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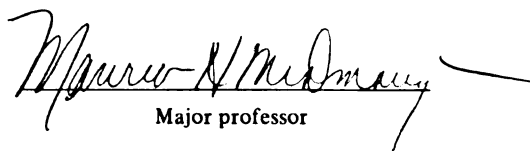
**THE USE AND IMPORTANCE OF NATURAL RESOURCES FOR GATHERING
AND HARVESTING IN MICHIGAN'S EASTERN UPPER PENINSULA**

presented by

Christina A. Kakoyannis

has been accepted towards fulfillment
of the requirements for

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By

Christina A. Kakoyannis

A THESIS

**Submitted to
Michigan State University
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ABSTRACT

THE USE AND IMPORTANCE OF NATURAL RESOURCES FOR GATHERING AND HARVESTING IN MICHIGAN'S EASTERN UPPER PENINSULA

By

Christina A. Kakoyannis

This research reports on one facet of a multi-level study to assist community leaders in Michigan's Eastern Upper Peninsula in obtaining information needed to make informed decisions regarding natural resource management. In order to understand how changes in natural resources could affect these local communities, 63 oral history and nine focus group interviews were conducted with long-time permanent and seasonal residents. Two mail surveys were also conducted to further investigate participation in natural resource activities.

Findings reveal that though the use of natural resources has declined over time, natural resources remain strongly interwoven into the lives of these residents. Natural resource gathering activities remain important for economic benefits, recreation, social ties, and the support of important values. These findings suggest that changes in the ability to participate in gathering activities or changes in the quality of natural resources may adversely affect the quality of life for Eastern Upper Peninsula residents.

To my family,

Antonis, Aspasia, Pete, Maria, and Athanasia Kakoyannis

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cooperation of those residents whose fascinating life histories formed the basis of this study. It is my hope that they will use these research findings to help make their ideal future vision of the Eastern UP a reality.

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Chapter 1

INTRODUCTION

Since the 1970s, there has been a trend for human populations to shift from urban areas to more rural areas across the United States (Blahna 1990). Greater amounts of disposable income and increasing leisure time have contributed to an increase in seasonal homes in the Northern Lower Peninsula of Michigan, particularly along inland lakes and rivers (Marans and Wellman 1978). Stynes and Olivo (1990) describe how the aging of the population, coupled with increased retirement and seasonal home growth, will have an substantial impact upon many nonmetropolitan counties in Michigan. Rapid growth of nonmetropolitan areas such as these can impact local natural resources. Along with a rapid increase in people moving or visiting rural counties comes an increase in conflicting uses of the areas resources for subsistence, income, or recreation. Rapid transitions make it important for decision-makers to plan for the future management of local natural resources. These management decisions need to account for local values because natural resources such as trees, lakes, streams, fish, and other wildlife can be an integral component of rural communities.

To varying degrees, rural economies can be based on some form of natural resource use such as timber or mining (Machlis et al. 1990). Not only has the use of natural resources provided income through industry employment, but residents may harvest or gather natural resources in order to subsidize their income, obtain food or other items for household use, share or exchange with other members of their community, or for recreation.

Changes in a community's natural resource base have been found to impact community well-being or stability (Machlis and Force 1988). Over time the social structure of natural resource-dependent communities can evolve around particular natural resource bases and become interwoven with it. While regulations may be altered quickly, the structure of these communities may take much longer to adapt to the new situation. Thus, any large changes in the availability or quality of natural resources have the potential to affect the social structure of the community. Freudenburg and Gramling (1992) describe how developmental impacts can affect biophysical, cultural, social, and economic systems within communities. Natural resources may hold cultural importance for residents within the region. People may obtain enjoyment and satisfaction out of gathering or harvesting the resources. At a deeper level, values for independence, freedom, and self reliance may be interrelated with use of natural resources. In a study of the importance of natural resources to Alaskan residents, Alves (1980) found that participation in subsistence activities held great value for these residents. The author found that one of the reasons people desire to live in Alaska was for the self sufficiency and independence obtained from participation in subsistence activities.

While there exists a rich literature on the use of natural resources for subsistence in Native American and Native Alaskan communities, little research has studied the importance of these activities to other rural communities in the lower 48 states. It is unclear how much these resources contribute to the quality of life of rural residents. It is not well understood to what extent a change in the area's natural resources would affect local communities because we do not know the values for and importance of natural resources to the residents themselves.

In an article on Great Lakes fisheries management, Muth et al. (1987) voice their concern that resource managers do not believe that residents of modern industrial societies continue to use natural resources for subsistence. Even though rural areas may be greatly integrated into industrial society, the authors believe that many subpopulations of these areas continue to participate in subsistence activities. They note that resource managers do not have enough information regarding subsistence use of Great Lake fisheries in order to implement informed decisions that take into consideration the impacts of management practices on local residents. In order to understand the impacts of these management practices, we need to recognize the local values towards participation and use of fishery resources and learn the extent to which subsistence activities may play a role in community cohesion. Other researchers have also recognized this dilemma. In a study of wildlife harvesting in northern Canada, Usher (1981) noted that resource managers do not understand how demands upon natural resources originated and for what purposes people continue to use those resources. The author stresses the importance of understanding the reasons why people gather and harvest natural resources if resource managers are to regulate limited supplies of resources in an effective way.

The lack of research on the use of natural resources for gathering and harvesting in other locations of the U.S. outside of Alaska poses problems for resource managers in these areas who must make decisions affecting the future of local natural resources. In addition to resource managers, other individuals or groups such as The Nature Conservancy (TNC) that are involved in conducting conservation projects should better understand residents' uses and values of local natural resources. If conservation projects are to succeed and contribute to the benefit of the local communities, their management

plans should account for the values that residents hold towards natural resources and the importance of natural resource gathering and harvesting activities to their quality of life. A better understanding of how and why residents continue to use natural resources will help to reveal how decisions affecting natural resources will impact these communities and alter their future.

An understanding of the use and importance of natural resources for subsistence is particularly important today in the Eastern Upper Peninsula (UP) of Michigan due to increased development within recent years. Development of the region due to tourism or other sources could potentially decrease access to the natural environment. Effects of tourism and second home development such as increased recreational fishing and waterfront development can place a greater pressure on the land and can potentially alter the area's resources (Peluso et al. 1994).

Because Eastern UP counties have currently been undergoing developmental changes that are likely continue in the near future, decisions regarding the future use of their local natural resources will have to be made. While these decisions should reflect the values of residents of these communities, it is currently unclear how changes in the availability or quality of the Eastern UP's natural resources might impact Eastern UP communities. Unfortunately, little is currently known about the impact of natural resource changes on rural communities outside of Alaska and Native American communities because little is known about the importance of natural resources to these residents.

This research reports on one aspect of a multi-level project aimed at understanding the role that natural resources play in the economic and social life of the Eastern UP. The purpose of this particular study is to explore how residents of the Eastern Upper Peninsula

of Michigan interact with and value their local natural resources in order to assist community leaders in making informed decisions for the future of local natural resources. This study will examine the use and importance of natural resource gathering and harvesting activities in the lives of Eastern UP residents and their beliefs and attitudes towards natural resource issues.

Chapter 2

LITERATURE REVIEW

2.1 Subsistence

The use of natural resources for subsistence has been studied in contemporary hunting-gathering societies, Native American communities, and in indigenous Alaskan communities. Outside the United States, many studies have been conducted on the uses of natural resources for subsistence in tribes of hunters and gatherers (Bird-David 1990, Povinelli 1992). In the United States, other researchers have studied subsistence activities of Native American tribes in Alaska including the Inupiat or Yup'ik tribes (Chance 1987). Though widely used in the literature, subsistence has been given many varying definitions.

In Alaska, subsistence is defined by law as

“the customary and traditional uses in Alaska of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles...for barter, or sharing for personal or family consumption; and for customary trade.” (Glass 1995)

Subsistence activities include hunting, fishing, gathering, trapping, farming, herding, crafting, trading, tool-making, transportation, skill training, storage, and so forth. Subsistence has been used to denote those activities that are primarily for consumption instead of profit-maximization (Lonner 1986). Berkes (1988) has also noted that subsistence is the term most commonly used to denote “self –sufficiency” or “what one lives on.” Chance (1987) referred to subsistence as an ability to “live off the land full time.” Subsistence has been described as more than simply the use of these resources for food, shelter, clothing or sharing, but also as “a way of life” (Magdanz 1986). In the past,

subsistence has referred to gathering and harvesting activities that afforded little more than basic survival (Ferguson 1971). Other authors later suggested that a subsistence way of life goes beyond simply supplying basic needs (Usher 1976, Langdon and Worl 1981).

Many researchers have noted that there needs to be a better consensus on the meanings of subsistence (Lonner 1986, Berkes 1988). Much work on this study of subsistence has been completed in rural Alaska where many households still currently engage in gathering and harvesting activities. While many people continue to participate in subsistence activities, the nature of these activities has changed over time and, likewise, the meanings of “subsistence” may also have to alter. The distinction between “subsistence farmers” and other farmers help reveal those changes. Traditionally, people are subsistence farmers if they tend to consume most of what they produce and sell little, buy few items for farming, rely predominantly on family labor, use “traditional or primitive” technologies, have relatively low standards of living, and whose main reason for farming is in order to obtain food for household consumption instead of household income (Wharton 1971). Using this definition, many modern farming operations would not be classified as subsistence farming.

Unlike the past, subsistence activities today are more likely to be used to supplement household income rather than be the sole method of obtaining income (Glass et al. 1995). Due to increasing modernization, subsistence activities are now more often conducted with high-tech equipment such as snowmobiles and rifles (Muth et al. 1987, Magdanz 1986). Some researchers have noted that subsistence activities require higher cash inputs in order to obtain harvesting equipment and are more involved today with the market economy for the purchase of equipment than in the past (Chance 1987, Glass and

Muth 1989). In a study of Native populations in northern Canada, Usher (1981) also noted that certain aspects of resource gathering have been influenced by increased modernization. Usher indicated that a decline in highly specialized gathering skills was likely to occur as modern technology become more readily available and made gathering and harvesting less difficult for people without specialized skills. Though the method of gathering and harvesting natural resources has altered over time, the author found that these activities continue to remain important in the economic and social life of the Natives.

Due to limited opportunities for wage employment, many Alaskan communities would not be able to survive without supplementing their income with subsistence activities (Magdanz 1986, Glass and Muth 1989). In a study conducted in the Eastern UP, Emery (1996) studied the various types of non-timber forest products that are gathered by UP residents. The people interviewed gathered nearly 100 different non-timber forest products. Emery noted that these gatherers would not be able to survive on the income provided by gathering alone. Instead, the gathering was used to supplement their income particularly when wage income was unstable.

Though the use of subsistence activities as the sole source of income has declined, resource gathering and harvesting remains extremely important in rural Alaskan communities (Glass and Muth 1989). In a survey on subsistence, over 50% of the households in rural Alaska were reported to have harvested game and fish. (Callaway 1995). In a study of Cree communities in Ontario, George (1996) also found high rates of subsistence activities representing approximately 25% of the average total household income. For instance, over 80% of the potential hunters in different Cree communities hunted waterfowl between an average of 10-75 days per year. George suggests that these

activities hold greater importance than their monetary contribution to the economy and that some of the value of subsistence activities arises from the cultural importance of sharing wildlife with others.

Besides supplementing income, subsistence has been shown to offer many other non-economic benefits that are more difficult to measure (Glass et al. 1995). Emery (1996) noted that UP gatherers enjoyed spending time in the woods with family members. In a study of 1,237 households in the North Slope Borough in Alaska, Kruse (1991) found that North Slope Inupiat continue to participate in subsistence activities despite the recent increase in wage employment opportunities. His results reveal that Inupiat who participate in wage employment for twelve months a year do not decrease their participation in subsistence activities. In addition, Kruse found that formal education also did not decrease participation in subsistence activities. He argues that wage employment is not an unsatisfactory alternative to subsistence, but instead suggests that subsistence activities hold greater meaning for the Inupiat because they obtain benefits from engaging in subsistence activities. He found that these “process” benefits include a preference for subsistence food, social interaction, challenge, and an enjoyment of rural living which wage employment can not offer to the same degree. The author suggests that losing the ability to participate in subsistence activities could impact those “process” benefits.

2.2 Sharing

Several researchers have studied the cultural importance of subsistence and the role of subsistence in contributing to a community’s social well-being. Many of these authors suggest that these benefits may be of greater value today than the economic

benefits derived from harvesting (Glass and Muth 1989, Muth et al. 1987, Callaway 1995). One of the contributions to social well-being arises from the common practice of sharing. Sharing or exchange of gathered and harvested resources has been found to be an important aspect of subsistence gathering (Langdon and Worl 1981, George et al. 1996).

In a 1987 survey of southeast Alaska, 78% of the households gave away gathered or harvested items to others that year (Glass et al. 1995). Chance (1987) once observed that villagers would share harvested items with kin that lived a few hundred miles away. In general, these studies suggest that the sharing of resources is usually done between the households of close family members (Mooney 1976). Researchers have hypothesized that sharing and exchange of resources was used in order to increase the possibility of survival in hunting and gathering societies. Because the procurement of food could vary greatly for any particular individual, sharing was necessary in order to ensure that all members would have food. This sharing greatly reduced the risk that was inherently associated with hunting and gathering (Dowling 1968, Callaway 1995).

In Callaway's (1995) study of subsistence in rural Alaska, he noted that while over 50% of the household harvested game or fish, even more households used game and fish resources that they did not themselves harvest, but instead were given. The author relates several important values listed by the Inupiat such as sharing, respect of others, cooperation, respect for elders, hunter success, and responsibility to the tribe which help reveal the cultural importance of resource sharing in these societies. He notes that participation in subsistence activities help form a sense of family and community and the sharing of resources also helps to create a network of ties between households and villages.

Kruse (1986) also studied the importance of subsistence to Inupiat social well-being. He noted that participation in subsistence activities and sharing of subsistence items may have arisen for economic reasons but may now be a major way in which the Inupiat society is kept together. He observed that the high amount of sharing and participation in some activities promotes social interactions that serve as a “social binding force” as people become interdependent with others. This use of natural resource gathered or harvested items may also be found to be important in other areas of the U.S. such as the Eastern UP of Michigan. Sharing of natural resource items may also be found to help form stronger ties between those Eastern UP residents who exchange natural resource items. In this way, these gathering or harvesting activities can help form close relationships among participating members and the people with whom they share natural resource items.

2.3 The formation of social ties

By participating together in one or more of these activities or by sharing gathered or harvested items, many people form stronger ties with others. Together these ties can help form a sense of community. The importance of social interactions and personal relationships in forming community has been widely studied. In an article synthesizing community theories, Effrat (1974) reviewed the themes that most theories share regarding the formation of community. The author noticed that all major community theories emphasized the solidarity that arises from the social relationships and organization. Throughout these theories, common ties and social interaction were the two most often mentioned aspects in the definitions of community. In her synthesis, Effrat examined three

main conceptions of the word community: community as solidarity institutions, community as institutionally distinct groups, and community as primary interaction.

Theories that are characterized by the importance of community as solidarity institutions focus primarily with how societal institutions produce solidarity by having certain rules, behaviors, and norms. Those theories in which the study of community as institutionally distinct groups is stressed tend to focus instead on the community of people that is formed by belonging to a particular social group such as an ethnic community. Lastly, personal community theories deal with the study of community as primary interaction. In these theories, the importance of the social interactions and close relationships that form between individuals is emphasized. In this form, community alludes to interactions between people that are “characterized by informal, primary relationships” (Effrat 1974). Personal community theories are useful in better understanding how participation together in natural resource activities may strengthen communities and the webs of relationships among people. This form of community may be based on the solidarity created by individual ties formed through use of the environment.

Though not necessarily within the natural resource literature, the importance of ties between people have often been studied. In a study of East York, Ontario, Wellman and Wortley (1990) found that ties between family and friends contribute to social support and help create community. The authors found that friends, neighbors, and siblings composed approximately 50% of all the supportive relationships. Granovetter (1973) discussed how the strength of a tie between individuals is composed of four main factors: the amount of time, the emotional intensity, the intimacy, and the reciprocity of the tie. In

this way, ties created through participation in natural resource subsistence activities and sharing of these resources may contribute to community.

