 12.3 % on souvenirs, and 5.7% on personal/other" (Horwich et al, 1993, pp. 160). Also, in Kenya, in Eselenker, Anboseli ecosystem, local communities receive average of US \$5,300 per year with an increment of 10% for the lease of their lands to an ecotourism project (Ogutu, 2002). In Belize, from Toledo ecotourism, an eco-tour guide is paid US \$50 per day (Hardyment, 2003).

The induced benefits of ecotourism include, through "multiplier effects", the investments of the direct benefits into developmental projects (Brandon, 1996, Peters, 1998, Kiss, 2004), the direct sharing of these benefits (Peters, 1998, Archabald and Naughton-Treves, 2001), and expenditures from ecotourism related jobs' employees (Stronza and Gordillo, 2008). A report by Dr. Daniel Otto

from the Iowa State University Economics Department indicated that the planned Mississippi River Eco Tourism Center at Rock Creek, in Clinton County, Iowa, would generate, through secondary and multiplier effects, \$7 million annually and would create 100 new jobs (Clinton County Conservation Board, 2010). Also, Leonard (2008) reported that, in 2006, wildlife watchers in the U.S. contributed \$122.6 billion as industrial output which resulted in 1,063,482 jobs, \$9.3 billion of federal tax revenue, and \$8.9 billion of state and local tax revenue. Darowski, et al. (2006) stated that, in 1999, from the 10 billion dollar of the tourism industry, ecotourism alone contributed approximately \$669 million to Hawaiians. Finally, Chambliss et al., (2009) reported that the 2009 Space Coast Birding & Wildlife Festival held in Brevard County, Florida generated \$996,679 in sales output, \$386,000 in labor income and over \$104,000 in government tax revenue.

2.2.4. Ecotourism and built capital

Rogers (1998) reported that in Nepal, the Solu-Klumbu community stated that in the process of enhancing their “health and well-being,” ecotourism provided them new infrastructure for education (schools), water supply (piped water systems), energy (hydro-electric plants), and health (health posts, hospitals, and clinics), as well as improved existing infrastructure. Ecotourism constructs schools, health centers, water pans and boreholes and electrical power generators, transportation facilities (roads, parking lots, small airports), and communication (radio and TV) stations, for local communities (Ogotu, 2002;

Hardyment, 2003; and Kiss, 2004). Moreover, in community based ecotourism eco-lodges are constructed within camps to lodge tourists (Ogutu, 2002; Hardyment, 2003; and Kiss, 2004); and some areas are set aside for camp managers and different associations for their meetings (Jones, 2004). Ecotourism also provides other facilities such as motorized canoes, small planes, shops, solar panels, and radios (Stronza and Gordillo, 2008).

2.2.5. Ecotourism and human capital

It has been argued that ecotourism enhances human capital by training eco-tourists and tour guides in environmental education, and enhances other employees' skills to better serve tourists (Horwich et al., 1993; Wunder, 1999; Wunder, 2000; Archabalt and Naughton-Treves, 2001; Hardyment, 2003; Stem et al., 2003; Kiss, 2004; and Stronza and Gordillo, 2008). Skills to enhance the ways local resources can be utilized are learned in local communities to conserve these natural resources (Stronza and Gordillo, 2008; Kiss, 2004; Hardyment, 2003; Archabalt, and Naughton-Treves, 2001; Horwich et al., 1993). This educational component of ecotourism is also extended to eco-tours to raise eco-tours conservation and environmental awareness (Stem et al., 2003). Wunder (1999, 2000) discovered that ecotourism permitted Ecuadorians (Cofan Indians) to adopt conservation attitudes by restricting hunting and restraining themselves from using their old fishing technique using dynamite. Stronza and Gordillo (2008) found that in Kapawi and Chalalan people attributed ecotourism to

teaching them to “be better organized as well as more ‘transparent and democratic’ in their process for determining how to distribute profits” (p. 460). They also noted that, from the Posada Amazonas community, “women acknowledged ... feeling of being able to assume new roles and engage in more activities beyond the household” (p. 460). They quoted one woman saying, “Working in tourism has given me strength in knowing that women can get ahead alone; we don’t have to depend on men” (p.140). Also, at the planned Mississippi River Eco Tourism Center at Rock Creek, in Clinton County, Iowa, the Clinton County Conservation Board would provide environmental education classes on plant ecology, owls, reptiles and amphibians, birds, bees/flowers, trees, vermicomposting, and activities such as overnight floats, adult winter camps, wild flower hikes, creatures of darkness hikes, pioneer cemeteries, for goodness snakes, beginning camping skills, kids fishing tournaments, cross country skiing, archery, canoeing and kayaking, to the public and school kids (Clinton County Conservation Board, 2010).

2.2.6. Ecotourism and social capital

Wearing (2001) noted that ecotourism has several benefits for social capital. He argued that due to its demand for accommodation, food, and beverage outlets, ecotourism improves the proliferation of social infrastructures such as hotels, motels, guesthouses, etc. He also stated that: 1) Local retail businesses and services such as medical, banking, child care hiring, cottage

industries, and souvenir shops, provides additional revenue to local retail businesses and other services to gain substantial revenue from ecotourism; 2) local labor and skills including eco-tour guides, retail sales, and restaurant and table waiting staff are utilized by ecotourism; 3) cultural heritage and natural landscapes are protected and preserved by funds gained through ecotourism; and 4) funds and or volunteers for wildlife and archeological field work research are provided through ecotourism; and ecotourism increases local people's awareness to value their culture and natural environment.

Brandon (1996) stated that ecotourism brings cultural change to communities thereby causing "community break-down and fracturing of local relationships" (p. 18). However, Rogers (1998) reported that in Nepal, the Solu-Klumbu's community stated that ecotourism has enhanced their "health and well-being" (p.81) by improving health care services, education, and infrastructure (water and energy). Jones (2004) argued that community-based ecotourism enhances bonding among community members by increasing village unity. Also, Dimantis (2004) argued that ecotourism improves community social life by providing available and accessible new facilities and services provided for tourists by community members. Stronza and Gordillo (2008) noted that ecotourism improves community bridging by establishing relationships between community and international NGOs, developmental agencies (e.g., the United States Agency for International Development (USAID)), and conservation agencies (e.g., the International Union for Conservation of Nature (IUCN)).

2.2.7. Ecotourism and political capital

The literature on ecotourism's effect on political capital revealed local empowerment and participation in decision-making (Wells and Brandon, 1992; Horwich et al., 1993; Peters, 1998; Bradon, 1996; and Hardyment, 2003). In many conservation areas such as Ranomafana Park in Madagascar, Annapurna conservation area in Nepal, Monarch Butterfly Reserves in Mexico Integrated Conservation Development Projects (ICPDs) ecotourism is practiced to encourage local people to be involved in decision making (Horwich et al., 1993; and Brandon, 1996) concerning the management of their resources and the development of their communities (Wells and Brandon, 1992; Brandon, 1996; Peters, 1998). Hardyment (2003) noted that community based ecotourism projects (TEA and TIDE) are managed by structured organizations with elected members and chairpersons. These organizations have also clear constitutions and bylaws and govern for the wellbeing of their communities (Hardyment, 2003).

CHAPTER THREE: STUDY AREA

This chapter is composed of three parts. Part one, "Location," gives details of Ely, Minnesota, where this study was carried out, including geographical information and population. Part two, "History," briefly narrates the historical foundation of Ely, its incorporation as village, as well as its economic activities. The last section, "Tourism," describes the poles of attraction of tourists in the study area.

3.1. Location

The community of Ely is in St. Louis County located in Northeastern Minnesota (Maps 3.1.1 & 3.1.2). Ely has a population of 3,516 people (July 2007 estimates) with a land area of 2.7 square mile (7.0 km²) (US.gov. data, 2009). The city of Ely (Map 3.1.2) lies between the latitude 47.903 and longitude -91.867 and on an altitude of 1, 430 feet (435 m) above sea level (Ely, MN City Guide, 2010).

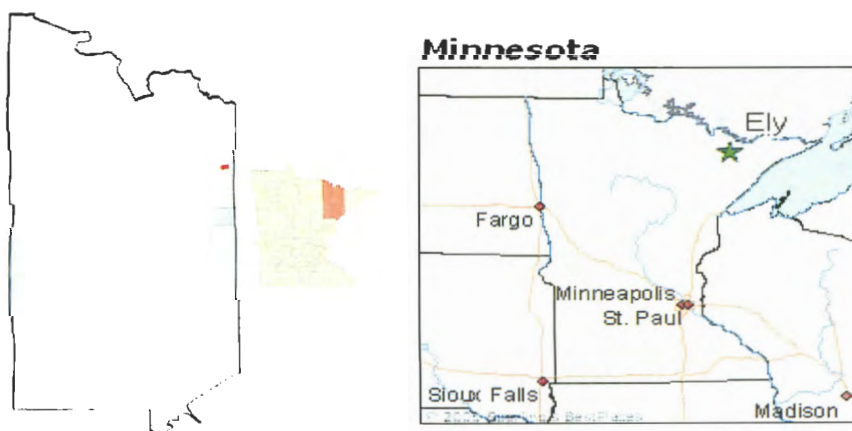


Figure 3.1.1. Ely^a (left) and Minnesota^b (right)
Source: Google Image (2010a and b).

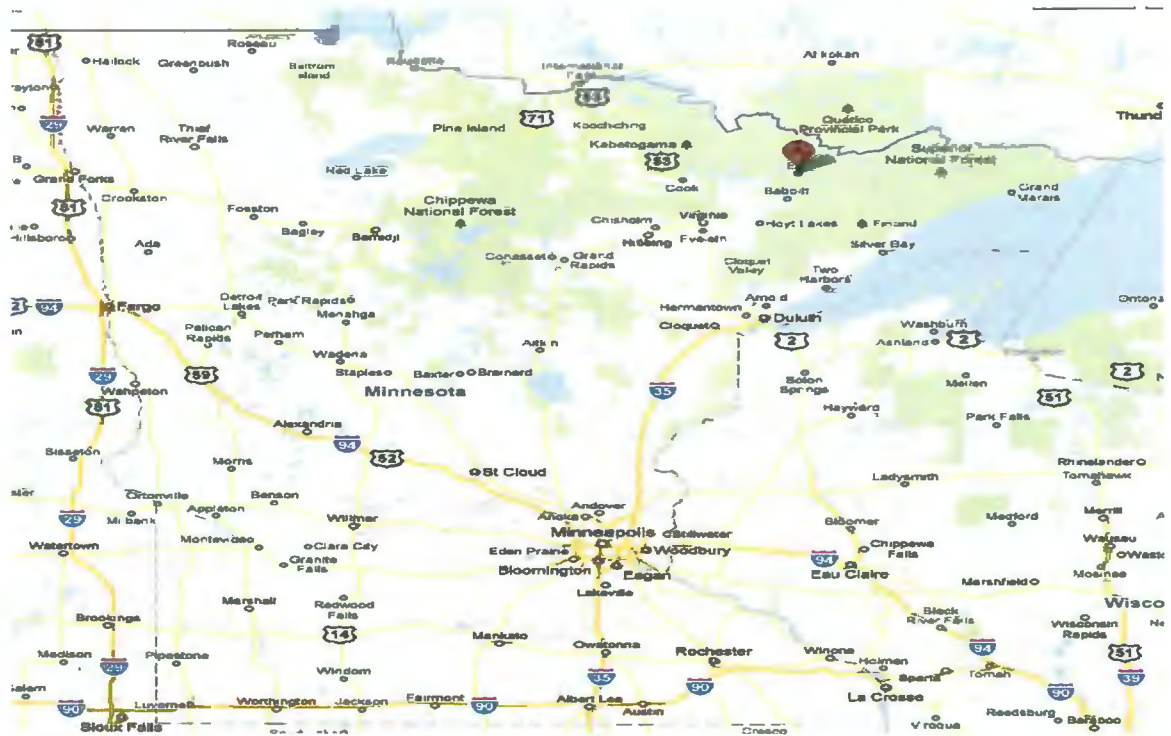


Figure 3.1.2. Minnesota State
 Source: Google Map (2010a).



Figure 3.1.3. Ely, Minnesota
 Source: Google Map (2010b).

3.2. History

Initially called Florence, Ely was renamed to the honor Samuel B. Ely, a miner from Michigan who never stepped foot in Ely, after it was discovered that another community in Minnesota bore the name Florence. The first settlers were voyageurs and trappers, followed by gold explorers in the early and mid 1800s. The gold prospectors found iron in 1883 instead of gold and started exploiting the iron ore. First exploited near the surface, iron ore deposits ran deep into the ground. This led to the use of wood supports to support the mining's shafts, creating a need for a logging industry. Since then, Ely has been a mining and logging community. As underground exploitation cost rose, the mining and logging industries began to decline. The closing of the last of the 11th operating iron mine occurred in 1967. Logging continues today, but on limited basis for the manufacturing of pulp and paper. Since then, Ely has been shifted their community development towards ecotourism to augment the dwindling mining and logging industries (Ely Area Development Association, 2010).

3.3. Ecotourism

Schaller (1996) found that Ely attracted up to 160,000 tourists in 1995. This attraction of visitors in Ely is due to the presence of the Boundary Waters Canoe Area Wilderness, the North American Bear Center, and the International Wolf Center.

Situated on Highway 169 within the City of Ely, the International Wolf Center (IWC) (Photograph 3.3.1) is an environmental education center, and

home to a pack of wolves (Photograph 3.3.2). The IWC's mission is to "advance the survival of the wolf populations by teaching about wolves, their relationship to wild lands and the human role in their future" (Lynn and Donna, 2007, p. 2). This educational program is done through a lecture program known as Wolf 101, exhibits, and tours of the center. The International Wolf Center relies on memberships, entry/admission, and educational programs fees, donations and retail programs through sales of books, caps, T-shirts, wolf kits, etc. (Lynn and Donna, 2001). It has a high rate of tourist attraction and contributes greatly to the economy of Ely. This is discussed in detail in Chapter Five.



Photograph 3.3.1. International Wolf Center (entrance)
Source: Google image (2010c)



Photograph 3.3.2. International Wolf Center (Educational session)

Source: NDSU-Natural Resources Management Club

Similar to the International Wolf Center, the North American Bear Center (NABC) is also an environmental education center (Photograph 3.3.3). Its mission is to conserve and preserve bear species worldwide (North American Bear Center, 2010b). Through an indoor exhibit and lectures, the center gives scientific facts about bears. The North American Bear Center educates people about bears, their relationships with human beings and their place in our ecosystems. It also carries out activities aimed at conserving and preserving bear habitats, stopping bear poaching and rehabilitating injured and orphaned bears back to the wild (North American Bear Center, 2010b). The Bear center opened in 2007 and is home to three bears (North American Bear Center, 2010c).