In their work on families and social networks, Larson and Bradney (1988) found that a very important aspect of a cherished event is the fact that the event was shared with others. When people participate together in an event, their experiences are enhanced by the fact that they are interacting with one another which helps to form ties and memories. Over time, these common experiences become “symbols of an enduring relationship.” Blieszner (1988) noted that social interactions are important for people in maintaining a sense of well-being because people obtain “feelings of attachment, social integration, reassurance of their worth, and guidance from social interactions.” Although any one relationship rarely fulfills every need, social interactions built around natural resource use may contribute to the fulfillment of those needs.

Community theories that highlight the importance of social relationships may or may not include a territorial component. In an article discussing the need to understand impacts on social well-being, Beckley (1995) notes the importance of how social cohesion—the sense of shared values, interaction, and quality relationships—contributes to the formation of a non-territorial definition of community. Other researchers demonstrate how community can be based on both territory and the quality of relationships. Based on Gusfield’s (1975) discussion of community, Kusel (1996) discusses a form of community that consists of both a spatial and a “relational” aspect. In this definition of community, social interaction along with the territorial aspects helps form community. Studies of natural resource-dependent communities have traditionally been oversimplified by focusing primarily on territorial communities—communities of place. In

contrast, many authors note the importance of studying both spatial communities *and* communities of affiliation because the two communities may hold different opinions on resource changes (Machlis and Force 1988).

McLain and Jones (1997) agree that when deciding the future use of natural resources, resource managers should consider communities of interest in addition to the welfare of communities of place. Many people who travel to a particular area in order to conduct gathering or harvesting activities are not part of the community of place, but instead are a part of the community of interest and are often not included in natural resource management decisions. Based on a study of wild mushroom pickers who travel around the Pacific Northwest, the authors found that their livelihoods as well as the lives of residents of the area are greatly impacted by natural resource decision-making. The authors therefore believe that it is important to take the interests of these individuals into consideration in the natural resource decision-making process and that the definition of community should be enlarged to encompass other forms of community besides that of community of place.

In the field of natural resources, research studies have illustrated the importance of participation in subsistence activities in creating and maintaining the social structure of those communities (Glass et al. 1995). Muth et al. (1987) stressed the importance of understanding the “complex web” of social relationships that are maintained by participation in subsistence activities regardless of whether the resources will be used for subsistence or recreation. The social structure of a community can in part have evolved through consistent patterns of behavior that hold particular meanings and values for the participants (Muth 1990). Muth studied the role of natural resources for subsistence and

exchange and the effects that these persistent behaviors have on the social structure of the Native and non-Native Alaskan populations. The findings of an Alaskan public survey of 1,200 people reveal that participation in subsistence activities is a social institution that helps to maintain social structure by retaining consistent patterns of human behavior. Muth suggests that through ties to natural resources, the community has developed a stable set of relationships. It is the stability of these relationships that contribute to the stability of the entire community.

2.4 Community well-being

Because the stability of a community is often impacted by its use of the local natural environment, community stability or more recently, community well-being, has been studied in areas with abundant natural resources. The belief that interactions with an area's natural resources can impact local communities has been studied for many years, particularly in rural communities dependent on natural resource-based industries. Definitions of community and community stability have not been consistently used in the literature and therefore lack a widely shared definition. In an article on timber-dependent communities, Machlis and Force (1988) discuss the varying definitions of the term "community" and "community stability." While often referring to maintaining the status quo, community stability has also been referred to an "orderly change." In their synthesis, Machlis and Force quote the US Department of Agriculture's definition of community stability as the "rate of change with which people can cope without exceeding their capacity to deal with it."

Until recently, many studies that have examined community stability have only used economic indicators, particularly employment in natural resource-based industries. Machlis and Force (1988) noted that community stability has most often been studied by looking at economic measures such as employment, income, and price levels. In the past, efforts were made to stabilize communities by stabilizing timber harvests in that area (Robbins 1987, DeVilbiss 1991). In 1944, the US Forest Service created the Sustained-Yield Forest Management Act in an effort to sustain rural communities by creating sections of forest sufficiently large in size to allow for a continuous cutting of timber through the use of cooperative and federal units. By allowing workers to remain permanently in a region, the goal of this act was to stabilize surrounding communities (Clary 1987).

Changes in natural resource-based industries and their resulting effects on communities have been studied in several works. Overdevest and Green (1993) studied the relationship between timber production and economic well-being in rural Georgia. Machlis et al. (1990) examined how a community's dependence on a natural resource-based industry affects the social change of the community. The authors studied the relationship between production in the timber and mining industries and the impact on the social change of two surrounding communities. Instead of only using economic variables of community stability, the authors used several different indicators of social change such as the number of employees, the number of marriages, the number of churches, and the number of arrests. In 1993, Force et al. expanded this study of the social change in the same timber-dependent community by including the effects of local historical events from the past 65 years.

Gramling and Freudenburg (1990) examined additional effects on natural resource dependent communities including the impact of external forces, such as world commodities markets, that were beyond the local communities' control. Though they widened the range of events to include non-local impacts, the authors continued to use only economic measures of dependence, namely employment in two counties in Louisiana. While acknowledging that research on changes in resource-dependent communities must have a broad scope if all factors that influence a society are to be described and evaluated, the authors continued to focus primarily on economic measures of social impacts in their other works (Freudenburg and Gramling 1992, 1994).

Because resource-dependent communities are influenced by a combination of many factors and react on many different levels, Machlis and Force (1988) noted that future research needs to include other aspects in addition to economic measures of stability and community. Because of the overemphasis placed on economic stability when discussing community stability in the past, the term "community well-being" has more recently been used as an alternative (Fortmann et al. 1989). Many studies that have focused only on employment have overlooked social impacts on community well-being. While much research on community well-being has only analyzed the impacts of changes in natural resource-based industries, residents of rural communities have many ties to resources besides direct employment. By examining only industry employment in natural resource fields, those research studies oversimplify the relationships between natural resources and community well-being and overlook many other factors that contribute to community well-being (Beckley 1998).

Beckley (1995) noted that in the past people had assumed that economic and social well-being were closely related and so they attempted to understand social well-being by using economic measures. Beckley stressed that by doing so they overlooked many important impacts on social well-being that have no relationship to economic well-being. For instance, the author discusses that the quality—not quantity—of employment, social cohesion, and local empowerment are three variables that strongly influence social, but not necessarily economic, well-being and should be taken into consideration in studies of community well-being.

In addition, there have been other limitations in the research traditionally conducted in this field. In a review of literature on timber dependency and community stability, Machlis and Force (1988) noted that the unit of analysis when studying communities has most often been the county. The authors noted that because of the greater ease in obtaining county level data, research on communities has often obtained data from the county level to explain trends at the community level. Similarly, Beckley (1998) observed that many studies report data from levels of analyses that cannot be used to draw conclusions about communities. A major reason for the overall, multi-level study on natural resource use is to include data obtained from various levels of analyses in order to account for many issues that impact communities and to be able to relate that data specifically to communities. Because changes in the use of natural resources has been found to impact community well-being, a better understanding of the importance of these resources for residents will help reveal how decisions regarding the management of natural resources will affect community well-being.

2.5 Values

Another important aspect of participation in natural resource gathering and harvesting activities is the preservation of important values. Values arise as a function of the influence of “culture, society and its institutions, and personality” (Rokeach 1973) and are developed mainly from socialization during childhood (Stern et al. 1995). Rokeach (1973) described a value as an enduring belief that a particular outcome or end-state of existence is personally or socially preferable to another outcome. An organization of enduring beliefs was described as a value system. Rokeach distinguished values from attitudes in that attitudes correspond to a belief associated with a particular situation or event that motivates an individual to behave in a certain manner.

According to Rokeach, because values are more central to a person’s ideology and less dependent upon a particular situation, relatively few values underlie many attitudes and types of behavior or acts. Gibbens and Walker (1993) stated that “one of the attractions of studying values lies in the possibility of predicting differences in people’s behaviors.” The reasons that lie behind human behaviors arise from the value systems which in turn are influenced by “our culture and communities” (Kusel 1996). The influence of values in determining human behavior helps to explain participation in subsistence activities in the face of increasing wage employment. Values such as self-reliance and independence that have been found to be meaningful to Alaskan residents are reinforced through participation in natural resource gathering and harvesting activities (Glass and Muth 1989). The values associated with participation in subsistence activities help reveal why some people choose to continue to perform subsistence activities when it is often possible to purchase commercial goods that would replace gathered or harvested

items. The choices that people make and the behaviors that people perform throughout their lives are influenced by their value system (Fienup-Riordan 1983).

2.6 Summary

Subsistence activities such as hunting, fishing, gathering, trapping, and farming have been widely researched in hunting-gathering societies, Native American communities, and Native Alaskan communities. Studies conducted primarily in rural Alaska have observed a gradual change over time in residents' motivations for participating in gathering and harvesting activities. While in the past subsistence activities were usually conducted in order to supplement household income, this reason has become less prevalent today. Even so, researchers have found that large percentages of residents continue to gather and harvest natural resources. Natural resource gathering activities remain important for Alaskan residents for social and cultural benefits as well as economic benefits.

Studies in Alaska and in Native American communities have found that residents often share gathered or harvested items, especially with close family members. The sharing of natural resource items has been found to be important for maintaining values that are important to these residents such as a feeling of independence. Because values underlie human behaviors, an understanding of human values is important for resource managers to better understand residents' participation in natural resource gathering and harvesting activities. In addition, ties between individuals such as those that form due to sharing natural resources or participating together in natural resource gathering activities have been shown to help form a sense of community. Because these social ties may be

important to the formation of community, changes in the use or sharing of natural resources may impact the well-being of a community.

Community well-being has been widely studied in rural areas that are dependent on natural resources. In the past most studies on community well-being used only economic measures of well-being. Recently, more studies have stressed the need to also include non-economic measures of well-being in order to account for the full range of diverse ways in which a community could be affected. Furthermore, researchers have noted that in order to draw conclusions about community well-being, future research should study data drawn from the community level and not solely from the county level as has often been done.

In order for resource managers to make informed decisions regarding the future of local natural resources, these researchers stress the importance of learning the reasons why residents have conducted and continue to conduct subsistence activities and the extent to which this participation contributes to their well-being. By learning the use and importance of natural resources to Eastern UP residents, this project will help reveal how these residents may be affected by changes in the natural resource base of the Eastern Upper Peninsula of Michigan.

2.7 Research objectives

- 1) To describe the extent to which Eastern UP residents have gathered or harvested natural resources throughout their lives.**
- 2) To describe how and why their use of natural resources has changed over time.**
- 3) To understand the importance of harvesting or gathering natural resources to the lives of Eastern UP residents.**

Chapter 3

METHODS

3.1 Study Location

This study was conducted in Michigan's Eastern Upper Peninsula (Figure 1). Michigan's Eastern Upper Peninsula encompasses Chippewa, Mackinac, and Luce Counties. These counties also include Sugar Island, Neebish Island, Drummond Island, Mackinac Island and the Les Cheneaux Islands. All three counties contain extensive forest, water, agricultural, and wildlife resources, on both public and private lands (Table 1). An average of 50 % of the land in these counties is held in public ownership, which includes the Hiawatha National Forest and Lake Superior state parks. Much of the Eastern UP is in close proximity to the Great Lakes. Lake Superior, Lake Michigan and

Table 1. 1990 natural resource characteristics of the Eastern UP.

<i>Characteristic</i>	<i>Chippewa County</i>	<i>Mackinac County</i>	<i>Luce County</i>
Public lands (%)	44.6	54.0	50.5
Timberland	704.8	519.7	464.2
Lake area	11.6	28.5	15.3
River length (miles)	800	347	658
Great Lakes shoreline	456	298	31

Source: McDonough et al., in preparation

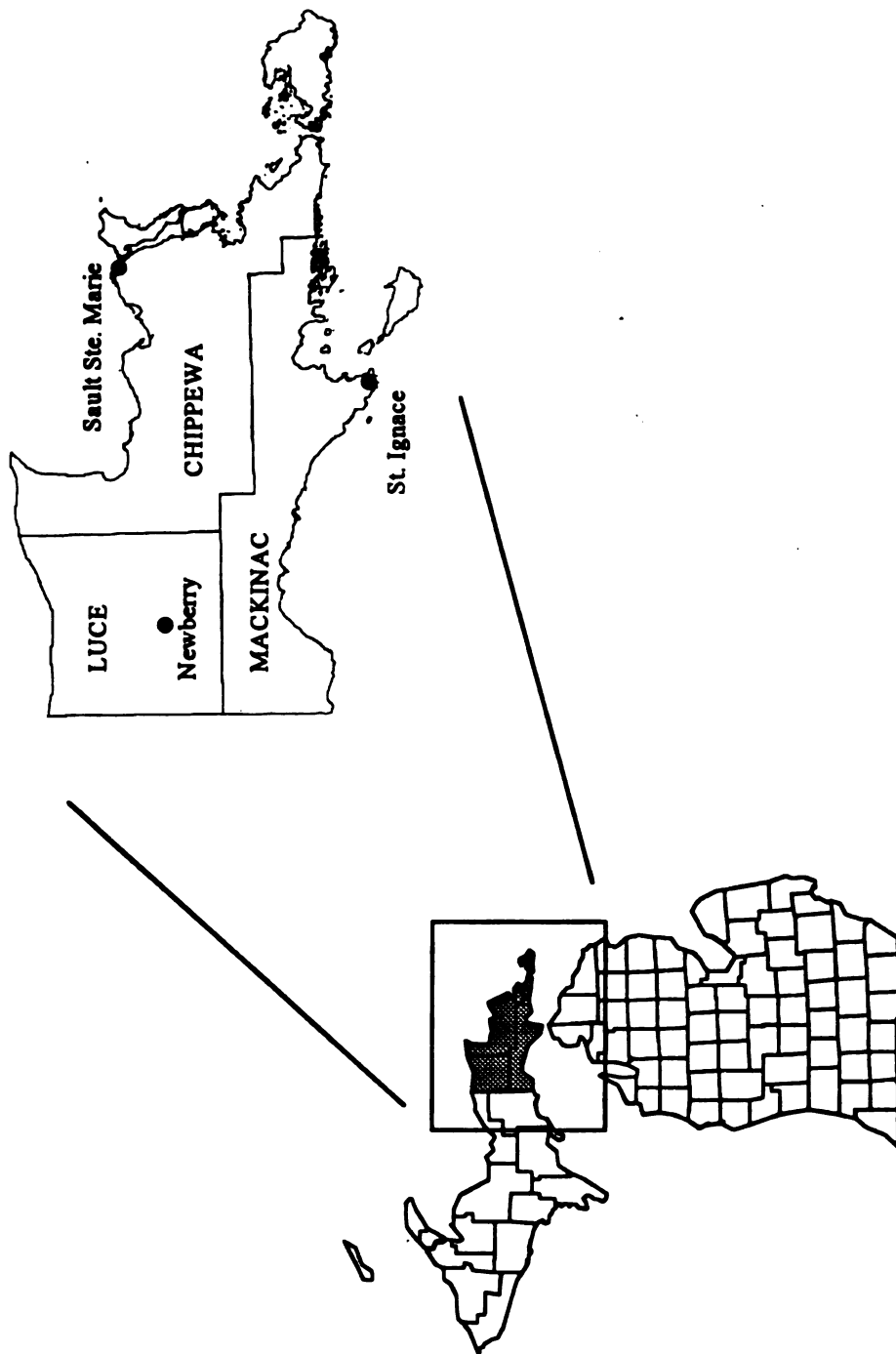


Figure 1. Michigan's Eastern Upper Peninsula counties and county seats.

Lake Huron and the St. Mary's River border one or more of these counties. The low population density and the large tracts of public land allow for a multitude of wildlife species. White-tailed deer, black bear, snowshoe hares, fur-bearing animals and several species of birds including ruffed grouse, sharp tail grouse, woodcock, and migrating waterfowl inhabit the Eastern UP (Loewenstein 1980). Greater detail of the natural resources of the Eastern Upper Peninsula can be found in The Nature Conservancy's (TNC) strategic plans for the Two-Hearted Ecosystem and the Lake Huron Bioreserve (Mattei and Rice 1995).