Photograph 3.3.3. North American Bear Center
 Source: North American Bear Center (2010a)

In contrast with the International Wolf and the North American Bear centers, the Boundary Waters Canoe Area wilderness (BWCAW) (Photograph 3.3.4) is a popular ecotourist destination. Started in 1964, the BWCAW as its

name implies, is comprised of a million acres of wilderness with more than 1,000 lakes and streams, over 1,500 canoe routes, up to 2,200 designated campsites (Heinselman, 1996), and over 16 hiking trails (Wilderness Journey, guide and outfitters, 2010).



Photograph 3.3.4. Boundary Waters Canoe Area Wilderness

Source: Google image (2010d, left and e, right).

Administered by the U.S Forest Service, it is part of the Boundary Waters region and contiguous to voyageurs National Park and Querico Provincial Park (Map 3.3.1) (Heinselman, 1996).

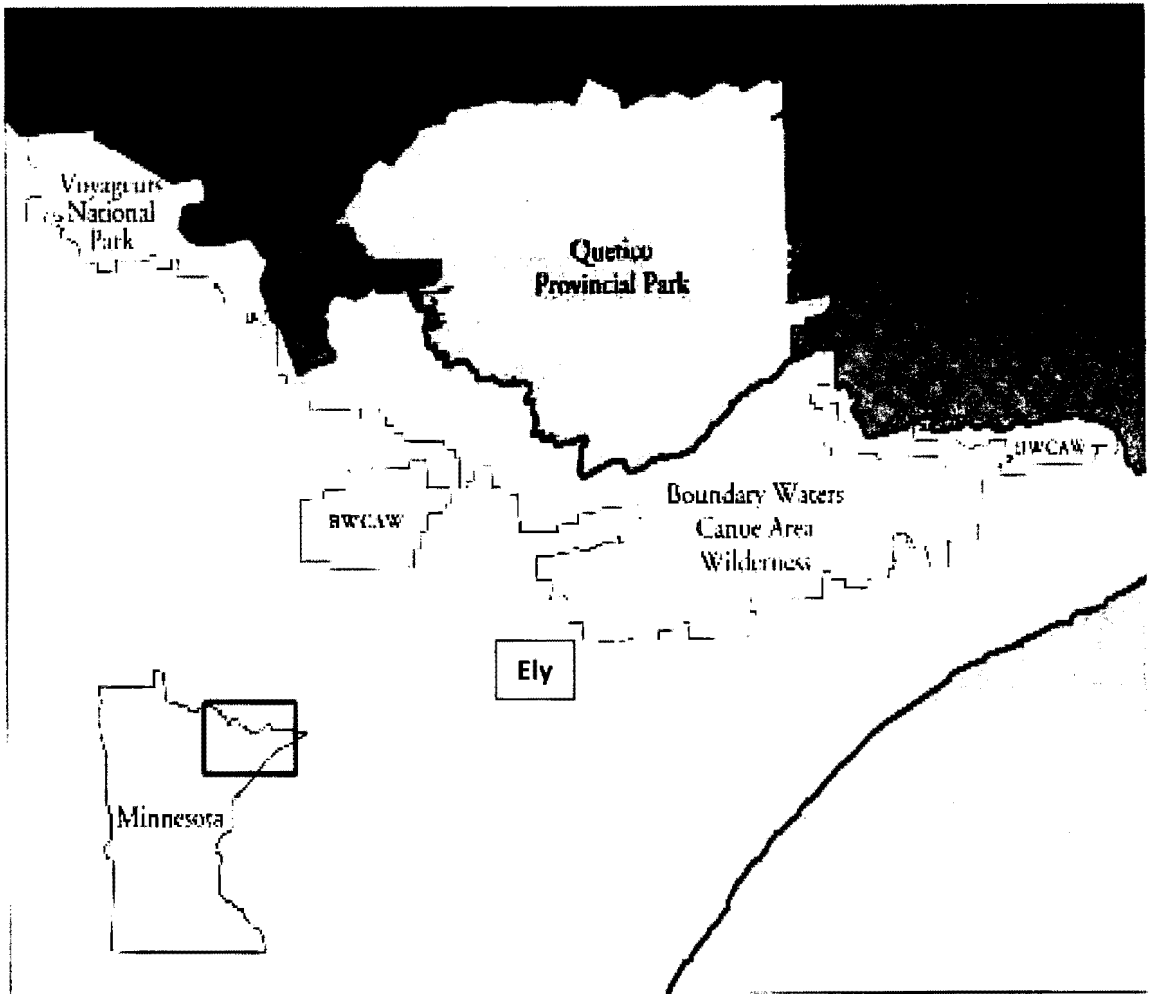


Figure 3.3.1. The Boundary Water Ecosystem
Source: Heinselmann (1996).

With these gorgeous recreational sites the Boundary Waters Canoe Area Wilderness attracts tourists to Ely throughout the year offering them winter activities such as cross-country and downhill skiing, snowmobiling, dog sledding (Photograph 3.3.5), snowshoeing (Photograph 3.3.6), ice fishing, and skating; fall activities such as canoeing, camping, horseback riding, wildlife viewing, fishing, hiking, photography, seeking wildflowers/fall colors, and bird watching; and summer activities such as canoeing, camping fishing, hiking, and rock climbing) (BWCAW, 2009a, b, c, and d).



Photograph 3.3.5. Dog Sledding in Ely, MN (Winter 2009)

Source: North Dakota State University-Natural Resources Management Club

The above ecotourism sites (the IWC, the NABC and the BWCA) drive all, the majority, if not all the tourists in Ely, MN. The IWC, received 44,894, 46,143, 40,000, 46,000, 42,000, 38,000, and 38,000, visitors in 2001, 2002, 2003, 2004, 2005, 2006, and 2007 respectively (IWC Annual Reports, 2001, 2002, 2003, 2004, 2005, 2006, and 2007). The BWCAW attracts about 200, 000 visitors yearly (Heinselmann, 1996). Also, according to a study carried out by Schaller (1996), in 1995, 76% and 19% of all tourist reported that their first and second reasons to visit Ely respectively is the IWC; whereas, 22 % and 81 % affirmed that their first and second reasons of visiting Ely are because of the activities in the BWCAW. The NABC and other sites account for 2% and 20% as tourists' primary and secondary reasons, respectively to visit Ely.



Photograph 3.3.6. Snowshoeing in Ely, MN (Winter 2009)

Source: North Dakota State University-Natural Resources Management Club

CHAPTER FOUR: METHODOLOGY

This chapter outlines the dynamic of assessing each of the community capitals. First, it describes the conceptual framework used as a base for the assessment. Second, it explains the research methodology and the methods used in the collection and analysis of the data.

4.1. Conceptual Framework

To assess the contribution of ecotourism on the development of the Ely community, Flora and Flora's (2008) community capitals framework was used (Chapter Two). Based on this framework, the ecotourism industry actors, and potential ecotourism impacts, a conceptual framework was designed.

As shown in Figure (4.1.1) below, the conceptual framework developed is composed of four components. The first component, named ecotourism, highlights the actors of ecotourism, which include tourists, workers, businesses and shops, donors and investors, and the local development organizations which include the Ely Area Development Association (EADA), the Ely Community Economic Development organizations (the Joint Power Boards). Tourists, major actors of ecotourism, influence this later through their expenditure (money used as entry fees into eco-centers and participation in events, for lodging, food, shopping, and recreation), culture (such as languages, religion, customs, and beliefs) and social life. Workers constitute the tourism related employees (e.g. tour guides, environmental educators, sellers, business-men and all other

persons that work in tourism related industries). As tourists, these employees contribute to ecotourism through their expenditure (multiplier-effect), culture, and social life. Businesses and other shops participate in ecotourism through their expenditure (buying and selling of goods and services, payments of property and sales taxes, for routine maintenance, and salaries for workers), and job creation. The Local development organizations are the main actors in Ely. They include the Ely Area Development Association, the Ely Chamber of commerce, and the Joint Powers Boards including Ely, Winton, and Babbit, They plan the economic development activities in Ely. They influence ecotourism by deciding what economic development orientation should be adopted in Ely. They were the ones that decided to start the International Wolf Center, the North American Bear Center, and the Boundary Water Canoe Area Wilderness, as well as many other economic and development infrastructures (e.g., hotels/resorts, and financial institutions, and events(e.g., festivals)).

The second component of the framework is the community capitals. As seen in chapter two, there are seven capitals including natural, cultural, financial, built, human, social, and political capitals. The natural capital comprises of environmental resources such as fauna, flora, land, waters, soils, and minerals. The cultural capital includes beliefs, languages, clothing, and events and/festivals. Financial institutions and their assets, and individuals, businesses, firms, and industries' income constitutes the financial capital. The built capital includes, all infrastructures such as housing units, businesses (shops, hotels, restaurants, camping grounds), services (health, water, electricity, fire, media), and other

facilities (hiking trails, highways, and transport). The human capital encompasses people's skills, and health; and social capital, social organizations and their memberships. Political leaders and organizations form the political capital.

The third component of the framework distinguishes the impacts of ecotourism on each of the individual capitals. It shows that ecotourism impacts: 1) natural capital in three ways including conservation (quantity and size of resources), destruction (quality, quantity, and size of resources), reallocation of land for other uses (parks, eco-centers, businesses), and alternative sources of income (jobs, businesses); 2) cultural capital through loss and/or conservation of cultures; 3) financial capital through increase in financial institutions assets (from increase in clients), taxes (sales and property taxes) and funds for investments (from environmentalists' donors); 4) built capital through increase in housing units and other infrastructures; 5) human capital through increase and diversification of skills, and amelioration of health; 6) social capital through increase in number of social organizations and/or memberships; and 7) political capital through increase in voice, inclusion, and implication, participation in community decision making.

The last component, community development shows how ecotourism impacts may or may not lead to the achievement of community well-being. Using this framework data were collected and analyzed following a methodology which is described in the following section termed methodology.

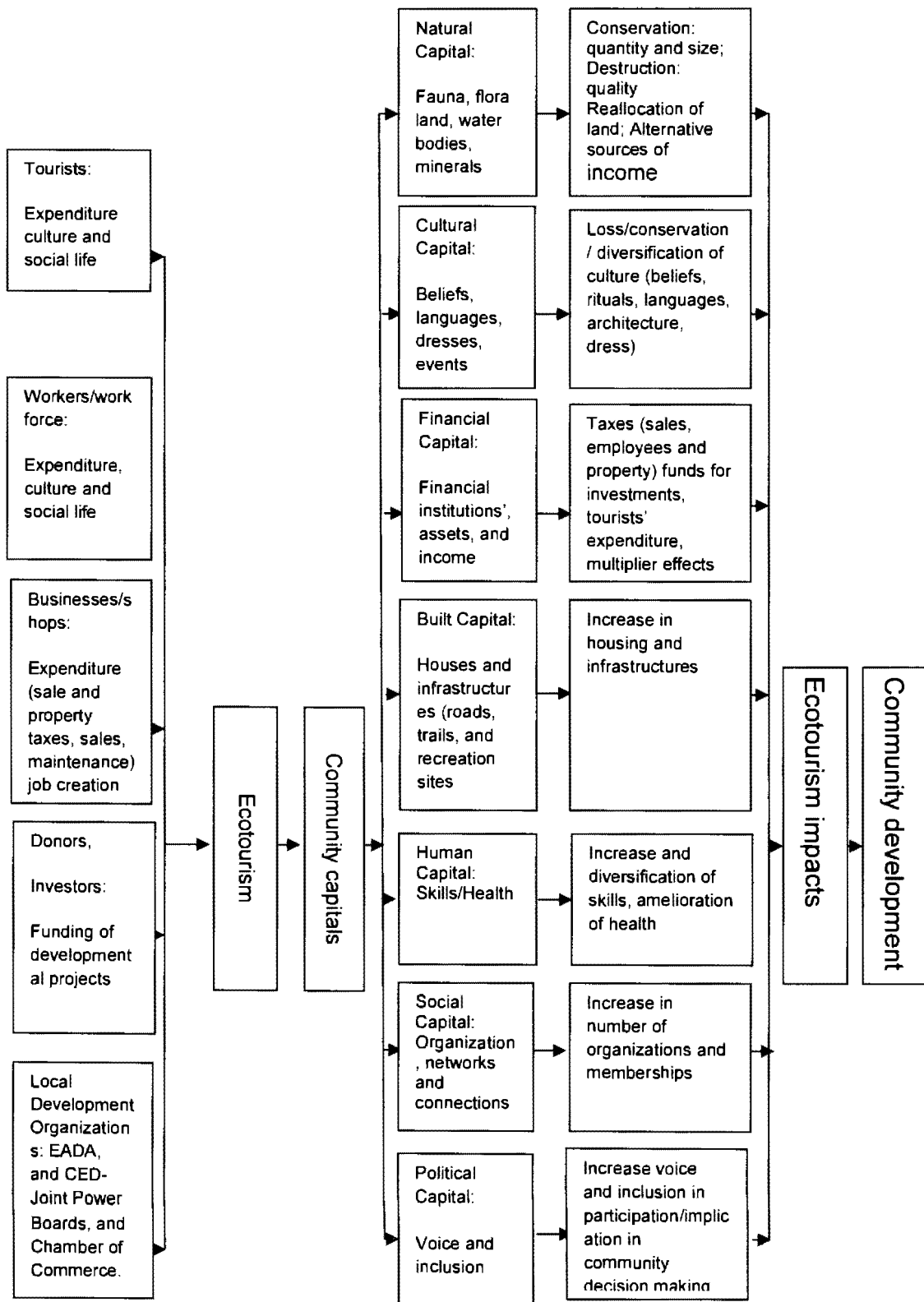


Figure 4.1.1. Conceptual Framework

4.2. Methodology

To carry out the assessment of ecotourism impacts on the capitals of Ely, specific data were gathered on each of the seven capitals of the community capitals framework including natural, cultural, financial, built, human, social, and political. The time frame for the collection of the data was between 1970 and 2010. 1970 was selected as a starting point because it marked the beginning of the ecotourism era in Ely, after the decline of the mining industry in 1967.

The data collection was done using the quantitative research methodology and triangulation (mixed method approach). The data collected were entirely secondary and includes government surveys (U.S. Bureau of the Census data), statistics on environment (forest, and wild life), documents (internet postings, maps, printed books, and research articles), and photographs (images of infrastructures, individuals and groups, animals, and activities). The government surveys data were obtained from the U.S. Bureau of the Census data, and the Minnesota Population Center (2004) National Historical Geographic Information System, websites. The statistics data were collected from the Superior Natural Forest Monitoring and Research program website, the Minnesota Department of Natural Resources, and the IWC websites. The documentary data were received from the North Dakota State University library, and Google map. Photographs were obtained from the Ely Chamber of commerce, the Ely City guide, the Ely Area Development Association, Google image and many organization and church websites.

Many methods and steps were involved in the collection of the data. First,

a review of the literature on previous research on measurement of capitals and ecotourism impacts was done to determine the parameters to be used. Second, after the measurements were retained, web searches, emails and phone calls were used to obtain contacts for the data collection sources. Third, 30 postal and email correspondences, of which a sample is included in Appendix B, were sent in November 2009 to the various sources identified. Fourth, after one month of no responses phone calls were used, in the month of January 2010 to contact all the agencies and individuals to which correspondences were sent. During these calls some agencies reported that they had not received their correspondence and asked to be sent email (which was done) while others (the financial institutions and some of the social and faith based organizations) explained that the information requested is confidential and cannot be delivered for public use. The remaining gave different explanations for their non-responses. The Ely City Hall, just said that they could not help whereas the International Wolf Center and the North American Bear Center explained that they did not have the information requested. The staff of the Chamber of Commerce mentioned that they needed more time to gather the information. Fifth, after some emails feedback from the Minnesota Department of Natural Resources (DNR) and the Superior Natural Forest suggesting new measurements, new persons to contact and new web sites to consult, a revision was made to the natural capital measurements, and new request was sent through emails to the new people.

This was successful, although some data were still missing. Finally, after it was realized that no responses could be attained in the time frame, the

measurements on the other capitals were redesigned to include only information available online.

The measurements were used to collect data. These data are presented using tables and analyzed thoroughly according to the type of data. The photographic data were analyzed by describing what the pictures are of, the unique characteristics displayed in the pictures, and the symbols and messages conveyed by the images in the pictures. The government surveys and statistic data were analyzed by displaying them in tables. They were interpreted looking for higher and lower numbers, comparing these numbers among the different groups and categories of people, animals, and tree harvests. The documentary data were interpreted through a thorough reading and highlighting and listing of major themes and topics.

During the collection of these data some methodological and ethical issues arose. These issues are dealt with in the following sections.

4.2.1. Methodological issues

For this study, many data were collected. They include photographic data, government surveys and statistic data, and documentary data. This wide range of data required the use of the "mixed method approach. The collection of each form of data was analyzed to ensure that appropriate data collection method is used accordingly.

Since each form of data corresponds to a unique collection and analysis

methodology and that each methodology has its own concerns that must be addressed, potential problems were analyzed prior to collection of the data and preventive measures were taken. For instance, a review of the literature on previous research on measurement of capitals and ecotourism impacts was done to determine the parameters to be used. Also, after the measurements were obtained, web searches, emails and phone calls were used to obtain contacts for the data collection sources.

Despite the preventive measures taken prior to the collection of the data, some methodological issues arose. These issues included the non responses to postal and email correspondence and the availability of some data on the internet. Fortunately, remedies were found to these issues by calling each individual and organization to find out about their non-response. This resulted to the contact of new persons, the consultation of new websites and the redesign of new measurements.

4.2.2. Ethical issues

To deal with the ethical issues the NDSU Institutional Review Board (IRB) on – line certification was done. This resulted to the abstention of a certificate. After this certification an IRB protocol form (exempt categories) was filled out and submitted to NDSU Institutional Review Board (IRB) who later issued a certification (Appendix D) as authorization to collect the data. The measurements and their sources are summarized in Appendix A. However, they and their base

of selection are explained in the following chapter which also includes the data and their analysis as well as the first measurements planned to be collected.

CHAPTER FIVE: RESULTS AND DISCUSSION

Chapter five presents, analyzes, and discusses the findings of the study. First, under each of the seven capitals (natural, cultural, financial, built, human, social, and political capital) it briefly justifies the data selection and collection methods. Second, it presents the data, and finally, analyzes and discusses them.

5.1. Natural Capital

Flora and Flora (2008) noted that plants, animals, landscape, climate, air, and water are components of a community's natural capital. Hence, the natural capital of Ely includes the Boundary Water Canoe Area Wilderness (BWCAW) with its multitude of lakes, the Superior Natural Forest (SNF), and wildlife such as wolves. As seen earlier, in the previous chapter these capitals are of significant importance in Ely. The SNF houses the BWCAW and for many decades has been the source of timber for the wood industry, first to support mining and second to feed the pulp and paper industry. The BWCAW, because of the quality of its waters, is one of the attractions in Ely, and one of the most visited wilderness areas in the U.S. (King and Mace 1974). For instance in 1995 of all the visitors in Ely, 22% affirmed it the BWCAW as their primary objective, and 81% affirmed it as their secondary reason to visit Ely (Schaller, 1996). The International Wolf Center (IWC) also constitutes an important tourists' attraction with 76% of all tourists that visited Ely in 1995 (Schaller, 1996).

Seeing the importance of this natural capital and in tourism, a study of the

impacts of tourism on natural capital, in Ely cannot be passed the BWCAW, the SNF, and wolves' population. The impacts of visitors on wildlife were measured by using Wolves' population trend; the impact on vegetation was measured by collecting data on the current condition of vegetation (Buckley, 2003; and Cole, 2004). Water quality was assessed by measuring the presence of substances such as fecal coliform bacteria, phosphates, oxygen, nitrates, nitrogen, and the conductivity, turbidity, and pH of such waters (Ashbolt, et al., 2001; and Lower Colorado River Authority, 2010). Hence the impacts repercussions of visitors' impacts on water quality have been measured by recording these parameters (King and Mace, 1974; and Merriam and Smith, 1974).

Relying on the importance of the BWCAW, the SNF, and wolves' population, the parameters used by the above previous researchers, and the availability of data, for the impacts of ecotourism on natural capital, this present study which compared the ecotourism (1970 onward) and non ecotourism era (1888- 1970) in Ely used data on 1) the population trend of wolves from 1950 to 1998 as surveyed by the IWC (2010) and the Minnesota Department of Natural Resources (2010) ; 2) volume of wood harvested in the Superior National forest from 1995 to 2007 as recorded by the SNF Research and Monitoring Program; and 3) levels of materials (fecal coliform bacteria, phosphates, oxygen, pH, nitrates, and nitrogen) in the Moose Lake chain (which comprises Moose Lake, Sucker Lake, and Birch Lake and Lake Isabella within the BWCAW considered as the most heavily entry points in the BWCAW (Heinselman ,1996). The findings on the components of the natural capital are presented below.

5.1.1. Volume of wood harvested in the Superior National Forest from 1995 to 2007.

Table 5.1.1 displays the average yearly timber harvest between 1995 and 2007 in the SNF, as recorded by the SNF monitoring and research program. This table shows that the quantity of timber harvested decreases between 1995 and 2007. As reported by the SNF monitoring and research program this is due to a continued down turn in the timber market (Superior National Forest monitoring and research reports, 2005, 2006, and 2007). This economic downturn could be explained by the end of the mining era in 1967, within which logging was intense to support the taconite mining and the shift to ecotourism which is concentrating the economic activities more in recreation. However, as data from this period are not available, this conclusion can be proven or disproven. But, the fact remains that the change in economic activities (resulting in less wood harvest) combined with the SNF management plan favors the conservation of the Superior National Forest by preserving the trees through less harvest of timber and regeneration. The SNF management plan was first issued in 1986 and then revised in 2006 with the purpose of guaranteeing constant availability of forest goods and services to the public by giving management directions. Since then, this plan has been permitting the replanting of harvested areas.

Table 5.1.1. Average Yearly Timber Harvest in the Superior National Forest (SNF)

	Years											
	1995	1996	1997	1998	1999	2001	2002	2003	2004	2005	2006	2007
Timber Harvest (volume in BMF/year)	98,000	98,000	51,000	50,000	50,000	52,000	52,000	50,000	48,000	50,000	50,000	45,000

Source: Superior Natural Forest. Monitoring and Research (2005, 2007, 2008, and 2009).

5.1.2. Population trend of wolves from 1950 to 1998

Table 5.1.2 displays the trend in wolves' population. This table shows an increase in the number of wolves between 1974 and 1998 after being stable from 1950 to 1965.

Table 5.1.2. Estimate Wolf Population in Minnesota

	Years						
	1950	1965	1974	1979	1989	1995	1998
Number of wolves	550	550	1,100	1,235	1,750	2,000	2,445

Sources: International Wolf Center (2010) and Minnesota Department of Natural Resources (2010).

Although many factors such as the increase in wolves' prey (deer) have been reported to be the cause of this increase (David, 2009), as reported by Kellert (1999) this recent increase is in part due to the adaptation of wolves to humans resulting from the change in attitude of humans towards wolves. This change in attitude is being favored by education and the non consumptive use of wolves which include recreation and economic benefits through tourism (Kellert, 1999). This new relationship between humans and wolves contributes to the conservation of wolves in the Minnesota region. Also, in the ecotourism literature, this finding agrees with Wunder (1999 and 2000) who discovered that ecotourism permitted Ecuadorians (Cofan Indians) to adopt conservation attitudes by restricting hunting and restraining themselves from their old fishing technique using dynamite. It also follows Dimantis (2004) who noted that ecotourism preserves and protects biodiversity and encourages preservation of natural areas

through motivation and creation of incentives. In addition, the finding agrees with Hearne and Santos (2004) who stated that ecotourism creates incentive for conservation.

5.1.3. Levels of materials in the lakes of the BWCAW

Table 5.1.3, displays the level of material in the Moose Lake chain and Lake Isabella. The table shows that the average pH of Mouse Lake around the six camp grounds is 8.15 where as that of the control sites is 8.14; Dissolved oxygen saturation of 100.83, and 97.83; conductivity of 78.75 and 78.98; turbidity of 4.42 and 4.17; Coliform bacteria of 0.73 and 6.83; nitrates plus nitrites of 0.165 and 0.155; total kjeldahl Nitrogen of 0.016 and 0.007, and phosphates of 0.03 and 0.05. From Lake Isabella, the average pH of Mouse Lake around the six camp grounds is 7.12 where as that of the control sites is 7.05; Dissolved oxygen saturation of 98.67 and 99.33, conductivity of 32.47 and 33.97, turbidity 33.45 31.33, coliform bacteria 3.8 6.07, nitrates plus nitrites 0.308 0.316, total kjeldahl nitrogen 0.048 and 0.053, and phosphates 0.035 and 0.034. As concluded by King and Mace (1974), these numbers show that the campsites affected the content of Coliform Bacteria in both of the lakes. This confirms the findings of Dimantis (2004) who stated that ecotourism disturbs animals, causes soil compaction, and pollution of water, soil, and air.

Table 5.1.3. Effect of Camping on Water Quality

Lakes	Parameters								Campsites
	PH	Disolved Oxygen Saturation (%)	Conductivity (micro-mhos/cm)	Turbidity (JTU)	Coliform Bacteria(MPN/100ml)	Nitrate plus Nitrites (mg/l)	Total Kjeldahl Nitrogen (mg/l)	Phosphate (mg/l)	
Moose lake	8.15	100.83	78.75	4.42	0.73	0.155	0.016	0.03	Control Sites
	8.14	97.83	78.98	4.17	6.83	0.155	0.007	0.05	Camp sites
Lake Isabella	7.12	98.67	32.47	33.45	3.8	0.308	0.048	0.035	Control Sites
	7.05	99.33	33.97	31.33	6.07	0.316	0.053	0.034	Camp Sites

Source: King and Mace (1974). *Effects of recreation on water quality*

5.2. Cultural Capital

As Flora and Flora (2008) stated, cultural capital is the language people speak, the dress they wear, the type of farming they do, and the rituals they perform (Flora and Flora, 2008). Hence, the cultural capital of Ely may include cultural events, religions, and languages. Also, Brandon (1996) and Hardyement (2004) studied the impact of ecotourism on cultural capital by carrying out investigation on languages, beliefs, architecture, and cultural events through recording information on the types of languages and rituals, the styles of housing, and the types of music and dances. In addition, tourists in Ely, besides hiking, canoeing, fishing, and exhibitions, are involved in many events such as cultural activities and festivals. This involvement of tourists is making these activities sustainable and growing in number. These combined activities draw many people of different religious and languages/ethnic/national backgrounds. Therefore, based on the definition of cultural capital provided by Flora and Flora (2008), the importance of cultural events, and the multitude and variety of languages, and religious backgrounds, a study of ecotourism impact on cultural capital, in Ely is worth carrying on parameters such as cultural events, religions, and languages spoken. This and the availability of data led this present study to collect data on cultural capital on: 1) the number and types of faith-based organizations (churches); 2) those of cultural events; and 3) those of languages spoken which results are summarized, analyzed, and discussed below.

5.2.1. Different faith based organizations (churches)

Table 5.2.1 displays the different faith based organizations in Ely. This table shows that 13 churches exist in Ely. These churches vary from Catholic such as St. Anthony's Catholic Church; Baptist such as Berean Baptist Church, and Ely Baptist Church; Lutheran such as Grace Lutheran Church, and First Lutheran Church; Methodist such Ely United Methodist Church; to denominational such as Praise Fellowship, Word Church, Lord of the Harvest Church International, Kingdom Hall, and Ely Gospel Tabernacle; and Episcopal such as St. Mary's Episcopal Church.

Table 5.2.1. Ely Churches

Churches
Berean Baptist Church
Ely Baptist Church
Ely Gospel Tabernacle
Ely United Methodist Church
First Lutheran Church
First Presbyterian Church
Grace Lutheran Church
Kingdom Hall
Lord Of The Harvest Church International
Praise Fellowship
St. Anthony's Catholic Church
St. Mary's Episcopal Church
Word Church

Source: Ely Chamber of Commerce (2006a)

Although a complete list of the date each church was established is not known, as shown in table 5. 2.2 below, from the data collected four churches have been found to be established in Ely from 1888 to 1970 and in 2010, 13 churches exist. This shows an increase in the number of churches and a diversification in the religious groups from 1970 to 2010.