The Eastern UP counties share similar population and economic characteristics (Table 2). All three have low population densities and predominately rural populations. Bay Mills and Chippewa Native American tribes and reservation lands are located in both Chippewa and Mackinac counties. Native Americans represent 11 % of the population of the Eastern UP (1990 Census). A high percentage of seasonal homeownership is observed in all three counties. In the 1990 census, 34 % of the homes in the Eastern UP had been categorized under seasonal, recreational, or occasional use. These counties also display the high unemployment rates and poverty rates typically seen in natural resource-dependent areas (Peluso et al. 1994, Machlis et al. 1990). In 1990, Chippewa, Mackinac, and Luce counties unemployment rates were 9.4 %, 17.4 %, and 8.9 %, respectively. In addition, Mackinac and Luce County have consistently had unemployment rates above the Michigan average for many years.

The economy of the Eastern UP is comprised of a few main industries, particularly government and tourism. The government sector of the economy makes up 26 % of the

Table 2. 1990 economic and population statistics of the Eastern UP.

<i>Characteristic</i>	<i>Chippewa County</i>	<i>Mackinac County</i>	<i>Luce County</i>	<i>Michigan average</i>
Population	34,604	10,674	5,763	NA
Rural population* (% of total)	57.6	75.9	100	NA
Seasonal homes (%)	26.6	43.7	30.9	NA
Unemployment rate (%)	9.4	17.4	8.9	8.2
Poverty rate (%)	17.1	16.4	17.7	13.1
Natural resource-based employment (%)†	4.4	3.8	13.2	3.3
Occupied housing units using wood heat (%)	17.4	27.9	28.1	NA

* Rural is defined as population centers with 2500 inhabitants or less

† Natural resource based employment includes people who work in agriculture, forestry (including manufacture of wood products), fishing, and mining industries

Source: McDonough et al., in preparation

employment in the Eastern UP as compared to the Michigan average of 14 %. Likewise, tourism comprises 21 % of employment in the Eastern UP as compared to the Michigan average of 7 %. In 1993, the percent of employment that was attributed to government in Chippewa, Mackinac, and Luce Counties was 26 %, 13 %, and 47 %, respectively. In Chippewa, Mackinac, and Luce Counties, the tourism sector comprised 20 %, 33 %, and 6 % of total employment in each county. Because of the small size of the economy of the Eastern UP and the high percentage of the economy that consists of a few main industries, “periodic disruptions such as the 1980 closing of the military base in Chippewa County...[are] disproportionately disruptive (McDonough et al., in preparation).”

These counties were chosen as the study location because they have recently been undergoing developmental changes such as increased growth and increased tourism. In addition, the economies of these counties are in transition because they have recently been moving from primarily extractive resource use such as timber industries to primarily amenity-based resource use such as second home development and tourism. This economic transition has created the need to make management decisions that may impact the local natural environment. Therefore, this location gives a good opportunity to observe the importance of these resources to Eastern UP residents before large-scale changes occur in the natural resource base.

3.2 Research protocol

Using both quantitative and qualitative methods, this research project has studied the Eastern UP at two different levels of analysis: the household level and the community level (Table 3). At the household level, oral history interviews were conducted, a general survey was distributed, and a gathering and harvesting follow-up survey was distributed. At the community level, focus group interviews were conducted. Qualitative data was obtained from the oral history and focus group interviews, while quantitative data was obtained from the general household survey and the gathering and harvesting follow-up survey.

Table 3. Research methods by level of analysis

<i>Household level</i>	<i>Community level</i>	<i>Regional level</i>
Oral history interviews	Focus group interviews	Secondary data collection
Tradeoff interviews	Leader interviews	
General survey	Secondary data collection	
Follow-up surveys		

3.3 The use of qualitative data

Rationale for a qualitative design:

This research primarily uses a qualitative approach in two main ways to answer the research objectives. Marshall and Rossman (1989) discuss four main purposes of research: exploration, explanation, description, and prediction. Qualitative procedures are well suited for conducting exploratory research. The information obtained from this process is then often used in subsequent explanatory or predictive research. In this way, qualitative research is often used to complement quantitative research because qualitative research can help to identify the relevant variables that will be further studied using quantitative methods. The unstructured format of qualitative interviews allows a greater chance of discovering variables and themes which were not expected at the start of the project than does a quantitative study. Through the descriptions and accounts of the respondents, the researcher can identify the most important variables to continue studying using quantitative methods. One of the major reasons for conducting these interviews was to learn what issues were most important to the residents for use in the quantitative

instrument design. Using the data obtained from qualitative interviews, the household survey was designed in a way that would be relevant for Eastern UP residents.

Not only can qualitative data help to structure the subsequent quantitative instruments, but the data obtained from qualitative approaches help reveal perspectives that cannot be obtained from quantitative data alone. Through the rich, thorough descriptions of the respondents, the researcher better understands the meanings that lie behind human behavior (Yow 1994). Qualitative data provide the context of peoples' activities and behaviors (Marshall and Rossman 1989). Using qualitative data in this way can help identify important patterns in the data and help to develop a theory which explains those observed patterns (Walker 1985).

In this project, the data obtained from qualitative procedures are being used to complement quantitative components and also to confirm the validity of some of the secondary data. By looking at the meanings people hold towards natural resource activities, data collected from qualitative approaches can be used to check the validity of the assumptions we may have been making based on quantitative data or secondary data alone.

Oral history and focus group interviews:

Oral history interviews and focus groups are two methods that are often used in qualitative studies (Marshall and Rossman 1989). Both these methods use an unstructured interview which bears more resemblance to a conversation than to a formal interview. Though the researcher may have a few general questions, the interview is primarily

structured by the way in which the participant responds to the questions. In this way, the interview should reveal the perspective of the respondent and not the interviewer.

Oral history, or in-depth, interviews are interviews in which an individual participant responds to a few open-ended questions. These open-ended questions and the ensuing conversation are designed to encourage the respondent to discuss their experiences that are pertinent to the research topic (Walker 1985). Focus group interviews are discussions with a group of people consisting of preferably 6-12 individuals. Several participants are included in order to create an interactive discussion among members of the group. The group setting allows participants to respond to comments of other participants, either to expand that response or to express a conflicting opinion. Though a group discussion cannot delve as deeply into the lives of any one individual or follow-up on a question as thoroughly as an oral history interview, the dynamics of the group help to encourage a rich discussion on the research topics. Because of these group dynamics, however, Morton-Williams (1985) suggests using a relatively homogenous group of people in order to encourage new ideas. If views of the individual participants are extremely disparate, some participants may feel uncomfortable and unlikely to introduce certain comments. Particularly with sensitive topics, some participants may not impart as much discussion in a diverse group than they would have in a more similar group of people (Hedges 1985).

There are many strengths and limitations to these interviewing techniques. Qualitative methods such as oral history interviews and focus groups have certain advantages over quantitative studies such as surveys. Because the interview is less structured by the researcher than in a quantitative format, the subject can more freely

respond to the question in a manner that better reflects what he or she is really thinking. In fact, Marshall and Rossman (1989) declare that this is an important assumption of qualitative research—that “the participants’ perspective on the social phenomenon of interest should unfold as the participant views it, not as the researcher views it.” A personal interview also allows the interviewer to immediately follow-up on an interesting response or to ask more specific questions in order to clarify a particular response. In addition, there is a benefit obtained from simply spending time in the study location and actually speaking directly with the residents themselves and observing nonverbal cues and behavior (Marshall and Rossman 1989).

Some disadvantages of qualitative interviews include the fact that data may be misinterpreted due to cultural differences, the data is impossible to replicate exactly, it is very difficult for the researcher to control bias, and the data is not generalizable. Some of these issues have been addressed by qualitative researchers. For instance, qualitative researchers are not as concerned as researchers in other traditional sciences about replicability, because they are aware that situations, events, and perspectives change. By allowing people access to the procedures and protocols that were used, other researchers may scrutinize the methods used if they want (Marshall and Rossman 1989). In addition, the bias may be controlled by having another individual critically examine the analyses of the researcher. Finally, in an article on single case studies, Kennedy (1978) discussed the issue of generalizability of case study findings. The author noted that though there are no widely accepted procedures for generalizing from case studies to a similar group of people, the onus of generalizability in this case falls upon the user who would make that connection and not the researcher who generated the data. Though this method requires

subjective judgment on the part of the researchers, the author observed that judgment is often also used in designing the sample and determining which statistical methods to use in multiple case studies. By not simply taking a random sample of the population, some judgment is necessary even in multiple case studies. In this way, Kennedy (1978) discusses an argument for decreased concern over the issue of generalizability.

3.4 Oral history interviews

In order to learn about resource use over time, values for local natural resources and natural resource concerns, in-depth interviews were done with long term permanent and seasonal residents of the Eastern UP. Only long-term residents were chosen because it was important to obtain data from residents whose experience encompasses an extended period of time. Residents who have lived in these counties for many years have a much longer perspective on changes in natural resource use and availability than short-term residents. In qualitative research, people who have specific characteristics or experience relevant to the study are selected. In addition, people within certain subpopulations can be chosen if the differences in subpopulations may hold differences that are relevant to the study (Walker 1985).

The sample frame for the oral history interviews was obtained using a key informant sampling approach. County extension directors and other individuals from the counties contributed lists of long-time permanent residents, seasonal residents and tribal members. From the compiled list of long-time permanent residents, 47 individuals, stratified by population size into the three counties, were chosen. As a result, thirty

individuals in Chippewa County, ten individuals in Mackinac County, and six individuals in Luce County were randomly selected. In order to ensure that the opinions of the Native American tribes were represented, five tribal members were also interviewed. In addition, due to the large percentage of the homes in these counties for seasonal use, twelve long-time seasonal residents were also interviewed. In all, 63 long-time permanent and seasonal residents were interviewed using the oral history interview method. These individuals were sent an initial contact letter informing them of the project, which was followed by a telephone call to schedule the interview if they were willing to participate.

The open-ended questions for the oral history interviews were designed in order to learn the subject's length of residency in the county, their use and interactions with natural resources, their opinions of important historical events, their favorite and least favorite characteristics of their county, their image of an ideal future for their county, and their concerns for the future of their county (Table 4). These questions were used to better understand all three research objectives. Depending upon the experiences of the individual respondent, an interview lasted anywhere from 45 minutes to two hours. Out of the 63 interviews, 38 % were conducted with a male respondent only, 32 % were conducted with a female respondent only, and 30 % were conducted with both a male and female respondent, usually a husband and wife (Table 5). The greatest discrepancy between male and female participants occurred in Chippewa County where the sampling frame listed only the husband's name. A greater percentage of female respondents were observed for interviews with Chippewa and Bay Mills tribal members and for seasonal residents. For residents of Luce and Mackinac counties, the male/female respondent ratio was relatively even.

Table 4. Oral history and focus group interview questions

- 1) How long have you been a resident of this county?
Have you ever considered moving from the area? Why or why not?
- 2) We are trying to get an idea of how people in this county have lived, used and interacted with wildlife, fish, trees, forests, lakes and streams throughout their lives. Please describe your relationship with these in your life. How did you use them when you were a kid? How about your parents or grandparents? What were things like? How have your ties to these changed throughout your life? How important have they been to your life?
Probe: Have you ever used these for household subsistence?
Have they had a role in generating household income?
- 3) What historical events in the past in this county have you seen to have a great impact on your county? How did these events impact your county?
- 4) What characteristics of this county do you like the most? What characteristics of this county do you like the least? Why?
- 5) Think about the future. What are your hopes for this county for your grandchildren and great grandchildren? Can you describe your ideal image of this county in 50 years? In 100 years? Do you think this scenario of yours will turn out? If not, what characteristics do you think the future will have instead?
- 6) What are your greatest concerns for the future of this county?

Focus group interview questions

- 1) What characteristics of this county do you like the most? What characteristics of this county do you like the least? Why?
- 2) How important are natural resources to you? How has availability or access to the resource changed over time?
- 3) Think about the future. What are your hopes for this county for your grandchildren and great grandchildren? Can you describe your ideal image of this county in 50 years? In 100 years? Do you think this scenario of yours will turn out? If not, what characteristics do you think the future will have instead?
- 4) What are your greatest concerns for the future of this county?

Table 5. Gender distribution of oral history interview respondents.

<i>Resident of County</i>	<i>Male only</i>	<i>Female only</i>	<i>Male and female</i>	<i>Total</i>
Chippewa*	17	6	7	30
Mackinac	2	4	4	10
Luce	3	2	1	6
Seasonal residents	1	4	7	12
Tribal members	1	4	0	5

* Because they were sampled specifically to ensure representation of members of the Native American tribes of the Eastern UP, the five tribal members who were also residents of Chippewa county are not included in the Chippewa figures and are considered separately in this table.

Except for one participant, all long-time seasonal residents lived on waterfront property on either inland lakes or on one of the Great Lakes. Only four of the 30 permanent residents owned a home on the waterfront. Fifty percent of the seasonal residents interviewed lived on Sugar, Neebish, Drummond or the Les Cheneaux islands.

3.5 Focus group interviews

Nine focus groups were conducted with members of organizations around the Eastern UP. Already established organizations were used in order to facilitate the scheduling of the focus group interviews and also to obtain a relatively homogenous group of people. As discussed earlier, it has been seen that focus group discussions are more productive if the individuals in the groups share similar characteristics (Morton-Williams 1985). The sample frame for the focus groups was obtained by lists of organizations in township halls. These organizations interviewed included a garden club, high school

students, seasonal residents, a senior's club, a Lion's Club, a sportsmen's club, Farm Bureau members, Chippewa tribe members and landowners involved with the Chippewa Soil Conservation District.

Focus group interviews lasted between 45 minutes and two hours. Questions for the focus group interviews were similar to the oral history interview questions.

Respondents were asked their favorite and least favorite characteristics of their county, the importance of natural resources to them, their perceptions of changes in local natural resources, their image of an ideal future for their county, and their concerns for the future of their county (Table 4). Focus group questions # 3, 5, 6, and 7 were used to better understand Objective 3—the importance of gathering activities to these residents.

3.6 Household survey instruments

General household survey:

A mail survey was designed to assess widespread trends in permanent and seasonal resident opinions toward natural resource-related issues, as well as individual and household characteristics of these residents (Appendix A). A sample of 1,541 residents were selected (1,042 permanent and 499 [nonresident] seasonal) from listings of Cloverland, Edison-Soo, and Newberry power company customers. These lists were used instead of mail addresses to acquire an adequate sample of seasonal residents who did not have a permanent address in the Eastern UP. A power company customer was considered to be a seasonal resident if s/he received one electric bill for the entire year instead of monthly bills. The sample was drawn based on the number of households in each township according to the 1990 Census of Population and Housing. The Sault Ste. Marie

area was sampled at half the rate because of its disproportionately large population.

The surveys were mailed during the second week of March, 1997. Reminder cards were sent three weeks later. Another questionnaire was sent to any respondents who did not return a completed survey three weeks after the reminder cards were sent. A total of 615 questionnaires were returned after the first round, while another 257 were returned after the second set of questionnaires were sent. This resulted in 872 completed surveys, or a 55 % response rate. The survey results were weighted to reflect the original distribution of residents in townships in the Eastern UP as noted in the 1990 Census (McDonough et al., in preparation).

Gathering and harvesting follow-up survey:

A follow-up survey was sent to Eastern UP residents who had responded to the general survey in order to understand their uses of natural resources for gathering and harvesting in greater depth (Appendix B). The sample frame consisted of Eastern UP residents who had checked that either they personally or another household member had participated in a natural resource gathering or harvesting activity in the past year and who had checked that they were willing to participate in another survey. Using these criteria, 609 people out of 872 people who had completed and returned the general survey were identified as possible respondents. After 118 people were removed from this sample in order to be used for another survey, 171 people were randomly chosen to be sent the gathering and harvesting follow-up survey. The follow-up surveys were mailed in July 1997. Any respondents who did not return a completed survey within one month were

sent another questionnaire. Eighty-three individuals returned the survey which resulted in a 49 % response rate.

3.7 Analysis

Qualitative data analysis:

Analysis of qualitative data entails separating the interviews into parts and then placing these sections together in order to observe how they relate to one another and help form a new understanding of the data. The purpose is not simply to describe, but to interpret, explain, and understand. The core of qualitative analysis lies in the processes of describing situations, categorizing them, and seeing how these ideas interconnect in order to develop a valid account of the data (Dey 1993).

The first step in qualitative data analysis is coding. Coding involves breaking down, comparing, and categorizing the data and is guided by the research questions. To do this, segments of interviews are coded by assigning that piece to a particular category. Through the process of placing the data into relevant categories, coding facilitates analysis by providing some method of comparison. For instance, by analyzing the frequency with which certain codes occur, patterns in the data can become clearer (Miles and Huberman 1984). Bliss et al. (1983) stress the importance of being fully aware of what the code represents and to be aware that the code is not the data. Instead, the authors emphasize that “codes are no more than a convenient way of expressing paradigms.”