Table 5.2.2. Cultural Capital in Ely from 1888 to 2000

	Years				
	1888-1970	1970-1980	1980- 1990	1990 -2000	2000-2010
Number of Cultural Events ^{1b}	2	4	8	10	23
Number of Churches ^{1a}	4	-	-	-	13
Number of Languages Spoken ^{2&3}	-	-	-	8	11

Sources: 1) Ely Chamber of Commerce (2006a and b); 2) U.S. Bureau of the Census (1990 and 2000); 3) Minnesota Population Center (2004)

5.2.2. Number of cultural events

Table 5.2.3 displays the cultural events in Ely. The table shows that 23 events are celebrated each year in Ely. These events vary from festivals such as Blueberry Arts Festival, Fall Harvest Moon Festival, and Ely Winter Festival; to races including Wolf Track and Dock Dogs. Also, the events include contests such as Ely-Winton Fishing Contest, VCC Law Enforcement Fishing Contest, Jeremy Rush Hilt runner Walleye, and Fishing Tournament. In addition there exist exhibits such as the Fishing Opener, the Ely Greenstone and the Ely Public Art Gala & Show. Other types of events are celebrations such as the Fun Run, Ely's Fourth of July Celebration/Run/Walk, Ely Art Walk, Ely Watercolor Club Show and Sale, and the Ely Blue Line District Playoffs). Lastly, the events involve

trainings including Ely Holiday Workshop, Ely Greenstone Public Art's Adult Art Camp, and Ely Greenstone Public Art's Children's Art Camp.

Table 5.2.3. Ely Cultural Events

Cultural events	Year started
Fun Run	2002
Ely ArtWalk	1998
Ely Winter Festival	1988
Ely-Winton Fishing Contest	1962
WolfTrack Classic Sled Dog Race	2007
Ely Community Resource Art Auction and Dinner	1978
Fishing Opener	1948
Dock Dogs	-
Holiday Workshop	2004
Ely Greenstone Public Art's Adult Art Camp	2005
Ely Greenstone Public Art's Children's Art Camp	2001
Juried Art Exhibit	2006
Ely's Fourth of July Celebration/run/Walk	2009
Ely Watercolor Club Show & Sale	2006
Ely Greenstone Public Art Gala & Show	2005
Blueberry Arts Festival	1980
Fall Harvest Moon Festival	1994
Ely Blue Line District Playoffs	2006
VCC Law Enforcement Fishing Contest	-
Spring Musical	1986
Annual Babbitt Walleye Whamma	1999
History Night	-
Jeremy Rush Hiltbrunner Walleye Fishing Tournament	2010

Source: Ely Chamber of Commerce (2006b).

The above cultural events are organized not only to celebrate cultures but also to entertain the multitude of visitors that travel to Ely to admire its natural beauty (Ely tourism). For instance, the Fun Run event is a snowmobile event organized to raise funds for the maintenance of snowmobile trails; the Ely Art Walk organized during the Winter Festival (including country ski race, sales of

crafts, art works, and food, education on the history of Ely, snow sculpture symposium, and music concerts) includes art exhibits, crafts fair, musical concerts, dogsled rides, and several food events, and attracts tourists from all over the State of Minnesota. The Wolf Track which is a classic sled dog race draws as many as 85 mushers, 610 sled dogs from the U.S. (Wisconsin, Michigan, North Dakota) and Canada (Ely Chamber of Commerce, 2006b); the Duck Dogs is also a dog race and draws many people as displayed in Photograph 5.2.1 below. The Fall Harvest Moon comprised of arts and crafts exhibitions, food , entertainment, and demonstration in weaving, snowshoeing making, pottery, basketry, and leather work; and the Fishing Opener which promotes Minnesota's recreation industry, and gives opportunity to the organizing community to expose their local fishing and recreational and attraction activities (Ely Chamber of commerce 2006b).



Photograph 5.2.1: Dock Dogs event.
Source: Ely Chamber of Commerce (2006b).

The interest shown by tourists in the celebration of events in Ely, and the resulting economic benefits from these celebrations, maintain and diversify these events. For instance, as shown in table 5.2.2 these events have increased in number from two between 1888 and 1970 to 23 in 2010 with an average increase of five events each decade.

The increase and diversification in the Ely culture during the ecotourism era (1970 to the present) shows that ecotourism is impacting the Ely culture. It is conserving and diversifying the local cultures by sustaining and promoting the existing cultural events and activities and creating new ones. For instance, Ely Winter Festival which started in 1984 as just a cross country ski race called the Wilderness Trek, changed first, to Voyageur Festival, and then Winter Festival. It still exists today and includes more activities as seen above (Ely Chamber of commerce 2006b). Also, the Fishing Opener which will be held on May 15, 2010, started in 1948 (Ely Chamber of commerce 2006b). New festivals such as Ely's Fourth of July Celebration/run/Walk and Jeremy Rush Hilt runner Walleye Fishing Tournament, started in 2009 and 2010 respectively (Ely Chamber of commerce 2006b).

5.2.3. Languages

Table 5.2.4 displays the languages spoken in Ely. This Table identifies 11 languages in Ely, including English, Spanish, Spanish Creole, French (including, Patois, Cajun), Italian, German, Polish, Serbo-Croatian, Other Slavic

languages, Armenian, Other Native North American languages, and Scandinavian). Also, table 5.2.2 above indicates that the number of languages spoken in Ely increases from 8 in 1990 to 11 in 2010. These different languages show the richness of the ethnic diversity of the Ely community.

Table 5.2.4. Ely Languages

Languages
English
Spanish or Spanish Creole
French (incl. Patois, Cajun)
Italian
German
Polish
Serbo-Croatian
Other Slavic languages
Armenian
Other Native North American languages
Scandinavian

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004).

As seen above, in Ely between 1970 and 2010 there were: 1) an increase in the number of churches and a diversification in the religious groups; 2) an increase and diversification in the cultural events, and an increase in the languages spoken. These numbers show the impact of ecotourism on the Ely cultural capital which resulted in conservation and diversification of this capital. These results agree with the findings of Hardyment (2003) who reported that as tourists were mixing with local people and buying their crafts, they were promoting the local language and religious diversity. This is because local people learned tourists' languages and practiced their religion (Christianity). Tourists also incite villagers to preserve their cultural diversity. The results also follow

Dimantis (2004) who noted that local arts, traditions and cultural activities are restored by funds generated by ecotourism. Finally, they conform to the report of Chambliss et al., (2009) which stated that ecotourism sustains and promotes cultural events such as festivals.

5.3. Financial Capital

Financial capital is defined as the money utilized to create other assets. For a community it comprises people's income, and wealth, and the funds of credits and investments' institutions available for the community (Flora and Flora, 2008). Therefore, the Ely community financial capital may include the credit unions and banks, their assets, households' income distribution, and the per capita income. To study ecotourism impact on financial capital, Fennell (1999), and Dimantis (2004) collected data on the amount of tourists' expenditures; while Brandon (1996), Peters, (1998), and Kiss (2004) measured expenditures from tourists' money (in goods and services, and investments into development projects). Also, Macgregor (2002) measured financial capital using funds attracted by community organizations and community work activities collecting data on the amount of dollars obtained from governments, other organizations and community sources, and from community organizations. Drawing from these researchers, that is Brandon (1996), Fennell (1999), Paul and Haines (2002), Macgregor (2002); and Dimantis (2004), and the data available, to study the Ely ecotourism's effect on its financial capital, data were collected on 1) the number of credit Unions and banks as well as their assets; 2) the dollar amount of

household income distribution; 3) the amount in dollars of the per capita income from 1970 to 2000; and 4) the financial contribution of the IWC on the regional economy of Ely in 1995 as reported by Schaller (1996).

As it can be observed, funds invested into the community by government and the financial institutions as well as property and sale taxes which could help to estimate ecotourism's indirect financial benefit were not collected. These were planned to be collected but the financial institutions contacted stated that such information cannot be delivered to the public; the Ely City Council did not respond to the request; and the Ely Chamber of Commerce could not help. However, the financial contribution of the IWC on the regional economy of Ely (see result below) which gives an account of all the direct, indirect and induced economic benefits (see Chapter Two, Ecotourism and Financial Capital) accrued from ecotourism at the time of the study, can fill this gap. Also, the number of financial institutions and their assets can give an estimate of the funds available for the community to use. Data collected are summarized, analyzed, and discussed below.

5.3.1. Financial institutions

Table 5.3.1 displays the financial institutions established in Ely and their financial investments. The table shows that 11 financial institutions with some assets of more than \$82,000,000 exist in Ely. These institutions and their assets include the Ely Area Credit Union with \$10,000,000; the Boundary Waters

Community Bank with \$41,000,000; Wells Fargo Bank of Ely with \$10,000,000; Queen City Federal Savings Bank with \$10,000,000; Venture Capital with \$10,000,000; and Iron Range Resources, Minnesota Power, Ely Steelworkers Credit Union with \$1,000,000; Northeast Entrepreneur Fund and Minnesota Department of Employment & Economic Development whose assets are not known.

Table 5.3.1. Financial Institutions from 1970 to 2000

Financial institutions	Assets (amount in dollars)
Ely Steelworkers Credit Union	1,000,000
Ely Area Credit Union	10,000,000
Boundary Waters Community Bank	41,000,000
Wells Fargo Bank of Ely	10,000,000
Queen City Federal Savings Bank	10,000,000
Venture Capital	10,000,000
Iron Range Resources	Not available
Minnesota Power	Not available
Northeast Entrepreneur Fund	Not available
Minnesota Department of Employment & Economic Development.	Not available
Total	82,000,000

Sources: Ely Area Development Association (2010).

The above institutions contribute to the development of the Ely economy in various ways. They give loans to individuals, firms, and businesses to establish new businesses, as well as promote existing ones. They also fund non-profit organizations to promote cultural and tourism activities. For instance, the Iron Range Resources was established in 1941 from the taconite taxes to protect the taconite/iron ore exploitation zone, known as the Iron Range, from downturn and an eventual closing of the mines (which occurred nonetheless). It created a cultural and tourism program, to promote arts, cultural and heritage activities and

attract visitors and their money, in order to advance tourism in the region.

Northeast Entrepreneur Fund supports the starting, stabilizing and/or expanding of small businesses (Ely Area Development Association, 2010).

5.3.2. Household income distribution

Table 5.3.2 displays the household income distribution in Ely. The table shows that, the number of households with high income of \$35,000 and \$150,000 or more increased significantly from \$4 in 1970 to \$76 in 1980, \$173 in 1990, and \$624 in 2000.

Table 5.3.2. Households Income Distribution from 1970 to 2000

Income	Number of Households/years			
	1970 ²	1980 ²	1990 ¹	2000 ¹
Less than \$5,000	281	383	150	-
\$5,000 to \$9,999	672	441	451	265
\$10,000 to \$14,999	287	241	139	184
\$15,000 to \$24,999	60	464	132	352
\$25,000 to \$34,999	-	341	234	241
\$35,000 to \$49,999	4	70	88	300
\$49,999 to \$74,000	0	6	79	241
\$75,000 to \$99,999	0	0	2	50
\$100,000 to \$149,999	0	0	4	33
\$150,000 or more	0	0	0	34
Total	1,304	1,946	1,803	1,700

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004).

The number of households with low income of \$5,000 to \$9,999 decreased from \$672 in 1970 to \$265 in 2000, but that of high income (\$150,000 or more) increased from \$0 in 1970 to \$34 in 2000. Also, households with income of

\$150,000 or more is \$0 in 1970, 1980, and 1990, but \$34 in 2000. These figures imply that from 1970 to 2000, the number of rich households increased.

5.3.3. Per capita income

Table 5.3.3 displays the per capita income distribution of Ely people from 1970 to 2000. The Table shows that the per capita income increases exponentially from 1980 to 2000. It goes from \$6,570 in 1980 to \$8,981 in 1990 and \$16,855. It almost doubles between 1990 and 2000. This implies that from 1980 to 2000 the economy in Ely was growing.

Table 5.3.3. Per Capita Income from 1970 to 2000

Per capita Income	Years			
	1970	1980	1990	2000
Amount (dollars)	Not available	6,570 ²	8,981 ¹	16,855 ¹

Sources: 1) U.S. Bureau of the Census (1990 and 2000) and 2) Minnesota Population Center (2004).

5.3.4. Financial contribution of the International Wolf Center

Table 5.3.4 displays the financial contribution of the IWC as studied by Schaller (1996). The table shows that the IWC contributed more \$3,000,000 to the Ely economy and created up to 63.6 in 1995. The table also shows that the IWC affects both tourism and non tourism related industries and businesses. The tourism related businesses and industries include tourism services and organization such as guides, camps, gear outfitters, museums and zoos; lodging;

and eating (restaurants, groceries, and retail), while the non tourism related industries and businesses are agriculture, mining, manufacturing, construction, trade and transportation, fire Services including finance, insurance, and real estate, government. Besides, the IWC had assets of \$1,058,711; \$1,055,186; \$1,075,315; \$1,091,561; \$936,385; \$968,545; and \$1,349,978, in 2001, 2002, 2003, 2004, 2005, 2006, and 2007, respectively (International Wolf Center Annual Reports, 2001, 2002, 2003, 2004, 2005, 2006, and 2007). These results reflect that the IWC is a financial capital for Ely as it attracts funds, creates, and promote businesses and industries as well as employment.

Table 5.3.4. Financial Contribution of the International Wolf Center in the Regional Economy of Ely in 1995

Businesses and Industries	Total Industrial Output (\$000)	New Jobs
TOURISM-RELATED BUSINESSES	756.4	14.2
Tourism Services and Organizations including back county guides, camps, gear outfitters, museums, zoos	236.6	9.5
Lodging	397.6	16.8
Eating (Restaurants, Groceries, and Retail)	124.8	4.2
OTHER INDUSTRIES		
Agriculture	6.4	0.2
Mining, Manufacturing, Construction	152.8	1.4
Trade and Transportation	370.3	4.9
Fire Services including Finance, Insurance, and Real Estate	878.1	13.6
Government	63.6	1.2
Total	3,006.6	63.6

Source: Schaller (1996).

In summary, the financial capital of Ely includes: 1) household income, 2) assets of financial institutions, and 3) the IWC driven assets. From 1970 to 2000 this has been affected in various ways as shown in table 5.3.5. This table shows

that household and per capita income has been increasing as well as the number of financial institutions which reached 10 in 2010. Also, the IWC is continuing its assets' driving as reported by Lynn and Donna (2001) who stated that in 2000, the IWC recorded \$685,181, from membership and development , \$281,728 from educational programs, \$392,018 from retail operations, and \$16,749, from miscellaneous \$16,749, accounting a total revenue of \$1,375,676 (Lynn and Donna, 2001).

Table 5.3.5. Financial Capital in Ely from 1888 to 2010

Capital	Years				
	1888-1970 ²	1970-1980 ²	1980- 1990 ²	1990 -2000 ¹	2000-2010 ¹
Credit Unions ³	-	-	-		2
Banks ³	-	--	-	2	3
Others	-	-	-	-	5
Assets of Banks ³	-	--	-	-	100,000,000
Assets of credit ³ Unions	-	-	-	-	15,000,000
Households Income Distribution (dollars)	1,304	1,946	1,803	1,700	-
Per capita income (dollars)	-	6,570	8,981	16,855	-

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004); 3) Ely Area Development Association (2010).