The next step in the qualitative data analysis is to make connections between the categories and subcategories in order to think systematically about the data (Miles and Huberman 1984). Links must be established between different segments of the interviews

in order to understand the relationships between parts of the data. If certain codes often tend to be associated with one another, there may be a pattern or connection between those items. Bliss et al. (1983) use the term “networks” to describe the process of revealing how different parts of the data interrelate. Because establishing these links between parts of the data calls for judgment on the part of the researcher, it is important for the researcher to constantly refer back to the interviews for support or rejection of that link. Finally, the major themes and relationships between the data are written out to produce an account of the data (Dey 1993). Strauss and Corbin (1990) discuss using grounded theory as another step in qualitative research. As opposed to formulating theories previously and then attempting to prove them, grounded theory is a way of studying the data and then observing what theories are revealed through that study. In this way, the theory is particularly relevant to that specific study.

The use of computers in qualitative data analysis:

Traditionally, qualitative researchers typed up interviews and used pens to mark relevant sections or cut-and-paste techniques to categorize and sort data segments—an often tedious task. More and more often, researchers are using computer software to assist in the analysis of qualitative data. In a survey conducted in 1991, over 75% of respondents were using computer programs for qualitative analysis (Miles and Weitzman 1996). Considering the often voluminous pages of interviews, computer software has greatly helped to expedite analysis of the data. In this research project, a computer software program called The Ethnograph© was used to facilitate the retrieval of particular segments of interviews. Because the time needed to retrieve coded passages is reduced,

more time can be spent interpreting and analyzing the patterns observed in the data (Seidel and Clark 1984).

When working with computer software, the advantages and also the disadvantages of the program should be recognized. Tallerico (1991) discusses the benefits and limitations of The Ethnograph©. The author observed benefits such as allowing another researcher to more easily observe the results of each analysis, easily revising classification schemes when needed, and calculating the frequency of particular coded segments. In addition, she observed that when using The Ethnograph©, researchers are less overwhelmed by the tedious nature of the tasks necessary to deal with numerous transcripts. The author also noted certain limitations of this program. The major problem she foresees with the use of computer programs in general is that the researcher may have “a false sense of accomplishment” due to the speed with which the computer searches and retrieves the data segments. The author stresses the need to understand that the sorting and retrieval of data segments is not the final analysis, but is instead merely the first step to interpreting the data.

Oral history and focus group analysis:

Each oral history and focus group interview was recorded on audiocassette tapes and was later transcribed. The transcribed interviews were coded for responses to the open-ended questions. The coded transcripts were analyzed by computer using Ethnograph© in order to better observe patterns or relationships between parts of the data and the most common trends. In Results and Discussion, the most commonly mentioned themes for each objective are described. In order to avoid discussing items that were

rarely mentioned by Eastern UP residents, trends or patterns are described only if a certain topic was mentioned in at least 10% of the interviews. A cutoff of 10% was chosen because, on closer inspection of the data, this percent appeared to include those responses which were cited fairly often, but did not include those responses which only a few people mentioned.

The interview was chosen as the unit of analysis in this research project. Though each focus group contained several participants, focus group interviews were also treated as only one interview for two major reasons. First of all, because focus group interviews were recorded on audiocassette instead of videocassette, it is extremely difficult to attribute a specific dialog to a particular participant. Secondly, due to the interactive nature of focus group interviews, a respondent may not have commented on a particular topic if another respondent had not already broached that subject. Due to this interaction, the individual responses are not independent, and neither are they meant to be independent. As previously stated, one of the advantages of a focus group interview is that the interaction between the group members creates a rich discussion. Therefore, despite containing numerous participants, each focus group interview was counted as one interview when analyses were run for the most frequently cited responses.

Of course, it should be kept in mind that this type of analysis is not the primary reason for using qualitative data such as these oral history and focus group interviews. Instead, results from the household general survey and the gathering follow-up survey were used wherever possible to complement the results of the oral history and focus group interviews. In Results and Discussion, quantitative data will be distinguished by whether it came from the household surveys or the oral history and focus group interviews. It is

occasionally not possible to use quantitative information from the household survey to discuss participation rates in gathering or harvesting activities because the survey questions asked about a smaller number of natural resource gathering and harvesting activities than the large number of activities that were expressed in the oral history and focus group interviews. In these circumstances, participation rates from the oral history and focus group interviews will be used though, as previously stated, they can not be generalized to the greater population of Eastern UP residents.

RESULTS AND DISCUSSION

4.1 Introduction

Subsistence activities include gathering and harvesting activities such as hunting, fishing, gathering, trapping, farming, herding, crafting, trading, tool-making, transportation, and skill training. Because subsistence has been used to describe activities that are conducted primarily for household consumption instead of profit-maximization (Lonner 1986), the gathering and harvesting activities that will be discussed in this paper were also restricted to those activities. Though an attempt will be made to limit the discussion to activities used primarily for subsistence, the actual uses of these natural resources are seldom so distinct. For instance, because the selling of non-commercial fish and game is illegal, fishing and hunting are currently conducted solely for the purpose of household consumption. In contrast, other activities such as trapping, managing timber on their land, and farming can be used for consumption and also to supplement household income. In fact, natural resources may be gathered for several different reasons simultaneously.

People may use gathered items primarily for household consumption, household income, or to share or exchange with other people. Often the line between those activities conducted for subsistence, for recreation, or primarily for household income are difficult to distinguish. In an article on forest dependence, Beckley (1998) discusses the uses of forest products and the difficulty in accounting for the reasons why people conduct an

activity. For instance, he points out that people who conduct gathering or harvesting activities for recreation also use the item for subsistence when they consume what they obtain. Because of the connection between these reasons for conducting gathering and harvesting activities, it is extremely difficult to identify the motivation for participating in any particular activity. This research will focus on those gathering and harvesting activities which are currently found in the literature on subsistence use of natural resources.

4.2 The extent of natural resource use

People used and interacted with natural resources in many ways throughout their lives. Over 50% of the respondents in the household survey participated in fishing, hunting, wild berry picking, or cutting firewood in the past year (Figure 2). Figure 3 shows the percent of oral history interview respondents who mentioned participating in a particular gathering or harvesting activity at some point throughout their lives. As previously stated, because the household survey question was limited to certain activities, participation rates from the household survey can only be given for hunting, fishing, wild berry picking, vegetable gardening, cutting firewood, mushroom picking, and tapping for maple syrup. Other additional activities that were often cited in the oral histories but were not included in the household survey included farming, harvesting wood on their property, gathering apples, and trapping animals for their pelts.

Throughout the interviews, the most frequently mentioned activity was fishing. In addition, the household survey revealed that 70 % of the respondents fished during the

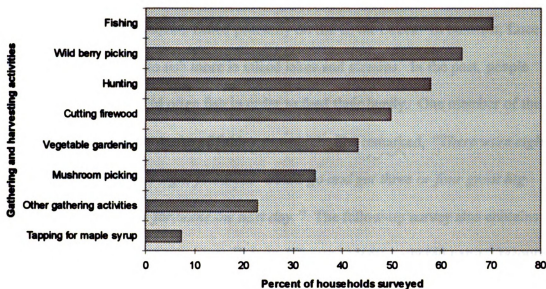


Figure 2. Percent of Eastern UP households who participated in gathering and harvesting activities in the past year.

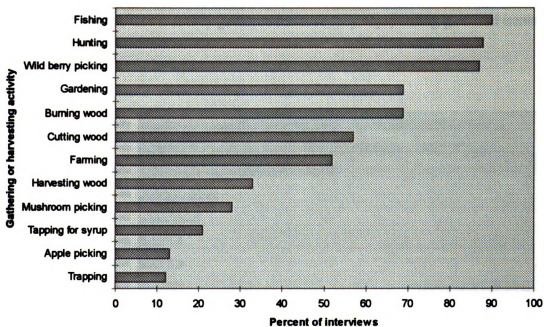


Figure 3. Percent of oral history interviews in which Eastern UP respondents mentioned participating in a particular gathering or harvesting activity during their lives.

past year. The oral histories show that many of these people go ice fishing. Particularly in Chippewa County, respondents fished primarily on the Great Lakes. In contrast, Luce County residents tended to fish more in inland lakes and streams. In the past, people living near the water would often fish in order to feed their family. One member of the Chippewa tribe of Indians spoke of fishing as a child. She remarked, “*There were eight of us [in my family]...I –just eight years old—could go and get three or four great big walleye...and bring them for home the next day.*” The follow-up survey also contains quantitative information on why these Eastern UP respondents gathered natural resource items. When asked the reasons why they fish, survey respondents who fished cited enjoying the activity, being outdoors, spending time with other people as the top three reasons for why they participate in the activity (Figure 4). As shown on Figure 4 and the following graphs, the “other” reasons that respondents had for participating in an activity usually referred to the fact that they gathered because they enjoy eating gathered items.

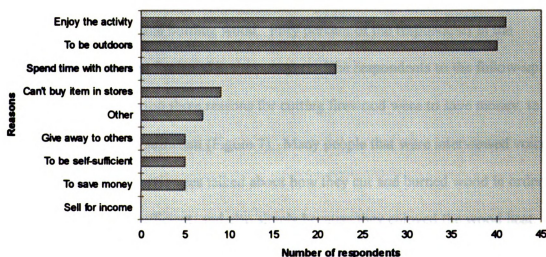


Figure 4. Reasons why Eastern UP respondents fished in the past year.

Cited by 64 % of the respondents in the household survey, wild berry picking was the second most common gathering activity. The interviews show that while most people gathered wild blueberries, people also gathered strawberries, raspberries, huckleberries, blackberries, elderberries, and serviceberries. One woman in Luce County asserted, *"We have a lot of raspberries and strawberries...I love picking berries."* Fifty-eight percent of the residents in the household survey stated that they hunted during the past twelve months. Most people hunted for deer, rabbits, bear, upland birds such as partridge, and for waterfowl such as ducks. While discussing his childhood in the Eastern UP, one man stated, *"We always hunted. Hunted birds and deer...hunt a lot of coyote and fox in the wintertime."* Like respondents who fished, respondents to the follow-up survey who picked wild berries and hunted both cited being outdoors, enjoying the activity, and spending time with others as the three top reasons why they participate in those activities (Figure 5 and Figure 6).

Two activities that often arose in conjunction with one another in the oral history interviews were cutting and burning wood. Fifty percent of the respondents in the household survey had cut firewood in the past year. The respondents to the follow-up survey revealed that the top three reasons for cutting firewood were to save money, to be outdoors, and to be self-sufficient (Figure 7). Many people that were interviewed voiced these same reasons. Interviewees talked about how they cut and burned wood in order to save money, to be self-sufficient, and also simply because they enjoyed the wood heat. One resident of Chippewa County observed, *"It's more economical and we have the*

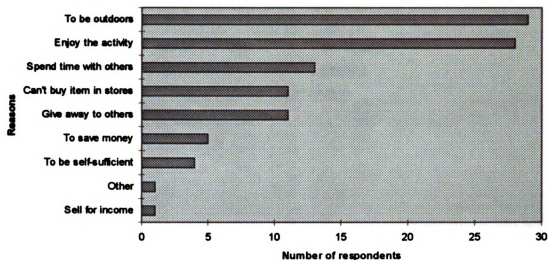


Figure 5. Reasons why Eastern UP respondents gathered wild berries in the past year.

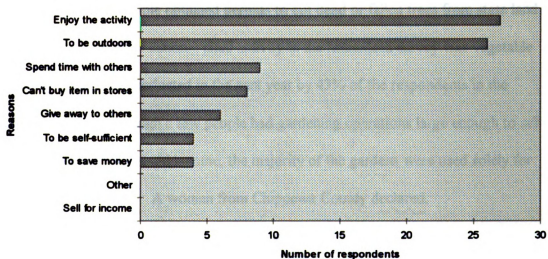


Figure 6. Reasons why Eastern UP respondents harvested game in the past year.

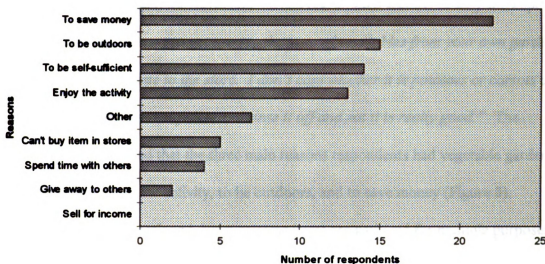


Figure 7. Reasons why Eastern UP respondents cut firewood in the past year.

wood to do it. It saves money. We have electric heat and that's pretty expensive here."

As they grew older, many of these people preferred to purchase wood because it was too much work for them to cut it themselves. While most people cut the wood from private land holdings, some people obtained permits to cut dead or fallen trees from state land.

The next most commonly cited activity in the household survey was vegetable gardening which was conducted in the past year by 43% of the respondents in the household survey. Though a few people had gardening operations large enough to sell some produce for household income, the majority of the gardens were used solely for household consumption. A woman from Chippewa County declared,

"Up until three years ago, I had not bought a can of tomatoes. We canned all our own. I'd do like 75 to 100 quarts every year. 'Cause [my husband] really can grow good tomatoes. And corn, I put up 75 maybe pounds of corn from our little garden there and it's good."

People kept gardens for a variety of reasons. According to the oral history interviews, people gardened in order to obtain fresh produce, to obtain vegetables produced without

chemicals, for exercise, and for recreation. When one woman was asked why she kept a garden, she replied, *"Once you get used to the taste of vegetables from your own garden, you cannot match the taste in the store. I don't care whether it is potatoes or carrots or whatever it is—to go out and pull it and rinse it off and eat it is really good."* The follow-up survey revealed that the three main reasons respondents had vegetable gardens was because they enjoy the activity, to be outdoors, and to save money (Figure 8).

As previously mentioned, because some items are gathered for multiple purposes, it is difficult to separate the uses of natural resources for household consumption and for household income. Farming is such an activity. In the oral history interviews, nearly one-half of the respondents said that they or their family had farmed during their lives. While many farmers sold livestock and vegetable crops in the market, farmers also used these products directly for household consumption. In this way, they purchased fewer meat and

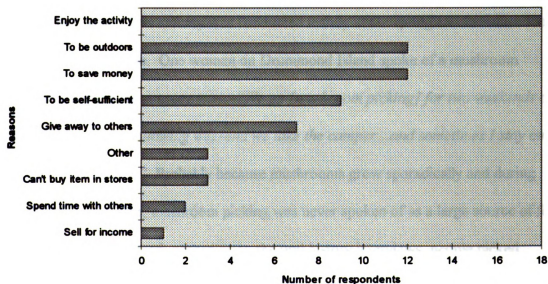


Figure 8. Reasons why Eastern UP respondents had vegetable gardens in the past year.

vegetable products from stores. One man who grew up in Chippewa County stated, *"We lived on a farm, of course...and we had our own animals for meat and chickens, for eggs and for food and, oh, for a long time, we raised rabbits and we ate rabbits and chicken."* Though farmers asserted that farming was hard work with little pay and free time, many continued to farm because they enjoyed working outdoors.

Harvesting timber on private land holdings is another activity which is often conducted for subsistence and household income. In one-third of the oral history interviews, people described how they occasionally harvested trees from their own property. Though much of the timber harvested was sold to supplement their household income, some people harvested in order to use the lumber for their own purposes such as for firewood and building. As one woman in Luce County describes it, *"We cut our [trees], mainly spruce, and built a cabin with it."*

Mushroom picking—particularly for morels—was another commonly mentioned gathering activity. Thirty-five percent of the residents surveyed had picked mushrooms within the past year. This activity was conducted mainly in the spring and fall when the mushrooms are available. One woman on Drummond Island spoke of a mushroom picking trip that she takes every year. *"We go [mushroom picking] for two weekends on Mothers Day and the following weekend we take the camper...and sometimes I stay out there for a whole week."* Probably because mushrooms grow sporadically and during limited times of the year, mushroom picking was never spoken of as a large source of food for these residents. Instead, according to the oral history interviews, people picked mushrooms primarily for recreation. The follow-up survey supported this finding and added to it by revealing that respondents who picked mushrooms did so in order to be

outdoors, because they enjoy the activity, and because they cannot buy wild mushrooms in stores (Figure 9).

Seven percent of the respondents in the household survey had tapped maple trees for syrup within the last twelve months. While two respondents that were interviewed had sold maple syrup for a living, others participated in this activity because they enjoyed it and because the syrup made good gifts for other people. One man from Neebish Island remarked, *"We try to make around 20 gallons [of syrup]. Most of it is for ourselves, for family...Oh, I love it, I mean I got a nice system. You know, everybody has to have a hobby of some sort and that's my hobby."* Respondents to the follow-up survey that tapped trees for maple syrup cited enjoying the activity, not being able to buy the item in stores, being outdoors, and to save money as the only four reasons for conducting the activity (Figure 10).

Apple picking was cited in 13 % of the oral history interviews as an activity that had been conducted at some point during their lives. People gathered apples from apple trees on their own land primarily to make applesauce and for use in pies. One woman who was a seasonal resident said, *"I pick enough for a pie or two. There have been a lot of wild apple trees here...I always made a lot of applesauce while I'm here—put it in zip-lock bags and freeze it."* Trapping, which was mentioned by people in 12 % of the oral history interviews, was an activity that was conducted primarily in the past. When asked if he trapped animals as a young adult in order to obtain money from their pelts, one man replied, *"There was [a bounty] then, but that really didn't justify your input into it. No, it [was] just for recreation."*

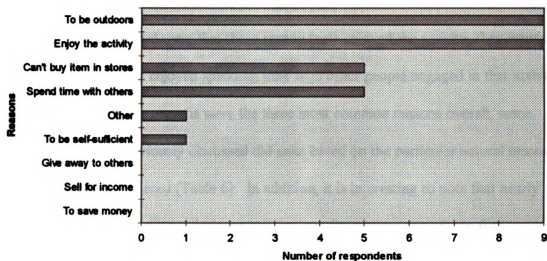


Figure 9. Reasons why Eastern UP respondents gathered wild mushrooms in the past year.

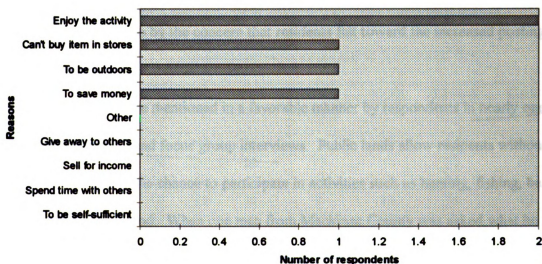


Figure 10. Reasons why Eastern UP respondents tapped trees for maple syrup in the past year.

Based on the follow-up survey, the top three predominant reasons for gathering or harvesting items in general were that these respondents enjoyed the activity, they wanted to be outdoors, and they enjoyed spending time with other people engaged in that activity (Figure 11). While these reasons were the three most common reasons overall, some variations that were previously discussed did exist based on the particular natural resource item that was being gathered (Table 6). In addition, it is interesting to note that nearly none of the respondents cited a desire to sell the item for income as a reason for conducting the gathering or harvesting activities.

An important aspect of being able to conduct these activities is having the land available upon which to gather and harvest natural resources. For example, in order to cut firewood, residents must have access to woods on either private or public land. In the oral history interviews, the importance of having access to land was revealed by the frequency with which people discussed how much they enjoyed the amount of public land available in their counties and also by the concern that residents felt toward the increased posting of private property.

Public lands were mentioned in a favorable manner by respondents in nearly one-half of the oral history and focus group interviews. Public lands allow residents without much private property the chance to participate in activities such as hunting, fishing, berry picking, and cutting wood. When one man from Mackinac County was asked what he felt about the extent of the public land in his county, he replied,

"I think [public land] is one of the reasons we are up here. It creates an awful lot more opportunities for people to not have to own vast tracks of land to be able to enjoy those kinds of diverse opportunities."

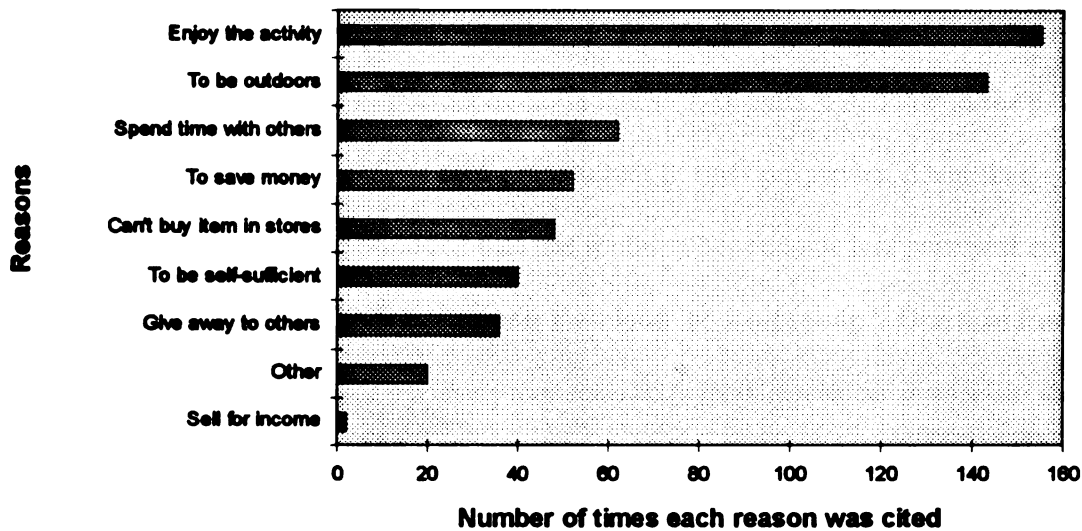


Figure 11. Reasons why Eastern UP respondents gathered or harvested natural resources in the past year.

Table 6. Reasons for participating in natural resource gathering and harvesting activities. Values indicate the percent of respondents who cited that reason.

Reasons*	Natural resource gathered or harvested items						
	Game	Fish	Wild Berries	Wild Mushrooms	Maple syrup	Firewood	Garden vegetables
Enjoy the activity	93	93	76	75	67	45	95
To be outdoors	90	91	78	75	33	52	63
Spend time with others	31	50	35	42	0	14	11
To save money	14	11	14	0	33	76	63
Can't buy item in stores	28	21	30	42	33	17	16
To be self-sufficient	14	11	11	8	0	48	47
Give away to others	21	11	30	0	0	7	37
Other reasons	0	16	3	8	0	24	16
Sell for income†	0	0	3	0	0	0	5

* Percents do not add up to 100% because respondents could cite more than one reason per activity.

† Michigan law prohibits the selling of game and fish by non-commercial harvesters.

In addition, respondents in 15 % of the oral history and focus group interviews commented on the importance of having access to private land holdings and their concern with the increased frequency of posting on these lands. Residents stated that in the past neighbors would traditionally allow each other access to their properties. Over their lifetimes these residents have observed that this tradition has become less prevalent as newcomers to the Eastern UP decide to post their land 'no trespassing.' One man from Mackinac County remarked, *"First thing that somebody from downstate does when they buy some property here is put up 'No Trespassing' signs."* Long-time residents of the Eastern UP tend to believe that the majority of individuals who post 'no trespassing' signs are people who have migrated to the UP from places in the Lower Peninsula where posting of private property is more common. This posting has resulted in a decline in the amount of private land open to residents which may make it more difficult for residents to locate open land upon which to gather or harvest natural resources. A man living in Chippewa County voiced this concern when he noted with irritation, *"It has gotten to the point that you can't hunt half the places because somebody's got 'em posted."*

Differences in resource use between subpopulations:

How people used natural resources for gathering or harvesting may differ between subpopulations of respondents. Participation in natural resource gathering and harvesting activities were analyzed in the household survey using four demographic characteristics: gender, Native American ethnicity, location of permanent residency, and county of residence for permanent residents of the Eastern UP. These variables were chosen because they were also used in the oral history interviews and focus groups, and thus the

data from the surveys could be used to complement the information obtained from the interviews. The household survey allows us to observe what differences there may exist between these subpopulations while the oral history and focus group interviews help give us a better understanding of why those differences may exist.

Gender

While men were more likely to discuss hunting, fishing, and cutting and burning wood in the oral history interviews, women were more likely to mention berry picking, mushroom picking, and canning these items as activities in which they tended to participate. There was no apparent variation in these interviews between the gender of those respondents who mentioned other activities such as gardening and apple picking.

Participation rates from the general survey support these findings. Figure 12 reveals the comparison of participation rates in the past year by gender for each of the eight gathering and harvesting activities listed in the general survey. A Pearson's Chi-square test found statistical significance at $\alpha = .05$ between the differences in male and female participation rates only for hunting, fishing, cutting firewood, and other gathering activities (Table 7). While men participated in hunting, fishing, and cutting firewood more than women, women gathered 'other' items more frequently than men. As previously stated, 'other' items included rocks, apples, herbal teas, leeks, pine trees, and other wild plants.

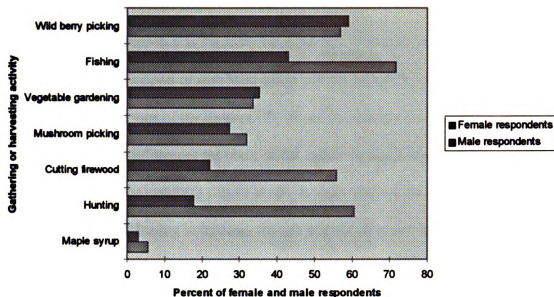


Figure 12. Percent of men and women who responded to the general household survey who conducted each gathering or harvesting activity in the past year.

Table 7. Pearson's chi-squared test for differences between men and women who conducted gathering or harvesting activities in the past year.

<i>Activity</i>	<i>Value</i>	<i>df</i>	<i>p-value</i>
Hunting	129.596	1	.000*
Fishing	61.349	1	.000*
Cutting firewood	81.049	1	.000*
Wild berry picking	.367	1	.545
Mushroom picking	1.592	1	.207
Tapping for maple syrup	2.351	1	.125
Vegetable gardening	.260	1	.610
Other gathering activities	3.843	1	.050*

* Significant at $\alpha = .05$

Tribal membership

Another comparison was made between the activities most commonly mentioned by members of the Chippewa or Bay Mills tribes and the activities most often mentioned by non-Native populations of the Eastern UP. From the oral history interviews, it was difficult to notice any differences for many of the gathering activities particularly because the sample size for tribe members was so small. It was observed that Native Americans rarely mentioned participating in farming, though it is not clear why this difference may exist. Based on results from the general survey, Figure 13 reveals the trend in participation rates between tribe and non-tribe members. Using a Pearson's Chi-square test, there was no statistically significant difference at $\alpha = .05$ of any of the gathering or harvesting activities between people who were tribal members and people who were not members of a tribe (Table 8).

Permanent and seasonal residents

In the household survey and in the interviews, differences were observed between permanent residents whose primary residence is in the Eastern UP and seasonal residents whose primary residence is outside the Eastern UP. Figure 14 compares the participation rates between seasonal and permanent residents. Based on a Pearson's Chi-square test, there were statistically significant differences at $\alpha = .05$ in the participation rates between permanent and seasonal residents for hunting, fishing, tapping trees for maple syrup, and vegetable gardening (Table 9). For these activities, permanent residents of the Eastern UP were found to have participated more in hunting, tapping for maple syrup, and vegetable gardening in the past year. In contrast, fishing was the only activity in which seasonal

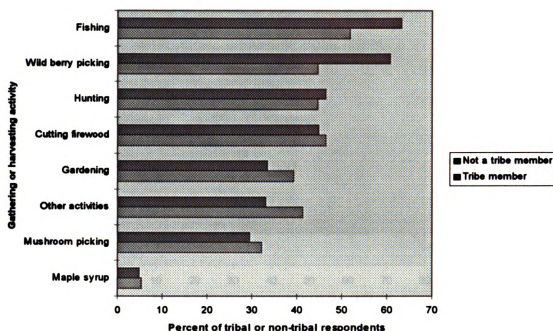


Figure 13. Percent of tribal members and non-tribal members who conducted each gathering or harvesting activity in the past year.

Table 8. Pearson's chi-square test for differences between tribe members and non-tribe members who conducted gathering or harvesting activities in the past year.

<i>Activity</i>	<i>Value</i>	<i>df</i>	<i>p-value</i>
Hunting	.065	1	.798
Fishing	2.849	1	.091
Cutting firewood	.060	1	.806
Wild berry picking	3.640	1	.056
Mushroom picking	.179	1	.672
Tapping for maple syrup	.034	1	.853
Vegetable gardening	.788	1	.375
Other gathering activities	.920	1	.338

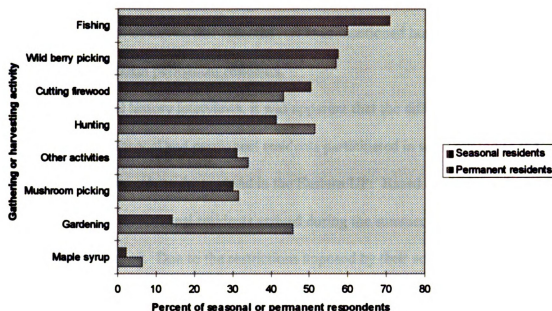


Figure 14. Percent of seasonal and permanent respondents of the Eastern UP who conducted each gathering or harvesting activity in the past year.

Table 9. Pearson's Chi-square test for differences between seasonal and permanent residents who conducted gathering or harvesting activities in the past year.

Activity	<i>t</i> -statistic	<i>df</i>	<i>p</i> -value
Hunting	6.254	1	.012*
Fishing	8.728	1	.003*
Cutting firewood	3.287	1	.070
Wild berry picking	.032	1	.859
Mushroom picking	.167	1	.683
Tapping for maple syrup	5.630	1	.018*
Vegetable gardening	68.391	1	.000*
Other gathering activities	.343	1	.558

* Significant at $\alpha = .05$

residents were significantly more likely to participate in the past year. In the oral history interviews it was also observed that seasonal residents mentioned hunting, ice fishing, and gardening less often than permanent residents.

From the oral history interviews, it was apparent that the differences in the activities in which seasonal and permanent residents participated in were related to the time of year that seasonal residents spend in the Eastern UP. Based on the interview respondents, almost all seasonal residents arrived during the summer and left before the middle of the fall season. Due to the restrictions imposed by their schedule, most seasonal residents could only gather or harvest natural resource items during the summer months. The household survey showed that seasonal residents participate in fishing—which can be conducted during the summer months—more than permanent residents. In the household survey, nearly three-fourths of the seasonal respondents stated that they fished in the past year. The oral history interviews help explain this difference. In the interviews, seasonal residents tended to be wealthier than permanent residents and much more likely to live on one of the Great Lakes and own a boat. By owning their own boat and by living in close proximity to water, seasonal residents have easier access to fishing activities than do permanent residents.

In contrast, the household survey revealed that permanent residents are more likely to hunt and tap trees for maple syrup than seasonal residents. This is primarily due to the fact that hunting and tapping trees for maple syrup are limited to the fall, winter, and early spring months when most seasonal residents are living in their permanent homes. From the oral history interviews it was also clear that although seasonal residents lived in the Eastern UP during the summer, they usually did not have vegetable gardens because the

majority of them did not remain in the UP long enough to be able to harvest their garden. In addition, the interviews showed that seasonal residents did not farm because they were not year-round residents.

County of residence

The last major category in which only permanent residents were compared was by county of residence. As revealed by the general survey, comparisons were made between the rates of participation in gathering and harvesting activities between permanent residents who live in Chippewa, Mackinac, or Luce County. Figure 15 shows the participation rates by county for each gathering and harvesting activity. A Pearson's Chi-square test revealed a statistically significant difference at $\alpha = .05$ between residents of the three counties only for wild berry picking (Table 10). In this activity, Mackinac County residents picked wild berries much less than did Chippewa and Luce County residents. Though it is unclear why this difference exists, the oral history interviews and focus groups suggest that residents of Luce County may participate more in gathering and harvesting activities because Luce County is more rural than the other two counties and the residents may have fewer recreational opportunities away from the natural environment.

As one student in Luce County stated, *"If you don't like to hunt or fish...there is not a lot to do."* In the oral history interviews, few differences between major gathering and harvesting activities were observed between Chippewa, Mackinac and Luce Counties, except that people in Chippewa County mentioned farming at some point during their lives more so than people from Mackinac County and particularly Luce County.