The increase in income might have resulted from the opportunities offered by ecotourism through businesses establishments (see Built Capital below) and creation of jobs as discovered by Schaller (1996) in 1995 in his study (where 66

jobs were created and more than \$3,000,000 generated) and shown in table 5.3.5. While the number of financial institutions (5) and financial assets (\$82,000,000) may be attributed to the tourists who need financial institutions for their transactions. Also, it may be attributed to the financial institutions who need to stimulate businesses (e.g. hotels, restaurants, and shops) and activities/festivals' organization to attract more tourists who are their clients. The IWC assets result from the increasing visitors to admire wolves' view and learn facts about wolves.

The above results overlap with the findings of Brandon (1996), Peters, (1998), and Kiss (2004) who stated that ecotourism has an induced benefits which include, through multiplier effects, the investments of the direct benefits of ecotourism into developmental projects and those of Stronza and Gordillo (2008) who found those benefits as expenditures from ecotourism related jobs' employees. They also agree with Hardyment (2003), Dimantis (2004), Gurung and Seeland (2008), and Stronza and Gordillo (2008), who stated that ecotourism has indirect benefits that include jobs (tour guiding, boat driving guarding/housekeeping, cooking, managing, in eco-loges, hotels and restaurants, environmental educators and employees in eco-centers, etc). The results also conform of the reports of Darowski, et al., (2006), Leonard (2008), Chambliss, et al., (2009), and Dr. Daniel Otto from the Iowa State University Economics Department. Darowski, et al. (2006) stated that, in 1999, from the 10 billion dollar of the tourism industry ecotourism contributed approximately \$669 million to Hawaiians. Dr. Daniel Otto indicated that the planned Mississippi River Eco

Tourism Center at Rock Creek, in Clinton County, Iowa, would generate, through secondary and multiplier effects, \$7 million annually and create 100 new jobs and draw over 100,000 visitors each year (Clinton County Conservation Board, 2010). Leonard (2008) reported that, in 2006, wildlife watchers in Florida contributed \$122.6 million as industrial output, resulted in 1,063,482 jobs, \$9.3 billion of federal tax revenue, and \$8.9 billion of state and local tax revenue. In addition, Chambliss, et al., (2009) reported that the 2009 Space Coast Birding & Wildlife Festival held in Brevard County, Florida attracted more than 3,500 people and generated \$996,679 in sales output, \$386,000 in labor income and over \$104,000 in government tax revenues.

5.4. Built Capital

Flora and Flora (2005) stated that community's built capital refers to its infrastructures, permanent physical installations and facilities upon which stand all the community's activities and including the community's roads, streets and bridges, airports and railroads, electric and natural gas utility systems, water supply systems, police and fire protection facilities, wastewater treatment and waste-disposal facilities, telephone and fiber-optic networks and other communication facilities, schools, hospitals, and other public and commercial buildings, as well as playgrounds and athletic fields. Also, Rogers (1998), Ogutu (2002), Hardyment (2003), and Kiss (2004) studied ecotourism's impact on built capital by recording the number and types of housing and infrastructures development. Hence, Ely built capital may include its housing units, hotels,

resorts, camping grounds, businesses establishments, schools, hospitals, nursing homes, bowling alleys, fitness centers, fire departments, water services, airports/heliports, high ways, and hiking trails; and study of ecotourism’s impacts on Ely’s built capital may account for the number of these infrastructures, facilities, and services which this present investigation did and which results are described and analyzed below.

5.4.1. Housing units

Table 5.4.1 displays the number of housing units in Ely from 1970 to 2000. The table shows that the number of housing units fluctuates between 1970 and 2000. It increases from 1,809 houses in 1970 to 2,132 in 1980 and decreases from 1,997 to 1,912 in 1990 and 2000. Overall these figures show that the housing units have increased in Ely from 1970 to 2000. This implies that housing has improved in terms of number.

Table 5.4.1.Housing Units from 1970 to 2000

	Number of housing units/10 Years			
	1970 ²	1980 ²	1990 ¹	2000 ¹
Housing units	1,809 ²	2,132 ²	1,997 ¹	1,912 ¹

Sources: U.S. Bureau of the Census (1990 and 2000) and Minnesota Population Center (2004).

5.4.2. People commuting to work

Table 5.4.2 displays the mean of transportation in Ely. The table shows that the number of people that drive alone to their work places increases from

601 in 1970 to 1000 in 2000, while that of those who use public transport decreased from 405 people in 1970 to 249 in 2000. People that walk to their place of works also decreased from 13 people in 1970 to 10 in 2000. People that work at home increases significantly from 24 in 1970 to 145 in 2000.

Table 5.4.2. Means of Transportation to Work by Ely Workers from 1970 to 2000

Means of transportation	Number of people/10 Years			
	1970 ²	1980 ²	1990 ¹	2000 ¹
Car, truck or van Drive alone	601	574	773	1000
Car, truck or van Carpool	241	12	3	7
Public transportation	405	381	-	249
Walked only	13	17	11	10
Worked at home	24	53	331	145

Sources: U.S. Bureau of the Census (1990 and 2000) and Minnesota Population Center (2004)

5.4.3. Businesses

Table 5.4.3 displays the business establishments in Ely. The Table shows there are up to 60 established businesses in Ely in 2010. These businesses vary from restaurants such as Gene Hicks North Country Gourmet Coffee, Boathouse Brewpub & Restaurant, Dining Room at Blue Heron, Ely Bowling Center, Ely D.Q. Grill and Chill, Ely Steak House, and Evergreen Restaurant; to sport wear stores such as Ely Sportswear Shop and Ely Wear; to outfitters such as Kondos Outdoor, Ely Surplus & Outdoor, and the Great Outdoors; to art galleries such as Brandenburg Gallery; to gift shops such as Ely Bouquet Shop, Mealey's Gift &

Sauna Shop, Bloomers Floral and Gift; to handicraft shops such as Red Rock Wilderness Store, Piragis Northwoods Company, Pengal's Basswood Trading Company, and High stone Glassworks; to photography studios such as Bare Bones Studio, Deborah Sussex Photograph; and beauty salon shops such as Razor Edge Systems Inc.

Table 5.4.3. Ely Business Establishments

Businesses
1. Brandenburg Gallery
2. Ely Bouquet Shop
3. Deborah Sussex Photograph
4. Ely Surplus & Outdoor
5. Moose hide Products
6. High stone Glassworks
7. Kondos Outdoor
8. Mealey's Gift & Sauna Shop
9. Pengal's Basswood Trading Company
10. Piragis Northwoods Company
11. Red Rock Wilderness Store
12. Steger Mukluks
13. Spirit of the Wilderness (formerly Hill's Wilderness)
14. Babe's Bait & Tackle
15. Bare Bones Studio .
16. Basket Tree
17. Beaver's Liquor
18. Bloomers Floral and Gift

Table 5.4.3. Continued

19. Cobweb Antiques
20. Country Pine
21. Ely Flower and Seed and Greenhouse
22. Ely Northland Market
23. Ely Sportswear Shop
24. ElyWear
25. Evergreen Cottage
26. Gene Hicks North Country Gourmet Coffee
27. Hearthside Corner Inc
28. J & L Hardware and Rental
29. Kat's Drive-In Liquor
30. Ledgerrock Pottery
31. Mary's Spinning Wheel
32. Merhar's Ace Hardware
33. Mike's Drive-In Liquor
34. Mostly Moose & More
35. Northern Expressions on Main
36. Pamida
37. Pebble Spa
38. Raven Productions, Inc
39. Razor Edge Systems, Inc
40. Skube's Bait and Tackle
41. The Cabin
42. The Great Outdoors
43. Timber Ridge Trading Co.
44. Toys in the Woods

Table 5.4.3. Continued

45. Voltz Technologies
46. Basket Tree
47. Boathouse Brewpub & Restaurant
48. Chocolate Moose
49. Dining Room at Blue Heron
50. Ely Bowling Center
51. Ely D.Q. Grill and Chill
52. Ely Steak House
53. Evergreen Restaurant
54. Northern Grounds
55. Silver Rapids Lodge
56. Sir G's
57. Great Italian food featuring pasta made on site
58. Subway of Ely
59. Deborah Sussex Photography
60. Henry's Shoe Repair & Handcrafted

Source: Ely Chamber of Commerce (2006c).

5.4.4. Places to stay

Table 5.4.4 displays the places to stay in Ely. The table shows that there are different types of places one can stay in Ely. They include hotels, resorts, and campgrounds. There are 32 establishment hotels that include Budget Host conference center (Photograph 5.4.1), Super 8 Ely Minnesota (Photograph 5.4.2), Lakeland Motel, Canoe On Inn, Shig-Wak Resort & Motel, Shagawa Inn Resort,

A Stay Inn Ely, and Bear Island River Inn. Resorts include Burnt side Lodge, Camp Van Vac Motel , La Tourell's Resort-Outfitters, Grand Ely Lodge Resort And Conference Center, Kawishiwi Lodge & Canoe, White Iron Beach Resort, River Point Resort & Outfitting ,Custom Cabin Rentals, Shagawa Beach Cabins, Timber Trail Lodge, Lady Bug Lodge, Wintergreen Lodge, Canadian Border Outfitters, Garden Lake Resort, Canoe Country Cabins, Wilderness Outfitters Baril Bay Camp, Pine Point Lodge, North wind Lodge, Deer Ridge Resort, Wilderness Bay Lodge, Silver Rapids Lodge, Lady Bug Lodge , Echo Trail Outfitters, Big Lake Wilderness Lodge, Fenske Lake Resort, Anderson John & Lee, Northern air Lodge, Smitty's on Snow bank, Northern Lights Lodge & Resort, Retreats on White Iron Lake, Lodge of Whispering Pines, Moose Track Adventures Resort, and Packsack Log Cabins.

Table 5.4.4. Ely Places to Stay

Resorts:	Hotels:	Campgrounds:
Burntside Lodge	A Ely-Budget Host Motel	Shagawa Inn Resort
Camp Van Vac Motel	Ely-Budget Hostventure	Timber Trail Lodge
La Tourell's Resort-Outfitters	Inn of Ely	Silver Rapids Lodge
Grand Ely Lodge Resort And Conference Center	Super 8 Ely Minnesota	Shagawa Inn Resort
Kawishiwi Lodge & Canoe	Lakeland Motel	Timber Trail Lodge
White Iron Beach Resort	Canoe On Inn	Canoe Country Campground
River Point Resort & Outftng	Shig-Wak Resort & Motel	Birch Lake Campground
Custom Cabin Rentals	Shagawa Inn Resort	Bear Head Lake State Park
Shagawa Beach Cabins	A Stay Inn Ely	Campground
	Bear Island River Inn	

Table 5.4.4. Continued

Timber Trail Lodge		Bear Island River Inn
Shagawa Beach Cabins		Campground
Timber Trail Lodge		South Kawishiwi River
Lady Bug Lodge		Campground
Wintergreen Lodge		Moose Track Adventures
Canadian Border Outfitters		Campground
Garden Lake Resort		
Canoe Country Cabins		
Wilderness Outfitters Baril Bay		
Camp		
Pine Point Lodge		
Northwind Lodge		
Deer Ridge Resort Canoe On		
Inn		
Wilderness Bay Lodge		
Silver Rapids Lodge		
Echo Trail Outfitters		
Big Lake Wilderness Lodge		
Fenske Lake Resort		
Anderson John & Lee		
Northernair Lodge		
Smitty's on Snowbank		
Northern Lights Lodge & Resort		
Retreats on White Iron Lake		
Lodge of Whispering Pines		
Moose Track Adventures Resort		

Table 5.4.4. Continued

Moose Track Adventures		
Resort		
Packsack Log Cabins		

Source: Ely Chamber of Commerce (2006d).

Campgrounds include Fenske Lake Campground (Photograph 5.4.3), Shagawa Inn Resort, Timber Trail Lodge, Silver Rapids Lodge, Shagawa Inn Resort, Timber Trail Lodge, Canoe Country Campground, Birch Lake Campground, Bear Head Lake State Park Campground, Whispering Pines Campground, South Kawishiwi River Campground, and Moose Track Adventures Campground.

5.4.5. Ely transportation infrastructures

Table 5.4.5 displays the infrastructures for transportation in Ely. The Table shows that these are many and varied and composed of hiking trails, highways, and air ports. The hiking trails are 19 in number and 142 miles in mileage and include Bass Lake Trail with 5.6 miles, Angleworm Trail with 14 mile, Secret/Blackstone Trail with 8 miles, Trezona Trail with 5 miles, Hidden Valley with 6.2 miles, Snow bank Lake Trail with 25 miles, Stony, Spur Trail and Taconite Spur with 26 miles, Birch Lake White Pine Plantation with 17 miles, North, Arm Trail with 19 miles, Bear Island Ski Trail with 13 miles, Tomahawk Trail & Local Trails, Taconite State Trail, Bear Island State Forces, Bear Head

State Park Trails, North, Junction Trails, Pine Park Trail, Silver Rapids Trail, South Farm Trails, and Babbitt Golf Course.

Table 5.4.5. Ely transportation System

Hiking trails ^{1e}	Air port/Heliport ²	Highways ²
Bass Lake Trail 5.6 mile	Ely Municipal Airport	State HWY 169
Angleworm Trail 14 mile	Ely Bloomenson	HWY 1
Secret/Blackstone Trail: 8 miles	Community Hospital	St.Louis County 21
Trezona Trail: 5 miles	Heliport	
Hidden Valley: 6.2 miles		
Snow bank Lake Trail: 25 miles		
Stony Spur Trail and Taconite Spur 26 miles		
Birch Lake White Pine Plantation 17 miles		
North Arm Trail 19 miles		
Bear Island Ski Trail 13 miles		
Tomahawk Trail & Local Trails		
Taconite State Trail		
Bear Island State Forces		
Bear Head State Park Trails		
North Junction Trails		
Pine Park Trail		
Silver Rapids Trail		
South Farm Trails		
Babbitt Golf Course		

Source: 1) Ely Chamber of Commerce (2006e) and 2) Ely Area Development Association (2010).

The airports include Ely Municipal Airport and Ely Bloomenson Community Hospital Heliport created in 1972 and 1991, respectively. The highways are State HWY 169, HWY 1, and St. Louis County Road 21.

5.4.6. Other infrastructures

Table 5.4.6 above displays the other infrastructures in Ely. The Table

Table 5.4.6. Ely Other Infrastructures

Services	Dated established
Schools:	
Vermilion Community College	1922
Ely School District #696	-
Ely Memorial High School (7-12)	-
Washington Elementary School(1-6)	
Health Care facilities:	
Ely Bloomenson Community Hospital & Nursing Home	1993
Duluth Clinic - Ely	1958
Ely Clinic (St. Mary's Duluth Clinic Medical Center)	1888
Media:	
Boundary Waters Journal	1987
Ely Echo	-
Ely Timberjay	1932
WELY AM & FM	-
Ely Shopper	-
North Country Publications	1932
Bull's-Eye News	
Water service:	
Ely Water Department	-
Bowling Alleys:	
Ely Bowling Center Lounge & Arcade	-
Fitness centers:	
Studio North Dance & Fitness Center	-
The Yoga Den (at North wind Lodge)	-
Fire Departments:	
Morse Fall Lake 1st Responses	-
Ely Fire Department	-
Ely Attraction Centers;	
International Wolf Center	1993
North American Bear Center	2007
Dorothy Molter Museum	1987
Ely Winton Historical Society	1984

Source: Ely Minnesota City Guide (2010).

shows that these infrastructures include schools, health care facilities, media, water services, fire departments, bowling alleys, and fitness and attraction centers. Schools include Vermilion Community College, Ely School District #696, Ely Memorial High School, and Washington Elementary School. Health centers are Ely Bloomenson Community Hospital & Nursing Home, Duluth Clinic -Ely, Ely Clinic (St. Mary's Duluth Clinic Medical Center). The media centers include the Boundary Waters Journal; Ely Echo; Ely Timber jay; WELY AM & FM, Ely Shopper, North Country Publications, and Bulls-Eye News). The water service includes Ely Water Department. The fitness centers are Studio North Dance & Fitness Center, and the Yoga Den. The fire services include Morse Fall Lake 1st Responses and Ely Fire Department; and the attractions centers include the International Wolf Center, North American Bear Center, Dorothy Molter Museum, Ely Winton Historical Society).

As displayed in table 5.4.7, Ely built capital includes: 1) 1972 housing units (in 2000), 2) 60 businesses, 3) 32 resorts, ten hotels, and 11 campgrounds; 4) 19 hiking trails, three highways, and one airport, one heliport, and 5) four schools, three health care facilities, one water service, two fire departments, seven media centers, one bowling center, two fitness centers, and four attraction centers. These infrastructures have seen an improvement from 1970 to 2010 as shown 4.4.6. In fact, the table shows that the number of housing units fluctuates within 1970 and 2000. It increased from 1,809 in 1970 to 2,132 in 1980 and decreased to 1997 to 1912 between 1990 and 2000 respectively. The number of hotels is nine in 2010. The number of resorts increased from 13 in 1970 to 36 in 2010 and

that of camping grounds from two in 1970 to 12 in 2010. The businesses establishments increased from three in 1970 to 60 in 2010. The number of schools was three in 1970 and two from 2000 to 2010. There were two hospitals were two in 1970 and 1980 but decreased to one from 1990 and 2010. The number of clinics, nursing homes, bowling alleys, airports, and heliports remained constant and is one from 1888 to 2010. Also the number of water Services remained constant is two. The number of fitness centers increased from one in 1990 to two in 2000 and 2010. The number of fire Departments increased from one in 2000 to two in 2010. The number of media centers was one in 1970 and reached seven in 2010. The number of highways is three whereas there are at least 19 hiking trails 19 with 142 miles in 2010.

From the increase in number of businesses such as hotels, resorts, shops, campgrounds, hiking trails, and highways, the use of individual cars to commute to work, the construction and / or development of facilities such as schools, fitness centers, hospitals, media centers, it can be said that that build capital in Ely has improved from 1970 to 2010. This improvement occurred in the ecotourism era and is diversifying the capital (businesses) toward more ecotourism oriented businesses such as hotels, camping grounds, and shops, facilities such as hiking trails, and media. For instance, the Boundary Waters Journal, an outdoor magazine gives information on canoeing, camping, fishing, wildlife, history, within the BWCAW. It also publishes how and where to get trip planning advice to the BWCAW. Wely AM & FM broadcast music for people camping in the BWCAW.

This proliferation of businesses may be due to the availability of finance (see Financial Capital) that is stimulating the businesses' establishment to meet the demand of the flow of tourists. This enhancement of the built capital during the ecotourism era, and its diversification more oriented towards tourism attest the role ecotourism is playing in the built capital of Ely. This role of ecotourism in built capital enhancement conforms to the findings of Ogutu (2002); Hardyment (2003); and Kiss (2004) who stated that ecotourism constructs schools, health centers, water pans, boreholes and electrically power generators, transportation facilities (roads, parking lots, small airports), and communication (radio and TV stations, for local communities, eco-lodges for tourists.



Photograph 5.4.1: Grand Ely Lodge Resort and Conference Center

Source: Google image (2010f)



Photograph 5.4.2: Pool^g (on the left) and Furniture^h (on the right) inside Grand Ely Lodge Resort and Conference Center

Sources: Google image (2010g and h)



Photograph 5.4.3. Fenske Lake Campground

Source: Recreation.gov (2010)



Photograph 5.4.4. Adventure INNⁱ (Left) and Super 8^k (right) hotels

Sources: 1) Google image (2010i) and 2) Google image (2010j)

Table 5.4.7. Built Capital in Ely from 1888 to 2000

Capital	Years				
	1888-1970	1970-1980	1980-1990	1990 - 2000	2000-2010
Number of Housing Units	1,809 ²	2,132 ²	1,997 ¹	1,912 ¹	- ¹
Number of Hotels ^{3f}				9	9
Number of Resorts ^{3e}	13	16	17	36	36
Number of Camping ground ^{3g}	2	4	6	11	11
Number of Businesses ^{3d}	3	10	16	60	60
Number of Schools ⁵	3	3	3	2	2
Number Hospitals ⁵	2	2	1	1	1
Number of Clinic ⁵	1	1	1	1	1
Number of Nursing Home ^{3c}	1	1	1	1	1
Number of Bowling Alleys ⁵	1	1	1	1	1
Number of fitness centers ⁵	1	1	1	2	2
Number of fire Department ⁵	1	1	1	1	2
Number of Water service ⁵	2	2	2	2	2
Number of media services ⁴	1	-	2	-	4
Number of Air port ⁵		1	1	1	1
Number of Attraction Centers ⁴	0	0	2	3	4
Number of Heliport ⁵	-	-	-	1	1
Highways ⁵	-	--	-	-	3
Number of Hiking trails ^{3h}	-	-	-	-	20

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004); 3) Ely Chamber of Commerce (2006f, e, g, d, and h); 4) Ely Minnesota City Guide (2010); 5) Ely Area Development Association (2010);

5.5. Human Capital

Flora and Flora (2008) stated that human capital includes the knowledge, skills, experiences, and the health of individuals that contribute to their ability and capacity to sustain and enhance themselves, their family and the whole community. A community's human capital is therefore the community's individual skills and ability such as education, health, life experience, leadership. The Ely community human capital can be therefore defined as school enrollment,

education attainment, and people's occupation. Besides, Paul & Haines (2002) suggested the use of labor market skills, leadership skills, general education background, artistic development and appreciation, and experience measured through occupation, to measure human capital. And Macgregor (2002) measured human capital through levels of skills expertise and ability using distribution and ratios of education status (higher degrees, bachelor degrees, skilled, and basic). Following the definition of human capital by Flora and Flora (2008) and its measurements as developed by Paul & Haines (2002) and used by Macgregor (2002), to investigate the impacts of the Ely ecotourism on Human capital, this present study, collected data on: 1) School enrollment; 2) Education attainment; and 3) Occupation and employment status. The results of the study are shown as follows:

5.5.1. School enrollment

Table 5.5.1 displays school enrollment in Ely from 1970 to 2000 according to the surveys of the U.S. Bureau of the Census. The table shows that the school enrollment in Ely fluctuated from 1970 to 2000. The number of people enrolled in school was 1376 in 1970; it decreased to 844 in 1980; but increased to 1,013 and 1,050 in 1990 and 2000 respectively. The school enrollment at lower levels such as Kindergarten, and elementary school grade 5 decreased from 741 students and 342 students in 1970 to 99 students and 158 students in 2000, respectively. Whereas, at higher levels such as high school and college it

increased from 152 students in 1970 to 509 students for high school and from 0 students in 1970 to 12 students in 2000 for college. These numbers show a drastic decrease in school enrollment from 1970 followed by a continuous increase from 1980 on; although, the gap could not be recovered. The draw back in school enrollment may be explained by the economic down turn caused by the closing of the mining industry in the end of the 1960s (see chapter three) which could make difficult for people to afford paying for school. The continuous increase registered since 1980 could be due to the recovery from the mining decline through the shift to ecotourism which has caused an improvement in the income of households (as seen above under financial capital) making them being able to bring their kids back to school.

Table 5.5.1. School Enrollment from 1970 to 2000

Schools	Number of people/10 Years			
	1970 ²	1980 ²	1990 ¹	2000 ¹
Nursery	91	24	116	61
school, preschool	52	551	-	36
Kindergarten	741	-	522	99
Elementary: grade 1 to 4	-	-	-	176
Elementary: grade 5 to 8	342	319	-	158
High school: grade 9 to 12	152	269	375	509
College, undergraduate, Graduate, professional school	-	-	-	12
Total	1,376	844	1,013	1,051

Sources: 1) U.S. Bureau of the Census (1990 and 2000) and 2) Minnesota Population Center (2004).

5.5.2. Education attainment

Table 4.5.2 displays education attainment in Ely from 1970 to 2000. The

table reveals that the number of people with lower education (Less than high school graduate) is high in 1970 (1428) but low (342) in 2000.

Table 5.5.2. Education Attainment from 1970 to 2000

Education Levels	Number of people/10 Years			
	1970 ²	1980 ²	1990 ¹	2000 ¹
Less than high school graduate	1,428	1,346	845	342
High school graduate	986	1,341	989	743
Some college or associate degree	401	725	1,080	824
Bachelor's degree or higher	298	251	246	367
Graduate and professional degree (Master's degree, Professional, and doctorate degrees)	52	108	71	173
Total	3,165	3,771	3,231	2,449

Sources: U.S. Bureau of the Census (1990 and 2000) and Minnesota Population Center (2004).

However, the people with high education (college or associate degree, bachelor's degree, and graduate and professional degree) increased from 1970 to 2000. In 1970 the number of people with college or associate degree was 401, that of bachelor's degree was 298, and graduate and professional degree were 52. These numbers reached 824, 367, and 173, respectively in 2000. The total number of people with education increased slightly from 3,165 in 1970 to 3,771. From 1980 from it continues to decrease slightly to 3,231 in 1990 and 2,449 in 2000. This pattern of the education attainment followed that of the school enrollment discussed above. The decrease in number of people with less than high school diploma may be explained by the school decline observed because of the economic down- turn which resulted from the decline of the mining industry. But the increase of people with high school diploma can be explained by the fact that the school decline effects started from 1980 (where the

decrease started). This is normal because people enrolled in school in 1970 where enrollment was still high could reach high school graduation only after 12 years from elementary school grade. The increase in the number of people with high level of school degrees (college or associate's degree, bachelor's degree or higher, and graduate and professional degrees) marked the starting point of the improvement brought in by ecotourism which might enhanced the school enrollment as seen in the section above.

5.5.3. Occupation and employment status

Appendix D tables 8, 9, 10, and 11 display the occupation and employment status of the people in Ely. The Tables show a high diversity of occupation in the Ely workforce. This diversity varies from management occupation, farming /forestry/mining to businesses, and arts. Also there was a shift in the number of people from one occupation to the other. For instance the number of people in farming/forestry/mining was 150 in 1970 and decreased to 115 in 1980 and was only 15 in 1990 and 7 in 2000. The number of workers in businesses and sales increased from 8 in 1970 to more than 73 in 2000. The decrease in the number of people in farming/forestry/mining and the increase that of businesses and sales show a shift in occupation in the Ely work force. This shift may be explained by the decline in the mining industry followed by the change to ecotourism industry registered in Ely in the 1970 through 2000 (see chapter three).

5.5.4. Summary

Table 5.5.3 gives a summary of the effect of ecotourism on human capital in Ely. The table shows that human capital in Ely includes: 1) school enrollment, 2) education, 3) occupation. From the table it can be observed that the number of people enrolled in school was 1,376, 844, 1,013 and 1,051 in 1970, 1980, 1990, and 2000 respectively. The number of people with education was 3,165 in 1970, 3771 in 1980, 3,231 in 1990, and 2,449 in 2000. People with occupation were 1,477 in 1970, 1,511 in 1980, 1,312 in 1990, and 3,203 in 2000.

As can be observed from the above numbers and the previous discussion, the increase in high level school enrollment, in high degree education attainment, and that of diversity in occupation and the shift in number of people from one occupation to another, from 1970 to 2000 show an improvement in the human capital of Ely. This enhancement that occurred during the ecotourism era might be attributed to the investments of ecotourism revenue in education for infrastructure developments (see Built Capital) and the economic improvement as seen under Financial Capital that gave people the financial ability to attain schooling. The diversification and the shift in occupation might be due to the shift from the mining industries to ecotourism which opened a lot of businesses and sales opportunities (see Built Capital). The increase in occupations might be due to the fact that businesses and sales opportunities created a lot of jobs as seen under Financial Capital where the IWC alone created 66 new jobs in 1995 (Schaller, 1996). Besides, as described under Natural Capital, the International Wolf Center played a role in the enhancement of people's behavior towards

wolves (Kellert, 1999). These conclusions agree with the findings of Rogers (1998) who reported that in Nepal, the Solu-Klumbu community states that ecotourism in the process of enhancing their “health and well-being” (p.81) ecotourism also provides them new infrastructures for education (schools). They also conform with (Stronza and Gordillo (2008); Kiss (2004); Hardymont (2003); Archabalt, and Naughton-Treves (2001); and Horwich et al. (1993) who noted that Skills, to enhance local resources uses are learned in local communities to conserve these natural resources. They also followed the report of Clinton County Conservation Board (2010) that stated that the Clinton County Conservation Board would provide, at the planned Mississippi River Eco Tourism Center at Rock Creek, in Clinton County, Iowa, environmental education classes on plant ecology, overnight float, owls, reptiles and amphibians, birds, bees/flowers, trees, vermicomposting, adult winter camp, wild flowers hikes, creatures of darkness hikes, pioneers cemeteries, for goodness snakes, beginning camping skills, kids fishing tournament, cross country skiing, archery, canoeing and kayaking, to the public and school children (Clinton County Conservation Board, 2010).