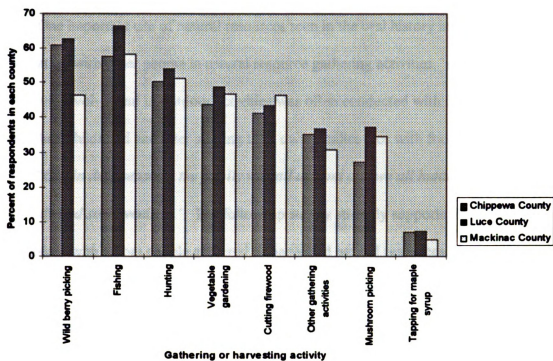


Figure 15. Percent of respondents from Chippewa, Mackinac, and Luce Counties who participated in each gathering or harvesting activity in the past year.

Table 10. Pearson's Chi-square test for differences by county of participation in gathering and harvesting activities in the past year.

<i>Activity</i>	<i>Value</i>	<i>df</i>	<i>p-value</i>
Hunting	.451	2	.798
Fishing	2.738	2	.254
Cutting firewood	1.138	2	.566
Wild berry picking	10.888	2	.004*
Mushroom picking	4.597	2	.100
Tapping for maple syrup	1.062	2	.588
Vegetable gardening	.886	2	.642
Other gathering activities	.767	2	.681

* Significant at $\alpha = .05$

Participation together and sharing:

One important use of natural resources seen in the oral history interviews is the participation with other people in natural resource gathering activities. As observed in the interviews, involvement in outdoor activities was often conducted with family members—during their childhood and after starting their own families—or with friends. As one man stated, *“Oh, in deer season...the family was all around and we all hunted together and everybody had some venison.”* The follow-up survey strongly supports this finding. When asked with whom people gathered or harvested natural resources, the top two responses were children and grandchildren or friends (Figure 16). This finding was quite consistent for all types of gathering or harvesting activities.

Not only did people participate together in natural resource gathering and harvesting activities, many people also shared those items with other people. Forty-five percent of the interview respondents shared gathered or harvested items with other people during their lives. According to these interviews, people shared these items primarily with immediate family members and often with close friends. After noting how much her husband enjoys gardening, one woman in Luce County stated, *“I have a daughter in Marquette that...gets some of the vegetables, too. She possibly doesn’t buy any potatoes because when she come home, we [give her some].”* The follow-up survey reveals a somewhat different pattern of natural resource sharing. Responses to the follow-up survey revealed that Eastern UP residents tended to give away gathered and harvested natural resource items primarily to friends and often to other relatives and parents or grandparents (Figure 17). The gathering follow-up survey also showed that Eastern UP

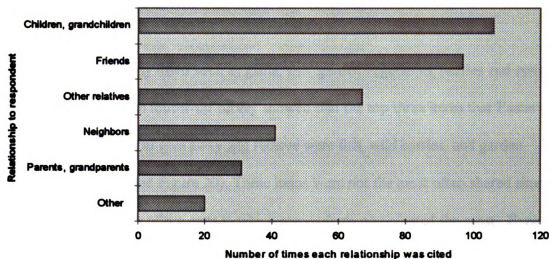


Figure 16. People with whom Eastern UP respondents gathered or harvested natural resources in the past year.

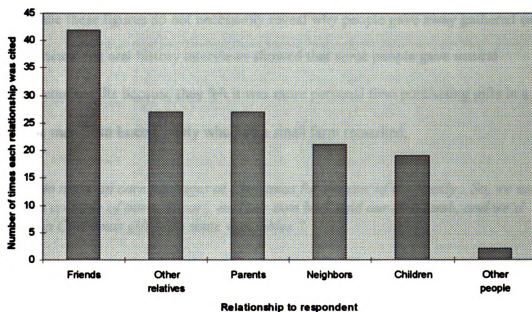


Figure 17. People to whom Eastern UP respondents gave away gathered or harvested items in the past year.

respondents tended to receive gathered or harvested items from friends and neighbors (Figure 18).

People gave away items such as game, fish, garden vegetables, berries and syrup for several reasons. The follow-up survey showed that the top three items that Eastern UP respondents tended to give away and receive were fish, wild berries, and garden vegetables (Figure 19 and Figure 20). These items were not the most often shared simply because they were some of the ones in which respondents participated the most. Even when the number of people who participated in each gathering or harvesting activity was taken into consideration, it was clear that people who gardened, picked wild berries, and fished tended to give away the most natural resource items (Figure 21). In these figures, “other gathered items” included rocks, apples, herbal teas, leeks, pine trees, and other wild plants.

While these figures do not necessarily reveal why people gave away gathered or harvested items, the oral history interviews showed that some people gave natural resource items as gifts because they felt it was more personal than purchasing gifts in a store. One man from Luce County who had a small farm remarked,

“We used to make up care packages at Christmas for the rest of the family...So, we used to package up some of our own pork, and our own beef, and our own lamb, and we’d make it as a Christmas gift, with some vegetables.”

Other people simply enjoyed participating in the activity so much that they continued to do so even though they could not consume all they obtained. When they

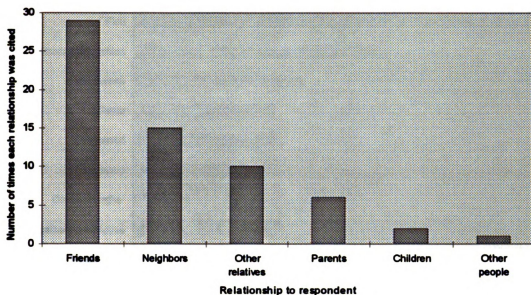


Figure 18. People from whom Eastern UP respondents received gathered or harvested items in the past year.

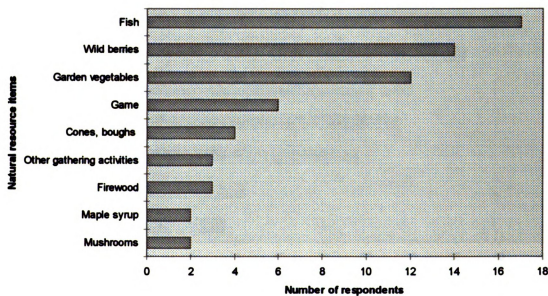


Figure 19. The number of Eastern UP respondents who gave away certain natural resource items in the past year.

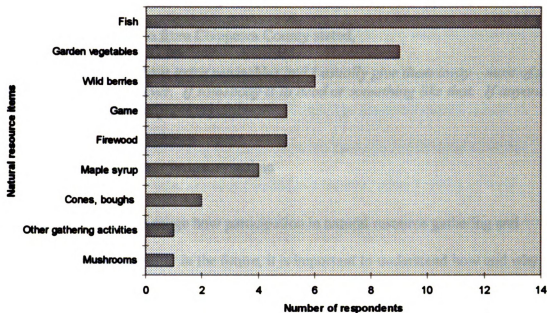


Figure 20. The number of Eastern UP respondents who received natural resource items in the past year.

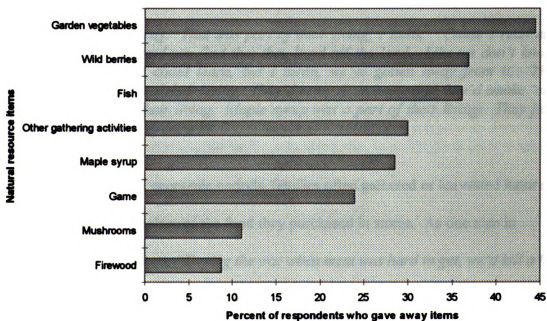


Figure 21. Percent of Eastern UP respondents who gave away natural resource items in the past year as a function of the number of people who participated in each gathering or harvesting activity.

gathered or harvested more than they were able to consume, they gave away the remainder. As one couple from Chippewa County stated,

“Every year we always have extra vegetables and I usually give them away—most of the time [to] friends or whoever. If somebody is in need or something like that. If anyone approaches us, they usually get vegetables.”

4.3 Trends in natural resource use over time

In order to better gauge how participation in natural resource gathering and harvesting activities may alter in the future, it is important to understand how and why participation in those activities have changed in the past. In general, the oral history and focus group interviews revealed that natural resources were often sold for household income in the past. When discussing what items his parents gathered and harvested in the past, one man remarked,

“Everybody [berry picked]. That was part of their living, I think. ‘Cause I read my grandfather’s journals and you find that they lived off the land. Like we don’t know how to do. I think we could learn, but I mean, we’ve gotten away from it. The suckers—that was a part of their living...They’d bring them home and they’d smoke ‘em and that was a part of their living. Maple syrup was a part of their living. They just lived off the natural resources a lot.”

Particularly during tough economic periods, families often gathered or harvested natural resources in order to supplement the food they purchased in stores. As one man in Chippewa County described, *“During the war when meat was hard to get, we’d kill a lot of deer.”* Another man from Chippewa County expressed a similar view on tough times in the past when he declared, *“Always had a garden. Always. Yeah, if you wanted to eat in the wintertime, you better have that garden.”*

One clear trend over time is a decline in the selling of natural resources for household income. Although residents no longer sell natural resources to the extent that their families did in the past, some people believed that they saved money by gathering items instead of purchasing them. In general, though, the economic aspect is less important today than it was during the past. Because participation in these activities became less necessary in order to sell for household income, other benefits of these gathering activities such as participation with family members, enjoyment of the outdoors, or values for working outdoors have become proportionally more important today than they were in the past. This observation was also noted in Alaska where increased participation in wage employment was not shown to result in decreasing participation in subsistence activities because participation in those activities continued to impart benefits to the Alaskan residents (Kruse 1991).

Throughout their lives Eastern UP residents have participated in natural resource gathering activities for a variety of reasons including for recreation, sharing, for a feeling of self sufficiency, for household income and so forth. Even though today many people did not have to sell natural resources for household income, they still participate in these activities because these activities remain important to them. One member of the Bay Mills tribe commented on this trend when she noted, *"My father is the oldest of 14 kids and so back then, he had to pick the berries. They don't have to do it now but they enjoy doing it, you know."*

Trends in gathering and harvesting activities:

This section will outline the major trends in resource use for the most frequent gathering and harvesting activities as described through residents stories of different stages in their lives. These trends—which were observed in both the oral history and focus group interviews—can help reveal why their participation in an activity may have increased or decreased during their lives. While people continued to participate in certain activities the same amount throughout their lives, they participated in other activities differently today than during the time when they were children. Activities which seemed to experience little change in participation throughout the lives of these respondents included hunting, berry picking, gardening, and mushroom picking. For instance, based on the conversations of these residents, people have continued to deer hunt perhaps in part because they believe that there is a larger deer herd today.

While actual participation in some activities does not appear to have altered much, the method of participation or reason for participation has sometimes changed. For example, though berry picking has continued today, as residents grew older some decided to pick berries on farms because they are easier to pick than wild berries. While some people sold wild berries for money as a child, not one person mentioned selling berries as an adult. Instead, people picked berries for recreation and household consumption. Gardening was another activity that appears to have altered little over time, although some people acknowledged that today it is much easier, and perhaps also cheaper, to drive to the grocery store and purchase vegetables. Likewise, mushroom picking is an activity that appears to have changed little over time. The reasons why people participated in this activity in the past remain the same today. Neither in the past nor today did any

respondent mention picking mushrooms for any other reason than for household consumption and recreation.

Because few people tapped trees for maple syrup or picked apples, there is no clear trend in resource use over time for these two activities. Though it was not possible to sense whether tapping trees for maple syrup and apple picking revealed a sharp decrease or increase in participation, people continued to participate in these activities because they enjoyed them.

Several activities such as fishing, burning wood, farming, and trapping showed a decline in participation since childhood. The amount of people who fish today seems to be strongly influenced by the general belief that fish populations have sharply declined in the past 20 years. To understand the changes in participation in fishing, it is necessary to understand people's perceptions about the decline in fish populations. In the past, people declared that fish were abundant. One man from Neebish Island described it this way,

"Oh, down at the farm there at Winter Point in them days, you could go out in the evening just before supper time and you throw your line in the water and [fish] would almost bite a bare hook. Yeah. The perch, rock bass, maybe in June you would have the small mouth [bass], pickerel—you wouldn't know what you might bring up, that's the truth."

Today, people were nearly unanimously of the opinion that fish populations have declined. Of the people responding to the household survey that had an opinion on whether or not fishing quality had changed in the Eastern UP over the past five years, 77% of the respondents believed that fishing quality had declined, while 21 % felt that it had remained the same and 2 % believed that fishing quality had increased. When asked about what concerns people had for the future of their county, respondents in 47 % of the interviews asserted that the decline in fish populations in the Great Lakes and in inland

streams was a major concern. One man from Chippewa County declared, *"When I was a kid, we used to get fish like crazy. I can go to the same local area and the same bays now and not catch a thing."* Suggestions for the decline in fish included reasons such as increased netting by Native American commercial fishing, the planting of salmon by the Department of Natural Resources in the mid 1980s, and predation by cormorants. This decline in fish populations has had an impact on participation in fishing itself. Because people have a more difficult time catching fish, people often obtained less enjoyment from fishing than they did in the past. As one man commented, *"As a kid, we did quite a bit of fishing—my father and a couple of my brothers—we would fish quite often."* When then asked if he continued to fish today, he stated, *"No, [short laugh] I haven't caught a fish in Chippewa County yet...so I haven't fished."* Because of this decline in fish, people who otherwise would continue fishing for household consumption, no longer expect to be able to do so in the Eastern UP. One father in Mackinac County mentioned that though he loved fishing, he had not really enjoyed introducing his children to fishing when they were young because they would all sit in their boat for two hours without getting even a bite. Though that scenario came up more and more frequently when fishing, it was clear that this father was accustomed to being able to catch fish.

Though residents mentioned that there were more salmon due to the planting of salmon by the DNR, many of these residents resented the planting because they could not afford the expensive equipment that was necessary to catch salmon. Many believed that the planting of the salmon benefited the wealthier residents and visitors at the expense of the average Eastern UP fisherman. One man from Chippewa County voiced this opinion when he stated, *"In order to fish salmon you have to have a big boat, you've gotta have*

down riggers, you've gotta have a lot of special equipment and everything." Many residents also commented that they take trips to other locations in order to be able to catch fish. One man who traveled elsewhere remarked, *"Yeah, I fish. We either go down to Port Austin or we go to Canada and fish. There's no fish around here."*

Burning wood was another activity that was found to decline slightly. Overall, people appeared to be less likely to burn wood because it was hard work and messier than oil or gas heat. As observed in the oral history interviews, because of the difficulty in cutting wood, those who continued to burn wood throughout their lives were more likely as they became older to start purchasing wood instead of cutting it.

A decline in farming was the clearest trend in any natural resource gathering and harvesting activity. People unanimously agreed that farming was declining in the Eastern UP. While farm products continued to be used for household consumption and income, what farms still remained were having greater difficulty staying in business. One farmer from Chippewa County described this trend when he stated, *"I remember back in the 50s in this three mile block right here there was 23 guys milkin' cows...23 in a 3-mile block. Today, there's two of us."*

People often mentioned the high cost of farming equipment and feed coupled with the low prices for farm products as the two main reasons why farmers are going out of business. Indeed, the high costs and low prices were often mentioned by people when they were asked about what events had impacted their county. One farmer who owned a feed store remarked, *"Right now, with the price of grain and everything, they just can't make it here. We've had two of our customers in there have sold out this spring."* As a result of this change in the economics of farming, small family-run farms became

particularly difficult to continue. What farms did remain grew larger in order to obtain economies of scale. Farmers who can not afford to continue farming are selling off their land to developers in places where property values are high or abandoning it and letting it revert to brush in areas where property values are low.

As stated earlier in the discussion of the literature, “subsistence farming” traditionally refers to a farmer who consumes most of what he produces and sells little in the market. Based on this definition, there currently appears to be very little subsistence farming in the Eastern UP because people state that the farms are declining and only the largest farms survive. In particular, people have stated that the traditional, small, family-run farms have disappeared. In the past, the family farms that owned a few livestock would be more likely to be considered “subsistence farmers.” Today, based on the contention that large-scale farming operations have increased, these farms would no longer be classified as a subsistence activity according to the literature.

Trapping was another activity that showed a clear decline in participation throughout life, particularly because the price of pelts has declined. Some decline in trapping of particular species has occurred due to changing regulations and the fact that certain wildlife species such as coyotes no longer have a bounty. Those who did continue to participate throughout their lives were doing so for recreation and enjoyment.

One man from Chippewa County remarked, *“Muskrats, mink, fox...In fact, I trap every year, even today. More just a hobby, today, cause they’re not worth nothing anymore.”*

The trends for specific gathering and harvesting activities reveal an overall decline in the use of natural resources for subsistence over time. Perhaps because of this decline in gathering and harvesting natural resources for income, activities such as trapping have

also shown a particular decline over time. For instance, due to the nature of the activity, people traditionally participated in trapping more so for household income than for household consumption or recreation. Trends in participation as observed in the oral history interviews reveal that trapping is an activity in which people rarely participate in today perhaps because income generation is no longer as important for these residents.

More specifically, these finding also show that in the past gathering and harvesting of natural resources appeared to be more necessary for household consumption than they are today. People participated in subsistence activities more so in the past because it was essential for their basic survival. While the use of gathering and harvesting activities for household income has declined, the use of natural resources solely for household consumption has increased. These trends share many similarities with studies on subsistence activities in rural Alaskan communities. With increasing modernization, a decline in resource use over time was found in studies of rural Alaskan communities (Kruse 1991). These trends are also consistent with the pattern found by Glass et al. (1995) who noted that due to the increase in wage employment opportunities, subsistence activities in Alaska today are more often solely used to supplement household income instead of providing the main source of income for the household. Likewise, Eastern UP residents today do not use natural resource gathering and harvesting activities as a sole source of income.

4.4 Importance of natural resource use

The importance of being able to conduct natural resource gathering and harvesting activities was revealed through the oral history and focus group interviews and the follow-

up survey. In the interviews, the ability to gather and harvest natural resources was often cited as one of the main reasons why people who lived in the Eastern UP did not wish to move elsewhere.

When survey respondents were directly asked the importance of gathering or harvesting natural resources, the predominant response was that it was somewhat important, followed by very important, little importance, and not at all important (Figure 22). This feeling of importance varied by the gathering or harvesting activity in which residents participated. People who hunted and fished placed the most importance on gathering that item, while people who participated in other activities placed somewhat less importance on gathering those natural resources (Table 11). Some of the activities that were considered to be the most important for Eastern UP residents such as hunting and fishing were also activities in which these residents participated the most. In contrast, although berry picking and collecting firewood were the second and fourth most commonly gathering activities in the household survey, Eastern UP residents tended to cite these activities as only “somewhat important” to their lives.

For the remaining analysis on the importance of natural resource gathering activities, data was obtained from the oral history and focus group interviews. In these interviews, the importance of gathering and harvesting activities was observed through people’s descriptions of those activities, their descriptions of what they liked best about their county, their ideal image of the future, and their concerns for the future of their

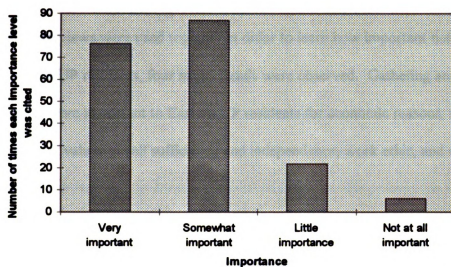


Figure 22. Importance of gathering natural resources for Eastern UP respondents.

Table 11. The importance of gathering and harvesting natural resource items. Values indicate the percent of respondents who cited the activity as important.

<i>Importance</i>	Natural resource items						
	<i>Game</i>	<i>Fish</i>	<i>Wild berries</i>	<i>Wild mushrooms</i>	<i>Maple syrup</i>	<i>Firewood</i>	<i>Garden vegetables</i>
Very important	51.7	45.5	21.6	25.0	33.3	37.9	47.4
Somewhat important	37.9	36.4	62.2	41.7	33.3	48.3	47.4
Little importance	10.3	13.6	13.5	25.0	0	10.3	5.3
Not at all important	0	2.3	2.7	8.3	33.3	0	0

counties. When responses to these questions from both oral history interviews and focus group interviews were used together in order to learn how important natural resources are to Eastern UP residents, four major trends were observed. Gathering and harvesting activities were important to Eastern UP residents for economic reasons, recreation, social ties and for values of self sufficiency and independence, work ethic, and relationship with nature.

Economic importance of natural resource use:

Though the importance of gathering natural resources in order to sell for household income has been seen to decline throughout the lives of Eastern UP residents, many residents believed that gathering and harvesting natural resources helped their households save money. In the follow-up survey, “to save money” was the fourth most common reason why Eastern UP respondents gathered natural resources. In particular, cutting firewood, vegetable gardening, and trapping were more likely to be conducted by Eastern UP respondents in order to save money than were other activities. Especially in the past, residents supplemented their diet with food obtained from fishing, hunting, gardening, farming, and berry and apple picking. One woman’s comment “*we used to live on fish and venison*” was often repeated by Eastern UP residents. One woman who grew up in a family of 13 children remarked that her parents managed to support all of them by “*hunting, fishing, and picking berries.*”

Gardening and farming were important means for saving money by growing and raising their own food instead of purchasing vegetable and meat products from grocery stores. One couple who estimated that they had grown “*probably a ton*” of potatoes the

previous summer commented, *“With potatoes you keep around, [it’s] enough that we use what’s left for seed the following year. I don’t think we’ve bought potatoes for...ten years [or] longer.”*

Fishing was also an important means of obtaining food for the family. When asked about whether she fished as a child, one tribal member alluded to the fish decline when she replied, *“We had fish for breakfast, lunch and dinner...We grew up on fish and I still love it. Now it seems like it is a delicacy.”* The importance of fish in their diet during their childhood and as young adults helped contribute to the disappointment people felt towards the decline in fish populations. The decline in fish populations has strongly impacted the ability of Eastern UP residents to continue fishing to feed their families today and in the future.

The ability to use wood from their own land may also play an important economic role in the lives of Eastern UP residents. Some residents obtained wood for building from their own woods. In this way, they could perhaps reduce their construction costs and save money by not purchasing the lumber elsewhere. Other people cut and burned their own wood in order to save money on heating bills. For example, one man in Chippewa County described his decision-making process, *“I went electric and the fuel oil [price] came down and electricity went up, so I started burning wood.”*

Understanding the use of gathering and harvesting activities from oral history and focus group interviews is important in obtaining an overall understanding of the use of that resource. For instance, because secondary data reveals that natural resource-based industries “play a minor role” in the employment of Eastern UP residents (McDonough et al., in preparation), one may believe that the resources do not play an important role in

household dependency. Though direct employment in these industries may not be high, the oral histories have shown that people depend on natural resources in many other ways. Being able to obtain firewood from their own woodlots may play a role in household savings, particularly in a climate where heat is needed several months of the year.

While residents of the rural Eastern UP do not use natural resources in order to sell for household income to the extent that their predecessors did, it is clear that continued use of these natural resources still hold economic importance in their lives. Though gathering and harvesting activities are mainly used for household consumption instead of household income, the use of gathered or harvested natural resources can help a household save money. Particularly in the past, gardening and farming were very important means for saving money by growing and raising their own food instead of purchasing vegetable and meat products from grocery stores.

Recreational importance of natural resource use:

Both in the past and today, a major reason why people participated in gathering and harvesting activities was for recreation. Fishing is one of the most important sources of recreation for Eastern UP residents. When asked whether he hunted and fished when he was younger, one man from Chippewa County said, *"That was entertainment. There was no TV or nothin' when we were growin' up...between fishing and huntin' in the fall and trapping."* In fact, the importance of fishing to Eastern UP residents was revealed through the responses to many other questions. Fishing was the second most commonly mentioned response when people were asked why they wanted to move to the UP in the oral history interviews. For nearly a quarter of the people who did not originate from the

Eastern UP, fishing was a major reason why they came to the area. One man who moved up 36 years ago declared, *"I loved to fish. That is probably one of the things that got us up here. When we came up here the fishing was excellent. Excellent plus."* Another man who moved to Mackinac County ten years ago was first introduced to the Eastern UP through fishing trips. He noted, *"We used to come up and go camping—we had a smelt dipping time which is right now. We used to come up and camp over by Carp River and spend the weekend out there and just generally have a good time."*

The importance of fishing for recreation was also revealed through responses to other questions in both the oral history and focus group interviews. Cited in 21% of the interviews, fishing was also considered one of the top favorite characteristics that people liked about their county. When asked what he liked best about Chippewa County, one man answered, *"Fishing and hunting and there is everything we want to do. If we didn't like it we'd get out of it. But there is everything we like to do."* Fishing is also closely related to residents' favorite characteristic of their county—water. Respondents in nearly 50% of the oral history and focus group interviews stated that the proximity of the Great Lakes and the numerous inland lakes and streams was the characteristic that they liked best about their county. One fisherman stated, *"And if you want to go fishing in the river, you don't have to drive a hundred miles to get there. There's a lake anyplace in the UP within 10 miles of you."*

Recreation was also a major reason why respondents participated in many other gathering activities such as gardening, cutting wood, picking wild berries, apples, and mushrooms. In particular, gathering wild berries, apples, and mushrooms were primarily done for recreation only because it is difficult to pick enough of these items in order to

have a large impact upon savings. While harvesting activities such as gardening and cutting wood were more useful in saving money, recreation still remains a major reason why some people participated in those activities. A man in Chippewa County remarked,

"We've had a garden. Yeah, always had a garden. It's somethin' you always do—you just do it...I'm sure if you figured up the time and effort and the expense and all of that, you'd be further ahead to go to the store and buy it, but there's nothing. I like to go out in the garden with a jackknife and a salt-shaker and pick a cucumber and peel it right there and eat it right there."

As this last statement reveals, many residents continued to participate in gathering activities because they enjoyed them even though they claimed that they did not need to conduct the activity. One man in Luce County expressed this opinion when he commented, *"Oh, I like to go out there. I cut wood out there. I got two winters of wood cut out there. I don't need that wood. I got enough—I get by with plenty of gas. But I do it for, you know, people do things in their life that they like to do."* Through these statements people reveal the importance of conducting those activities simply for the enjoyment that they obtain from participation. One man from Luce County mentioned the importance of subsistence activities when he stated,

"I guess one thing I like the most [about the county] is the fact that it's a rural setting and not an urban one and that there aren't crowds...You've got some land where you can go out and hunt and fish and enjoy outdoor recreation and not feel pressure. That's one thing I really like about the area. [That's] very important. I think that's why I live here. I don't think it would be worth it without it."

Perhaps more so than for Alaskan natives, recreation plays a major role in the reasons why residents of the Eastern UP continue to gather and harvest natural resources today. Because they enjoyed conducting the gathering and harvesting activities, residents

frequently commented that they would continue to participate even though many of them realized that it may be easier or even cheaper to purchase the item in stores.

Importance of social ties:

Another common theme that often arose was the importance of the ties that developed between people due to these gathering and harvesting activities. People socialized with others by sharing those gathered and harvested items with other people and also through participation together in natural resource gathering and harvesting activities. One important result of subsistence activities are the ties that form due to the sharing of gathered or harvested items. As described earlier, respondents in 45% of the oral history interviews mentioned sharing food and other items, particularly with immediate family members, throughout their lives. Another important result of these gathering or harvesting activities is the quality of the time that people spend participating together which has been shown to be an important aspect in the formation of community. In the Eastern UP, natural resource use was highly interwoven with social time with family or friends. One man in Luce County spoke of the times that he and his wife would share together.

"And when we did have a day off we'd enjoy each other. I guess, I cut wood. Most of my projects was cut wood on the weekend. Oh, she'd go with me to cut wood. And I'd get her on the end—we didn't have power saws—we had hand saws and she'd want to cut angles and I'd say, 'We've got to cut straight across.' I'd have an awful time with her. We had fun."

In the past, people often participated in gathering and harvesting activities with family and friends. As one Native woman described, *"We'd pick needle nuts, while we*

were picking berries...It was a family event and we 'd take a lunch and then we wouldn't leave until we filled up our coffee can with blueberries." While some people discussed participating in gathering activities with other people in the past, many residents also continued to participate in these activities with others today. Another Native American woman spoke of berry picking with her daughter. She noted, *"Not that we got a lot of berries, but it's the experience that counts. It is not how many berries we got...maybe we'd get enough for one time and go home and bake the pie just for the heck of it."*

In addition, as shown earlier, one of the top three reasons in the follow-up survey for gathering and harvesting natural resources was in order to spend time with other people (Figure 11). When describing their childhood in the oral history interviews, people often mentioned gathering items with their parents. When relating stories during adulthood, people most often described participating in gathering activities with their children or sharing their gathered items with their children. In contrast to the oral history interviews, the follow-up survey found that gathering and harvesting activities were primarily conducted with friends (Figure 16).

Hunting and fishing were also activities that were very important in bringing people together. One man in Mackinac County described hunting season in the UP. He observed, *"[It's] real social. I mean, you got together and we had friends from downstate and they would come up here every year. It was a really big time—hunting season was really a big highlight of the year."* Some people used participation in natural resource gathering activities as an opportunity to pass on certain values and ideals to their children. When one man was asked whether he hunted and fished with his one son, he answered, *"Yeah, yeah. See I spent a lot of time with 'em...teach 'em all I know...That*

way he don't learn that garbage off the street that's no benefit to him or anybody else. And he enjoys [hunting and fishing]."

Importance of values:

One of the most common trends revealed through these interviews was the importance of gathering and harvesting natural resources in fulfilling important values for these Eastern UP residents. Values for a strong work ethic, self sufficiency and independence, and a relationship with the natural environment were often mentioned in conjunction with participation in gathering and harvesting activities.

In particular, many people felt that farming helped to create a strong work ethic. Because of this, though people understand why farming was declining, they all expressed disappointment with that trend. People were saddened by the farming decline mostly because they felt that farming was a major part of the way of life in the Eastern UP that helped teach children the importance of independence and work. A farmer from Chippewa County describes how farming helped form good habits.

"When I take a look at the good upbringing the kids have had on the farm over the years, and now I see these parents that have raised kids on the farm having to move to the city to make a living and then their kids are sitting there watching TV, getting in trouble, versus working and learning how to work."

Some subsistence activities such as farming also appeared to be indirectly important to residents. For instance, having a large percentage of farms helps keep the Eastern UP open and undeveloped. When asked what characteristics they liked most about their county in the interviews, qualities such as peace and quiet, the small population and not being crowded, and the openness and the rural nature of the area were often mentioned. In the household survey, residents were asked to indicate their three most

important values to them in their daily lives. Thirty-four percent of the respondents rated the value for “peace, quiet, and tranquillity” as one of the most important values to them—second only to “having freedom and independence” (Figure 23).

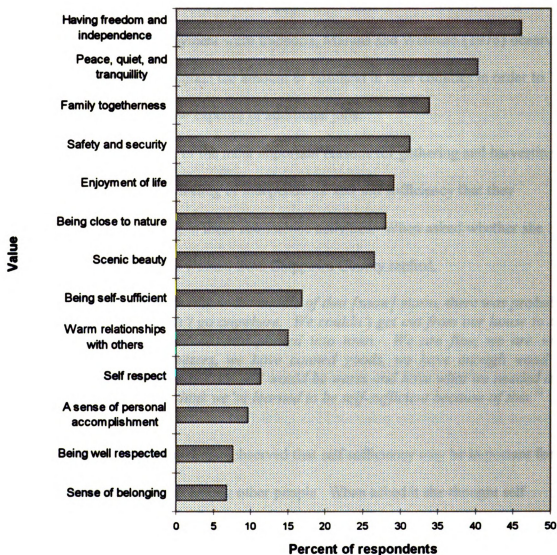


Figure 23. Percent of Eastern UP respondents in the household survey who listed the value as one of the three most important to them in their daily lives.

While farming is not directly related to these favorite characteristics and values, land kept in farming instead of being developed has contributed to some of the characteristics that people like most about their county. In this way, a loss of farmland might affect these favorite characteristics. The importance of retaining farmland in order to prevent development has also been noted in a study conducted in the northern Lower Peninsula of Michigan. When they asked a hypothetical scenario in which retaining farmland and increased employment were tradeoffs, Marans and Wellman (1978) observed that residents preferred to maintain the amount of farmland in their counties in order to hinder development even at the expense of additional jobs.