Table 5.5.3. Human Capital in Ely from 1970 to 2000

Capital	Number of people/10 Years			
	1970 ²	1980 ²	1990 ¹	2000 ¹
Population	4,904	4,820	3,968	3,724
School enrollment	1,376	844	1,013	1,051
Education attainment	3,165	3771	3,231	2,449
Occupation	1,477	1,511	1,312	3,203

Sources: 1) U.S. Bureau of the Census (1990 and 2000); and 2) Minnesota Population Center (2004)

5.6. Social Capital

According to Flora and Flora (2004) social capital includes leaderships, trust, reciprocity, and bridging and bonding networks. This indicates that the Ely social capital may include its social organizations. To measure social capital, Paxton (1999) and Putnam (2000) used connections (bridging), associations' types, numbers, and memberships and members' participation in activities and events. Also Jones (2004) and Stronza and Gordillo (2008) studying ecotourism impacts on social capital collected information on bonding among community members and bridging between community and international NGOs and developmental and conservation agencies such as UICN, USAID, respectively. However, for this study, only social organizations' names and number were collected due to data availability. Organizations memberships were planned to be collected but were not available. None of the organizations contacted responded and none of the information was found to be available on line. The findings of the study are shown as follow:

5.6.1. Ely Social organizations

Table 5.6.1 displays the social organizations in Ely. The table shows 20 social organizations that vary from clubs such as Babbitt ATV and Snowmobile Club, Ely Nordic Club, Ely Lions Club, and Ely-Winton Rod and Gun; to associations such as Ely Greenstone Public Art, Ely Winter Festival, Northern Lakes Arts Association, Ely Resort and Lodging Association, Ely Area

Development Association, Iron Range Resources; and a foundation-Listening Point Foundation.

Table 5.6.1. Ely Social Organizations

Organizations
Babbitt ATV and Snowmobile Club
Ely Greenstone Public Art
Ely Igloo Snowmobile
Ely Nordic Club
Ely Winter Festival
Listening Point Foundation
Northern Lakes Arts Association
The Minnesota Land Trust
UMD Center for Economic Development
Ely Blue Line District Playoffs
American Red Cross – Northland Chapter
Boundary Waters Blues Festival, Inc
Ely Area Development Association
Ely Area Senior Citizens
Ely Jaycees Ely
Ely Lions Club
Ely Resort and Lodging Association
Ely-Winton Rod and Gun Club
Iron Range Resources I
Laurentian Educational Ventures, Inc

Source: Ely Chamber of Commerce (2006i)

5.6.2. Social capital of Ely

The social capital of Ely is displayed in table 5.6.2. This table shows that the number of social organizations in Ely increased between 1970 and 2000 reaching 20 in 2000.

Table 5.6.2. Social Capital in Ely from 1888 to 2000

Capital	Number of organizations/10 Years				
	1888-1970	1970-1980	1980-1990	1990-2000	2000-2010
Social organizations	2	3	4	20	20

Source: Ely Chamber of Commerce (2006i)

The increase in social organizations in Ely from 1970 to 2010, and the diversity of these organizations reflect an ecotourism oriented connection, show how much people are connected in Ely. This shows an improvement in the Social capital of Ely during the ecotourism era (1970 to present). This result agrees with Jones (2004) who argued that community based ecotourism enhances bonding among community members by increasing village unity. And with Stronza and Gordillo (2008) who noted that ecotourism improves community bridging by establishing relationships between community and international NGOs and developmental and conservation agencies- UICN, USAID.

5.7. Political Capital

A community's organizations and connections that help the community to have voice and power constitute its political power (Flora and Flora, 2008). Flora and Flora (2008) defined political capital as a group's control capability in ensuring the flow of resources to all individuals; through the establishment and enforcement of rules and regulations.

In other words the political capital of a community may be the community leaders (traditional and / or political). Depending on data available and purpose, its measurement varies as demonstrated by previous researchers who used

different parameters to study political capital. For instance, Putnam (2000) measured political capital through civic engagement by recording information on number of voters in presidential elections and presidential voting rates. Whereas, Macgregor (2002) measured political capital using civic participation and collecting information on the frequency and attendance levels to government associated meetings and the attendance at community meetings, memberships of community/welfare organizations such as businesses, health, religion, union groups, law, political justice groups, energy services, education, training youth development groups, etc. Also, Wells and Brandon (1992); Horwich et al. (1993); Peters (1998); Bradon (1996); and Hardyment (2003) used community involvement in decision making in studying ecotourism impact on political capital.

Based on these researchers for this study the Ely ecotourism and its political capital was planned to be studied collecting data on 1) participation of communities in the election of local leaders and 2) attendance of community members in the City Council meetings. However, because of the non availability of these data for the reasons described in the methodology section of this paper, alternative data were collected on people financial contributions to the political campaigns from 1979 to 2008. This is to see how Ely people take part on the election of their leaders. The data collected and the results are presented below.

5.7.1. Ely political contributions by individuals

Table 5.7.1 presents the aggregate financial contribution to political

campaigns during the elections from 1979 to 2008. The table shows that the amount of dollars contributed as well as the number of contributors fluctuate.

Table 5.7.1. Ely Aggregate Individual Political Contributions

Years	Number of Contributors	Amount contributed
2007-2008	22	8,150
2005-2006	17	9,650
2003-2004	26	20,920
2001-2002	21	34,925
1999-2000	37	25,575
1997-1998	9	8,850
1995-1996	10	4,350
1993-1994	2	1,003
1991-1992	8	\$4,125
1989-1990	11	\$5,275
1987-1988	1	\$500
1979-1980	2	\$ 875
Total	166	123,323

Source: City-data.com (2009).

The number of contributors increased from 2 in 1979 – 1980 to 11 in 1989-1990 then decreased to 2 in 1993-1994 from where it started increasing until 2007-2008 with a pick (37) in 1999-2000, but in a decreasing rate from 1999-2000 . This gives four distinctive patterns of trend; two periods of increases (1979 to 1990 and 1995 to 2000) and decreases (1991 to 1994 and 2000 to 2008). The amount of dollars contributed follows different patterns. It followed a

general increase throughout all the years of contributions with two slight decreases. First, it increased from \$875 in 1979 – 1980 to \$5,275 in 1989-1990 and decreased to \$1,003 in 1993-1994. Second, it increased from \$4,350 in 1995-1996 to \$34,925 where it reaches its pick. Finally, it continues to increase but in a decreasing rate from 20,920 in 2003-2004 to 8,150 in 2007-2008.

The patterns observed above may be explained as follows. The general increase in the amount of dollars contributed from throughout the period of contributions (1978- 2008) might be explained by the recovery of the economy of Ely from the economic down turn encountered in Ely in the 1970s following the closing of the mining industry which has been the basis of the economy since 1888 through ecotourism. This link between the increase in the amount of political contributions and ecotourism is more obvious with the significant increase starting in 1995-1996 from \$ 4,350 with 11 contributors to up to \$ 34,925 with 21 contributors. This is because this period coincided with the establishment of the IWC in 1993 which improved the economy with more investments resulting in the establishment of businesses and creation of new jobs (Financial Capital), causing people to start raising their political contributions.

The increase in the amount of political contributions and that of the number of contributors, as presented and explained above show that ecotourism has been improving the political capital of Ely. This shows how people in Ely have been interested in the election of their political leaders and in participating in decision making as these later are made by the political leaders. This finding agrees with Wells and Brandon (1992); Horwich, et al. (1993); Peters (1998);

Bradon, (1996); and Hardyment, (2003) who found that ecotourism encourage local empowerment and participation in decision making.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

This chapter is presented in two distinctive sections: 1) conclusion and 2) recommendations. The conclusion gives a summary of the overall study and presents the answer to the research question: what are the effects of ecotourism on the capitals of Ely? The recommendation section gives suggestion on how the study could have been improved and where further research could be conducted.

6.1. Conclusion

This study, "Assessment of Ecotourism on Community Development: Case of Ecotourism and the Ely Community" was designed to carry out an evaluation of ecotourism in Ely Minnesota, gateway to the BWCAW and the IWC. It used Flora and Flora's (2008) community capitals framework to assess ecotourism effects on the community capitals namely natural, cultural, financial, built, human, social, and political.

The assessment was done by collecting data on each of the seven capitals using quantitative research methodology through triangulation. The data collected were entirely secondary and included government surveys (U.S. Bureau of the Census data), statistics on environment (forests, and wild life), documents (internet postings, maps printed books and research articles), and photographs (images of infrastructures, individuals and groups, animals, and activities). Mails, emails, phone calls and internet searches were used to collect the data. The parameters of the different measurements included: 1) for the

natural capital, the population trend of wolves from 1950 to 1998, the volume of wood harvested in the SNF from 1995 to 2007, and 3) levels of materials (fecal coliform bacteria, phosphates, oxygen, pH, nitrates, and nitrogen) in the Moose Lake chain (Moose Lake, Sucker Lake, and Birch Lake) and Lake Isabella within the BWCAW; 2) for the cultural capital, on the number and types of faith-based organizations (churches), cultural events; and the languages spoken from, 1970 to 2000; 3) for the financial capital, on the number of credit unions and banks as well as their assets, household income distribution; and the per capita income, from 1970 to 2000, and the financial contribution of the IWC on the regional economy of Ely in 1995 as reported by Schaller (1996); 4) for the built capital, on the number of housing units, means of transportation to places of work, the number and types of transportation infrastructures, businesses' establishments, places to stay, and infrastructures for facilities, and services; 5) for human capital, on school enrollment, education attainment, and occupation and employment status; 6) for the social capital on the number and types of social organizations; and 7) for political capital on the number and amount of political contributions from 1979 to 2008.

The findings of the study were presented in tables, and photographs were used as illustrations. These tables revealed that ecotourism contributed as shown in Figure 6.1.1) on the natural capital, in the increase of wolves' population in the Minnesota region, in the reduction of wood harvest in the Superior Natural forest, in the pollution of lakes around campsites; 2) on cultural capital, in an increase in the number of churches and a diversification in the

religious groups, in the increase and diversification of the cultural events, and that of languages spoken; 3) on financial capital, in the increase of households and per capita income, that of the assets of financial institutions, the ones driven by the IWC; 4) on the built capita, in the increase in infrastructure establishment development; 5) on the human capital, the increase in high level school enrollment, in high degree education attainment, and that and diversity in occupation, and the shift in number of people from one occupation to another; 6) on the social capital in the increase and diversification of social organizations; and 7) in the political capital, in the increase of the number and amount of political contributions.

The findings of the study show that affects all the seven capitals of the community capitals framework. Therefore, the community capital framework can successfully be used as model to assess ecotourism effects on communities. Also, the study revealed that ecotourism, by enhancing the different community capitals can contribute greatly to the well being of local communities, as stated the outcome of these capitals result in the establishment of healthy ecosystem, vibrant regional economies and social equity and empowerment (Flora and Flora, 2004).

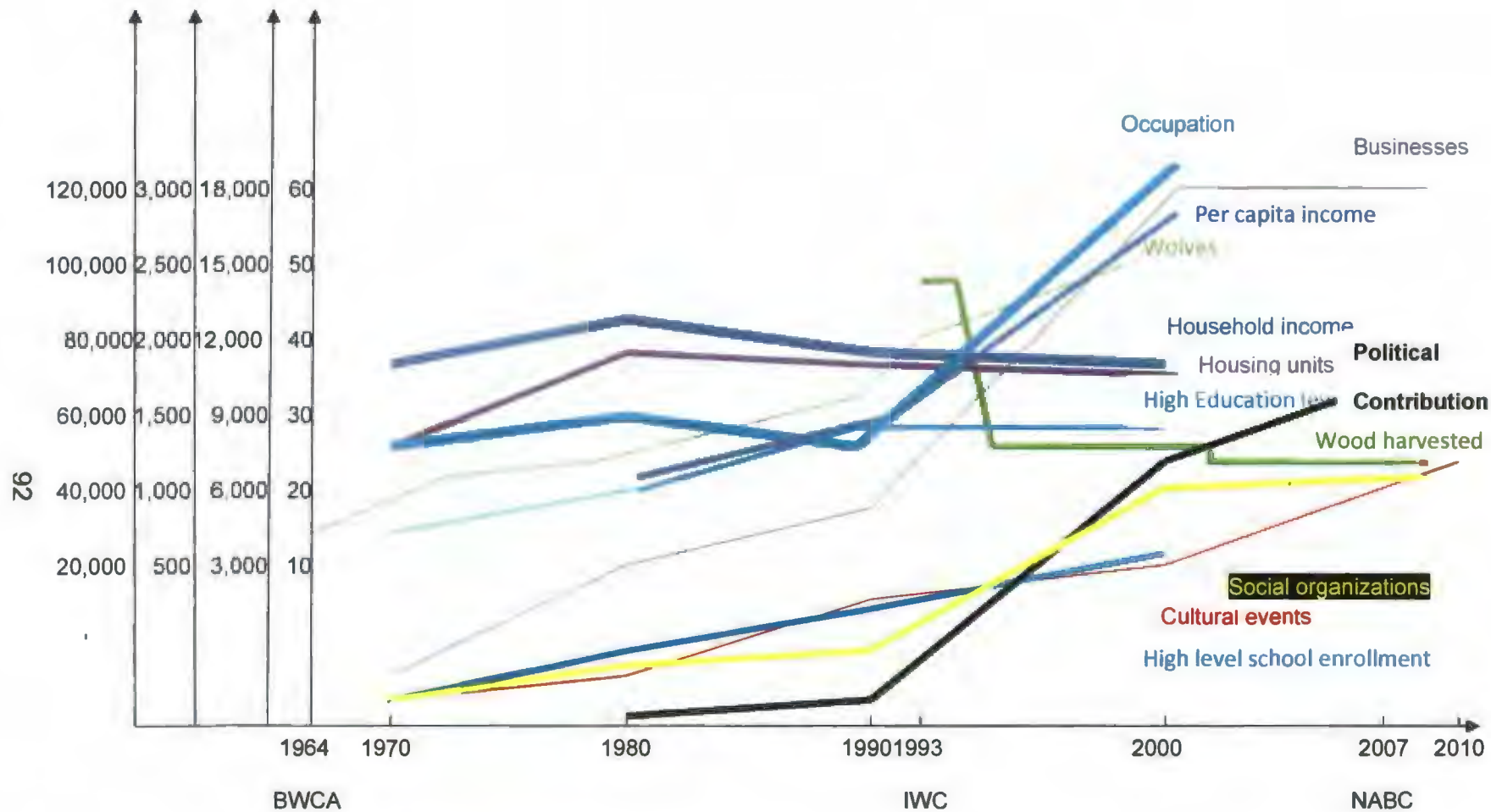


Figure 6.1.1. Contribution of Ecotourism on Ely community Capitals.

6.2. Recommendations

This present study was full of lessons. The difficulties encountered in the collection of data due to non response and non availability of some of the data online taught me that one should be certain of the availability of data before planning to carry out research especially when time is a constraint. It saves time and resources. Alternatively, the mixed research methodology (quantitative and qualitative) and triangulation should be used and many variables should be analyzed. They expand the chances to change from one method to the other and one variable to the other. Also handling a research topic that requires a gathering of multiple and varied information needs the researcher to plan for field trips to collect and or help collect data. This is because such data may be available but scattered and therefore requires extra efforts from the people whom they are requested from, making them unable to help.

As for future studies the present study suggested that, further studies could be conducted in Ely using the same community capital framework but collecting both qualitative and quantitative data. In this way, paper survey can be used to ask: 1) tourists about their expenditure, their motive of visits, their activities, and their attitude towards conservation; 2) local people and community leaders about their thoughts about ecotourism. This would collect more accurate data to which statistical analysis could be applied for the quantitative data and generation of rationales for the qualitative data.

Also, further research could be carried out elsewhere where ecotourism is

developed. This would test not only the suitability of the community capitals' framework in ecotourism assessment but also its applicability in different places.

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[data.com/elec2/elec-ELY-MN.html#80#ixzz0iqi3mseB](http://www.city-data.com/elec2/elec-ELY-MN.html#80#ixzz0iqi3mseB) and

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APPENDIX A: DETAIL ON DATA COLLECTION METHODS

Measurements of Capitals	Variables	Methods	Sources
Natural	1) Timber Harvest in the Superior National forest	1) Volume of timber harvested (in MBF)	1) Superior National Forest (8901 Grand Ave PI Duluth, MN 55808 Phone: (218) (218) 626-4300 Fax: (218) 626-4398) Minnesota Department of Natural Resources: http://www.fs.fed.us/r9/forests/superior/projects/monitoring.php
	2) The water quality of the BWCA lakes	Quantity of PH, Dissolved Oxygen, Saturation, Conductivity, Turbidity, California Bacteria, Nitrates plus Nitrites, Total Kjeldahl Nitrogen, and Phosphates in moose Lake and Lake Isabella	Superior National Forest (8901 Grand Ave PI Duluth, MN 55808 Phone: (218) (218) 626-4300 Fax: (218) 626-4398); King, G. and Mace, A.C., JR. (1974). <i>Effects of recreation on water quality</i>
	3) the	Number of	3) Ely office and interpretive center are

	population size of Wolves	wolves	located at: International Wolf Center 1396 Highway 169 Ely, MN 55731-8129 Phone: (218) 365-4695 Fax: (218) 365-3318 TTY Relay Service - (800) 855-2880 Web site: www.wolf.org www.wolf.org/wolves/learn/intermed/inter_population/mn.asp
Cultural	Events	Number of events	the Ely Area Development Association 102 East Sheridan Street, Ely, Minnesota 55731, 218-365-3012, http://www.elymn.org/wb/pages/about-ely/arts-entertainment.php http://www.elymn.org/wb/pages/about-ely/churches.php Ely Chamber of Commerce 1600 E. Sheridan Street Ely, MN 55731 800-777-7281 218-365-6123 Wed site : http://www.ely.org/events/
	Religion	Types of churches	the Ely Area Development Association 102 East Sheridan Street, Ely, Minnesota 55731, 218-365-3012, http://www.elymn.org/wb/pages/about-ely/arts-entertainment.php http://www.elymn.org/wb/pages/about-ely/churches.php Ely Chamber of Commerce 1600 E. Sheridan Street Ely, MN 55731 800-777-7281 218-365-6123 Wed site : http://www.ely.org/services/
	Languages	Number of languages	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm .

			Minnesota Population Center (2004) Web sites : http://www.nhgis.org
Financial	Financial institutions	1) Number of financial institutions 2) Assets of the financial institutions	1) the Ely Area Development Association 102 East Sheridan Street, Ely, Minnesota 55731, 218-365-3012,
	Households income distribution	Amount of dollars	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm . Minnesota Population Center (2004) Web sites : http://www.nhgis.org
	Per capita income	Amount of dollars	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm . Minnesota Population Center (2004) Web sites : http://www.nhgis.org
	Financial contribution of the IWC to the regional economy of Ely	Amount in dollars and Jobs	Schaller, D.T. (1996). Website: http://www.eduweb.com/schaller/IWCSummary.html
Built	Housing	Number of housing units	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm . 2) Minnesota Population Center (2004) Web sites : http://www.nhgis.org
	Logging	Number of	1) the Ely Area Development

		hotels, resorts, and camping grounds	Association 102 East Sheridan Street, Ely, Minnesota 55731, 218-365-3012, 2) Ely Chamber of Commerce 1600 E. Sheridan Street Ely, MN 55731 800-777-7281 218-365-6123 Wed site : http://www.ely.org
	Services	Number of clinics, water services, fire departments, bowling alleys,	the Ely Area Development Association 102 East Sheridan Street, Ely, Minnesota 55731, 218-365-3012,
	Other infrastructures	Number of Businesses	Ely Chamber of Commerce 1600 E. Sheridan Street Ely, MN 55731 800-777-7281 218-365-6123 Wed site : http://www.ely.org
Human	Individual skills	Occupation	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm . 2) Minnesota Population Center (2004) Web sites : http://www.nhgis.org
		Education attainment	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm . 2) Minnesota Population Center (2004) Web sites : http://www.nhgis.org
		School enrollment	U.S. Bureau of the Census (1990, and 2000) Websites: http://factfinder.census.gov/home/en/datanotes/expsf3.htm . http://factfinder.census.gov/home/en/datanotes/expstf390.htm .

			2) Minnesota Population Center (2004) Web sites : http://www.nhgis.org
Social	1) Social organizations	Number and types organizations	Ely Chamber of Commerce 1600 E. Sheridan Street Ely, MN 55731 800-777-7281 218-365-6123 Wed site : http://www.ely.org
Political	1) Political Contributions	Number and amount of contributions	City.data.com

APPENDIX B: SAMPLE OF LETTERS SENT OUT AS MAILS AND EMAILS TO COLLECT DATA

Request information on Natural Capital (Correspondence to the Superior National Forest).

Dear,

We are conducting a study on the influence ecotourism has on Ely, Minnesota. The objective of the study is to investigate the contribution ecotourism has had on the financial, natural, social, human, cultural, built, and political assets in Ely.

Natural asset include plants, animals, landscape, climate, air, and water. The Superior National Forest has been identified as one of the institutions that manage the Boundary Waters Canoe Areas Wilderness forests and wildlife around Ely.

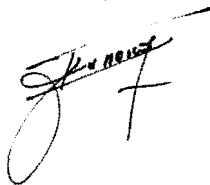
We are requesting your help in identifying information and knowledge that will help us better understand the changes to the natural asset around Ely due to ecotourism. Our time frame is from 1965-present. These dates were chosen due to the winding down of taconite mining and the earnest focus on ecotourism as a viable financial endeavour.

Specifically, we are looking for the following information:

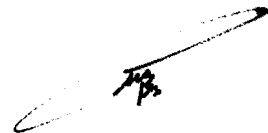
- a) The number of acres of undisturbed/remaining forests in the BWCAW for the years between 1965-present
- b) Population size of various wildlife recorded by the forest service, this may include indicator such as hunting statistics, estimated population sizes, etc, for the years between 1965-present.
- c) Various pollution statistics (quantity of sediments and gases) in the lakes around Ely, for the years between 1965-present

I understand that this information may be scattered, unrecorded, or disjointed, so I welcome any suggesting you may have on the collection of different or more accessible data that will shed light on our research agenda, the influences of ecotourism on the natural asset of the Ely community. Please do not hesitate to contact my advisor (Dr. Chris Biga) with any question you may have at (701) 231-5887.

Sincerely,



Boubacar Hassane
Graduate Student
Natural Resource Management
Boubacar.hassane@ndsu.edu



Chris F. Biga, PhD
Assistant Professor
Department of Sociology
Department of Sociology

APPENDIX C: OCCUPATION

Table 8. Occupation (Employed civilian population 16 years and over) in 2000

Occupation (2000)	Number of people
Management, professional, and related occupations	499
Business and financial operations occupations	27
Computer and mathematical occupations	17
Architecture and engineering occupations	19
Life, physical, and social science occupations	17
Community and social services occupations	32
Legal occupations	8
Education, training, and library occupations	73
Arts, design, entertainment, sports, and media occupations	46
Healthcare practitioners and technical occupations	86
Health diagnosing and treating practitioners and technical occupations	41
Service occupations	356
Sales and office occupations	397
Farming, fishing, and forestry occupations	7
Management, business, and financial operations occupations	201
Professional and related occupations	298
Healthcare support occupations	54
Protective service occupations	27
Food preparation and serving related occupations	143
Building and grounds cleaning and maintenance occupations	55
Personal care and service occupations	77
Sales and related occupations	150
Office and administrative support occupations	247
Construction and extraction occupations	102
Installation, maintenance, and repair occupations	141
Production occupations	79
Transportation and material moving occupations	85
Aircraft and traffic control occupations	2
Rail, water and other transportation occupations	7

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004); 3) Ely Area Development Association (2010)

**Table 9. Occupation (Employed civilian population 16 years and over) in
1990**

Occupation (1990)	Number of people
Executive, administrative, and managerial occupations	113
Professional specialty occupations	173
Technicians and related support occupations	67
Sales occupations	76
Administrative support occupations, including clerical	232
Private household occupations	0
Protective service occupations	15
Service occupations, except protective and household	252
Farming, forestry, and fishing occupations	15
Precision production, craft, and repair occupations	205
Machine operators, assemblers, and inspectors	51
Transportation and material moving occupations	76
Handlers, equipment cleaners, helpers, and laborers	37

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004); 3) Ely Area Development Association (2010)

Table 10. Occupation (Employed civilian population 16 years and over) in 1980

Occupation (1980)	Number of people
Managerial and professional specialty occupations Executive, administrative, and managerial occupations	188
Managerial and professional specialty occupations Professional specialty occupations	173
Technical, sales and administrative support occupations Technicians and related support occupations	43
Technical, sales and administrative support occupations Sales occupations	115
Technical, sales and administrative support occupations Administrative support occupations, including clerical	226
Service Occupations Service occupations, except household and protective	236
Farming, forestry and fishing occupations	18
Service Occupations Private household	0
Service Occupations Protective service occupations	19
Precision production, craft and repair occupations	218
Operators, fabricators, and laborers Machine operators, assemblers and inspectors	81
Operators, fabricators, and laborers Transportation and material moving occupations	154
Operators, fabricators, and laborers Handlers, equipment cleaners, helpers and laborers	40

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004); 3) Ely Area Development Association (2010)

Table 11. Occupation (Employed civilian population 16 years and over) in 1970

Occupation (1970)	Number of people
Professional, technical and kindred workers: Engineers, technical	9
Professional, technical and kindred workers: Physicians, dentists, and related practitioners	8
Sales workers	19
Professional, technical and kindred workers: Medical and other health workers, except practitioners	19
Professional, technical and kindred workers: Teachers, elementary and secondary schools	80
Operatives, except transport Professional, technical and kindred workers: Technical	18
Professional, technical and kindred workers: Other professional workers	64
Managers and administrators, except farm: Salaried: Manufacturing	0

Managers and administrators, except farm: Salaried: Retail trade	44
Managers and administrators, except farm: Salaried: Other industries	31
Managers and administrators, except farm: Self-employed: Other industries	32
Sales workers: Manufacturing and wholesale trade	0
Sales workers: Retail trade	75
Sales workers: Other sales workers	0
Clerical and kindred workers: Bookkeepers	26
Clerical and kindred workers: Secretaries, stenographers, and typists	35
Craftsmen, foremen, and kindred workers: Automobile mechanics and body repairmen	40
Craftsmen, foremen, and kindred workers: Mechanics and repairmen, except auto	75
Craftsmen, foremen, and kindred workers: Machinists	4
Craftsmen, foremen, and kindred workers: Metal craftsmen, except mechanics and machinists	23
Craftsmen, foremen, and kindred workers: Carpenters	18
Craftsmen, foremen, and kindred workers: Construction craftsmen, except carpenters	93
Craftsmen, foremen, and kindred workers: Other craftsmen	116
Operatives, except transport: Durable goods, manufacturing	9
Operatives, except transport: Nondurable goods, manufacturing	0
Operatives, except transport: Nonmanufacturing industries	205
Transport equipment operatives: Truck drivers	73
Transport equipment operatives: Other transport equipment operatives	15
Laborers, except farm: Construction laborers	9
Laborers, except farm: Other laborers, except farm	27
Laborers, except farm: Other laborers, except farm	56
Farmers and farm managers	0
Farm laborers and farm foremen: Farm laborers, unpaid family workers	0
Farm laborers and farm foremen: Farm laborers, except unpaid, farm foremen	3
Service workers, except private household: Cleaning	53
Service workers, except private household: Food service workers	122
Service workers, except private household: Health service workers	18
Service workers, except private household: Personal service workers	4
Service workers, except private household: Protective service workers	11

Service workers, except private household: Service workers, except private household	6
Private household Workers	14

Sources: 1) U.S. Bureau of the Census (1990 and 2000); 2) Minnesota Population Center (2004); 3) Ely Area Development Association (2010)

APPENDIX D: INSTITUTIONAL REVIEW BOARD APPROVAL FOR NORTH

DAKOTA STATE UNIVERSITY

NDSU

NORTH DAKOTA STATE UNIVERSITY

Institutional Review Board

Office of the Vice President for Research, Creative Activities and Technology Transfer

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Expires April 24, 2011

October 5, 2009

Chris F. Biga

Dept of Sociology, Anthropology, and Emergency Management

Boubacar Hassane

Natural Resources Management

Re: Your submission to the IRB: "Assessment of Ecotourism on Community Development: Case of Ecotourism and the Ely Community in Minnesota"

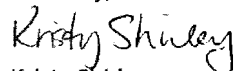
Thank you for your inquiry regarding your project. At this time, the IRB office has determined that the above-referenced protocol does not require Institutional Review Board approval or certification of exempt status because it does not fit the regulatory definition of 'research involving human subjects'.

Dept. of Health & Human Services regulations governing human subjects research (45CFR46, *Protection of Human Subjects*), defines 'research' as "... a systematic investigation, research development, testing and evaluation, designed to contribute to generalizable knowledge." These regulations also define a 'human subject' as "... a living individual about whom an investigator conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information."

It was determined that your project does not require IRB approval (or certification of exempt status) because the information being collected does not appear to be about the human subject, but is about the specific organization being surveyed and/or the community of Ely as a whole. The board makes this determination conditional on the survey questions provided in the 9.25.09 submission to the IRB.

We appreciate your intention to abide by NDSU IRB policies and procedures, and thank you for your patience as the board has reviewed your study. Best wishes for a successful project!

Sincerely,



Kristy Shirley

Research Compliance Administrator