For many people, one of the most important reasons for gathering and harvesting natural resources was for the feeling of independence and self sufficiency that they obtained through participating in these subsistence activities. When asked whether she liked being self-sufficient, one woman from Chippewa County replied,

"Definitely. We know that if—like in the middle of that [snow] storm, there was probably a good week where we couldn't go anywhere. We couldn't get out from our house to the road [and] because the road was not plowed into town. We are fine, we are self-sufficient. We have full freezers, we have canned goods, we have enough wood to burn...Even if our power went out, we still would be warm and have what we needed and that's a good feeling. And I think we've learned to be self-sufficient because of this."

One Native American woman observed that self sufficiency may be important for tribal members and their status among other people. When asked it she thought self sufficiency was important, she remarked, "I think it is, because it gleans respect. I think you have to have respect for people around you and they probably think that being self-sufficient will glean them a sense of respect." While "being self-sufficient" ranked eighth

out of thirteen in the household survey, “having freedom and independence” was most often considered the most important value to them (Figure 23). In some respects, being able to gather and harvest natural resources may allow Eastern UP residents to be less dependent upon the income generated from wage employment for their daily needs.

Regardless of the specific type of gathering or harvesting activity, one of the most common threads throughout these interviews was the importance of the natural environment in general. When asked about the importance of the natural resources and the environment to him, a man from Luce County answered,

“Oh, sure. When we had the farm I used to go hunting and I would end up not hunting. I’d be looking at all the trees and the plants and different things and I would go out and walk through the woods for two hours and never actually hunt because I was too busy looking at trees and things...I think it is very important.”

In general, the type of natural resource gathering or harvesting activity was not nearly as important as the fact that these activities placed the individual in the natural environment. Many people believed that there was value in having contact with nature. In the household survey, “being close to nature” was the sixth most important value to Eastern UP residents. In addition, people who felt that being close to nature was very important participated more in certain gathering and harvesting activities. A Chi-square test revealed that respondents who listed “being close to nature” as one of their top three most important values in their daily lives were significantly more likely to gather or harvest game, fish, wild berries, wild mushrooms and firewood than respondents who had not listed “being close to nature” as one of their three most important values (Table 12).

As seen from the oral history and focus group interviews, people often participated

Table 12. Pearson's Chi-square test for differences in gathering activities between respondents who did or did not choose "being close to nature" as one of their three most important values to them in their daily lives.

<i>Gathering activity</i>	<i>n</i>	<i>value</i>	<i>df</i>	<i>p-value</i>
Hunting	839	16.425	1	.000*
Fishing	838	19.766	1	.000*
Wild berry picking	837	5.086	1	.024*
Wild mushroom picking	837	9.203	1	.002*
Tapping for maple syrup	836	1.075	1	.300
Cutting firewood	838	17.158	1	.000*
Gardening	839	.367	1	.545
Other gathering activities	481	2.015	1	.156

* Significant at $\alpha = .05$

in activities such as farming, hunting, or fishing because they simply enjoyed being outdoors. As one Native American man stated,

"I like deer hunting, but it's probably more or less being out in the woods more than anything...it's kind of interesting here to walk back in and you get to kind of know where all the hills and valleys and everything are and different cuttings and you see lots of different things out there. If you're out deer hunting, you still see fox or coyotes or just watch squirrels or something run around. I guess I like the camaraderie of hunting as much as anything."

One man from Chippewa County commented on the importance of participating in outdoor activities when he noted the changes in natural resource subsistence activities over his lifetime. *"You see all these kids run around with nothing to do and we've always had somethin' ...somethin's goin' on...you were either goin' fishing, or you're goin'*

hunting or goin' out to pick berries...you're always doin' somethin' outside." One

farmer expressed similar views as he described his feelings about the farm decline.

"I think it's sad, because I think it was one of the better places to raise a family instead of some of these other environments [where] the kids—all they learn is [to] sit down and watch TV or go out in the street and play with somebody else instead of invent something of their own like I've done. I might be wrong, but you go to the creek, you go in the woods, and you learn about other things besides running up and down the street."

4.5 Summary

Throughout their lives, residents spoke of conducting many gathering and harvesting activities such as fishing, hunting, picking wild berries, gardening, cutting and burning wood, farming, harvesting wood from their own property, picking mushrooms, tapping for maple syrup, picking apples and trapping for pelts. Residents participated in most of these gathering activities primarily because they enjoy the activity, they enjoy being outdoors, and they enjoy spending time with other people who also participate in the activity. Activities such as cutting firewood, vegetable gardening, and trapping were conducted more in order to save money than were other activities.

Some differences in participation in gathering and harvesting activities were observed between subpopulations of Eastern UP residents. Men tended to participate in hunting, fishing, and cutting firewood more than did women. No significant differences were observed in the participation rates of tribe members and people who were not members of the Bay Mills or Chippewa tribes. Permanent residents tended to participate more than seasonal residents in hunting, tapping trees for maple syrup, and vegetable gardens, while seasonal residents participated significantly more in fishing. These differences were found to be related to the time of year in which seasonal residents live in

the Eastern UP. Some differences in participation were also observed between residents of Chippewa, Mackinac, and Luce Counties. Though it remains unclear as to why these differences exist, it is possible that Luce County has higher participation in natural resource gathering and harvesting activities because of fewer opportunities for recreation elsewhere.

Interactions with other people were found to be an important aspect of natural resource gathering and harvesting activities. Eastern UP residents participated in these natural resource activities most often with immediate family members or with friends. In addition, Eastern UP residents gave away natural resource items such as fish, wild berries, and garden vegetables to close family members and close friends. Oral history interviews reveal that residents gave away items so that their gifts would be more personal and because they sometimes gathered more than they could consume.

In this study, some changes in participation in natural resource gathering activities were observed over time. While in the past natural resource items were often sold for household income, today these items are mainly gathered for enjoyment. Some trends in specific gathering or harvesting activities were also observed. Little change in participation over time was observed for hunting, berry picking, gardening, and mushroom picking, while other activities such as fishing, burning wood, farming, and trapping were found to decline through the years. Both fishing and trapping have perhaps declined primarily because the resource itself had diminished.

These findings also revealed that participation in natural resource gathering and harvesting activities holds great importance for residents of Michigan's Eastern Upper

Peninsula primarily for economic reasons, recreation, social ties and for values such as self sufficiency and independence, work ethic, and relationship with nature.

Chapter 5

CONCLUSIONS

5.1 Natural resource use and importance

These results help indicate the extent to which Eastern UP residents participate in natural resource gathering and harvesting activities and why these residents continue to participate in these activities. Natural resources are still extensively gathered and harvested in some rural areas of the lower 48 states. Other rural locations in the United States may also show such a great use of natural resource items. Although these resources are still often used in the Eastern UP, data from the Eastern UP show a decline in overall natural resource use over time. This finding was also noted in studies of natural resource use in Native American tribes in Alaska (Glass and Muth 1989). While it appears that certain activities have shown a decline, Eastern UP residents continue to participate extensively in some activities such as hunting and fishing.

The uses of natural resources for subsistence were found to be important for saving money, recreation, the generation of social ties, and the continuation of certain values important to them. The use of natural resources for economic gain is particularly important in an area such as the Eastern UP where unemployment rates are consistently higher than the Michigan average. By gathering and harvesting natural resources and becoming more self-sufficient, Eastern UP residents are less affected by large-scale economic changes such as depressions that may negatively affect their ability to earn income. Particularly in the past, the uses of natural resources for subsistence have allowed

Eastern UP residents some degree of self sufficiency and have allowed them to provide a more stable source of food and other goods during tough economic periods.

Because a high percentage of the employment opportunities in the Eastern UP is generated from only one or two industries, concerns regarding stable employment have the potential to arise more frequently in the Eastern UP than they do in metropolitan areas. The impact of a decline in these industries is therefore magnified more in the Eastern UP than in other locations that have a broader array of wage employment opportunities. This hypothesis was also suggested in Emery's (1996) study on Upper Peninsula gatherers of non-timber forest products. She noted that gathering activities were not used as a sole source of income, but instead were used to supplement household income during periods of unstable wage employment.

Due to the declining need for income derived from natural resources, the importance of gathering for recreation will probably continue to grow more important over time. As was observed in Alaska when wage employment became a more stable source of income, the importance of gathering or harvesting natural resources for recreation became more pronounced (Kruse 1991). Though the resources are less necessary for income generation, being able to participate in these activities for recreation continues to contribute positively to the daily lives of Eastern UP residents. In addition, being able to conduct gathering and harvesting activities may hold greater importance for residents of rural areas such as the Eastern UP because of the limited opportunities for other recreational opportunities that are found in metropolitan areas.

In Native Alaskan communities, Kruse (1991) showed that benefits obtained from subsistence activities such as sharing, social interaction, and enjoyment of rural living were

other reasons why subsistence activities held importance for residents. These qualities were also shown to play a role in the importance of gathering and harvesting activities for Eastern UP residents. Like studies completed on rural communities in Alaska, the findings from the Eastern UP reveal that participation in gathering and harvesting activities offers many non-economic benefits. It is important to note that Eastern UP residents continue to participate in those gathering and harvesting activities because they obtain many other benefits besides direct household income. Often, the important factor in natural resource gathering and harvesting activities was the fact that family members or friends were sharing in the experience. This finding is supported by Callaway's (1995) study of subsistence in rural Alaska where he found that participation in subsistence activities was a factor in helping to create a sense of family and community. As Wellman and Wortley (1990) noted in their study of ties in Ontario, residents of the Eastern UP most often mentioned participating in natural resource gathering and harvesting activities with immediate family members.

Though not as extensively as other subsistence societies, Eastern UP residents have in the past and continue today to share the products of their efforts with other people. Sharing natural resource items can be important in forming and strengthening bonds between friends and family members of the Eastern UP and perhaps also in helping to foster a sense of community in their area. Kruse (1986) found that participation together in natural resource gathering and harvesting activities and sharing of natural resources serve to hold a society together by promoting social interactions.

Finally, the importance of values in explaining participation in gathering and harvesting activities in the Eastern UP should not be overlooked. The values of eastern

UP residents for self sufficiency, independence, and contact with nature was observed to be interwoven with a natural resource gathering and harvesting lifestyle. In Alaska, values such as self-reliance and independence were found to be important to Alaskan residents (Glass and Muth 1989). Like Alaskan natives, Eastern UP residents spoke of the importance of gathering and harvesting natural resources for the support of many values such as a feeling of self sufficiency and contact with nature. For some people, these values may have arisen in part due to cultural factors. As one Native American woman mentioned, self sufficiency in part helps to “glean respect” from other people. Other values may have arisen in part to due social factors that had influence during childhood.

In a study of a rural community in England, Bell (1992, 1994) discovered that one of the most important reasons people chose to live in the country instead of the city was because of the ability to be closer to nature. In addition, Bell noted that being close to nature is a major component of living in the country and being able to maintain a quiet, peaceful lifestyle in a small area was important to those residents. In this way, gathering and harvesting natural resources once again can be indirectly important to Eastern UP residents. As previously discussed, Eastern UP residents mentioned peace and quiet and the openness and the rural nature of the area as some of their favorite characteristics of their county. Because increased contact with nature helps to maintain this peaceful lifestyle, being able to continue participating in gathering activities most likely implies that their favorite characteristics are maintained.

5.2 Integration of qualitative and quantitative data

Although determining the benefits of integrating qualitative and quantitative data was not the primary goal of this research project, it was observed that qualitative and quantitative data complemented each another extremely well. As stated previously, qualitative data are often used to determine the relevant variables to be studied later using quantitative methods. In this project, qualitative data were instrumental in determining with what aspects of life Eastern UP residents were most concerned. These issues were later used as variables in the household survey. Without prior knowledge of these important issues, the questions on the household survey would have had less relevance for Eastern UP residents.

The integration of these two data sources also greatly benefited the findings of this project. While results of the surveys were necessary in order to generalize findings to the entire population of Eastern UP residents, data from the in-depth interviews were invaluable for understanding the meanings behind why Eastern UP residents feel they way they do. The combination of qualitative and quantitative data sources yielded a richness to these research findings that would not have been observed if only one data source had been used. Each data source greatly enhances the results obtained from the other source. Because qualitative and quantitative data complemented each other so well, it is strongly suggested that resource managers obtain data from both qualitative and quantitative sources in order to best understand residents' opinions on natural resource issues.

5.3 Limitations of study

Data obtained from the oral history and focus group interviews of long-time permanent and seasonal residents were not designed to be generalized to the greater population of Eastern UP residents. For this reason, oral history and focus group data were used in conjunction with survey data wherever possible. Though much data still arose from qualitative interviews of long-time Eastern UP residents and community groups, this study may hold interest for members of other rural communities in the United States that may also be experiencing an increase in population from nearby metropolitan areas or other such changes. Decision-makers from those areas may be the most appropriate people for determining whether their locale holds many similarities with the Eastern UP of Michigan and thus whether these findings have interest for their own communities.

In addition, it should be kept in mind that the interviews and the surveys were done with long-term permanent and seasonal residents and not temporary visitors of the Eastern UP. In this way, this research has implied that the opinions of people who reside in the area are of greater interest than the opinions of visitors to the area. As stated before, other research stresses the need to include communities of interest in addition to communities of place (McLain and Jones 1997). Though visitors to the Eastern UP were not sampled in this study, resource managers may wish to consider these interested parties as well.

5.4 Recommendations for further study

The results from this research open up further questions, many of which may be answered by other findings from the overall multi-level Eastern UP study. Additional data from the household survey will add quantitative information on the demographic characteristics of residents who gather and harvest natural resources. By learning the quantity of natural resource items that were gathered or harvested in the past year, this survey may also help us understand how much money Eastern UP residents save by gathering and harvesting items instead of purchasing them in stores.

In addition, it would also be interesting to learn whether similar findings could be found in other rural areas of the United States or whether the Eastern UP is a unique location in terms of natural resource use. Future research should study other rural communities in the lower 48 states to learn whether they continue to participate in gathering and harvesting activities and whether those activities are as important to their lives as they are to the lives of Eastern UP residents.

Chapter 6

IMPLICATIONS

These findings hold many implications for natural resource management decisions. The importance of certain activities such as hunting and fishing were emphasized so strongly throughout the interviews that resource managers and land use planners would do well to emphasize those particular issues. Residents felt that some of these issues were already being managed fairly well. Though residents felt that hunting was important to their lives, they felt no concerns about their ability to continue hunting primarily because they believed that the deer population was quite large. Similarly, though these residents also believed that public lands are very important for them to be able to continue gathering and harvesting natural resources, residents did not have any concerns about public lands because they felt that there currently is a large amount available in the Eastern UP.

In contrast, the decline in fish populations and the decline in farming operations and the subsequent use of that farmland were two issues that concerned many residents. For instance, the frequency and the vehemence with which people spoke of the decline in fish populations helps reveal how important the quality and quantity of natural resources are to Eastern UP residents. The quantity of the fish resource was integral to their continued participation in fishing. Though they may have participated in fishing throughout their lives, some people no longer choose to fish because of the decline in fish populations. Especially considering the importance that participation in fishing was shown to have for Eastern UP residents, the quality of the lives of these individuals may have been reduced by the decline in fish.

Changes in regulations have also had an obvious impact upon the ability to continue engaging in gathering and harvesting activities. For example, perhaps in part due to legislation banning the acquisition of certain species, trapping has declined throughout the lives of these residents. By knowing the importance of these activities in the lives of Eastern UP residents, resource managers can better predict the effects of restrictions that may be applied to other gathering or harvesting activities in the future. It would be interesting to note whether or not the strength with which Eastern UP residents value freedom and independence will create difficulties with any restrictions on natural resource gathering and harvesting activities that may be imposed upon them in the future.

As Muth et al. (1987) suggested based on an Alaskan public survey, subsistence activities can help to maintain the social structure of a community by helping to create and maintain patterns of behavior. His work suggests that rapid changes in residents' abilities to continue participating in these gathering and harvesting activities may impact the social structure of Eastern UP communities. The data on the importance of gathering and harvesting activities suggest that changes in natural resources—due to a decline in resource availability, changes in management policy, or due to increased development—may negatively impact Eastern UP residents. It is therefore important for resource managers and community leaders to assess whether any of these changes have occurred or are likely to occur in the future. For instance, based on information obtained from the interviews, developmental changes due to increased migration from urban areas or increased tourism may soon impact the ability of permanent and seasonal residents to continue gathering and harvesting natural resources in a way that contributes positively to their well-being.

These findings also hold important implications for environmental groups in the Eastern UP such as The Nature Conservancy. Environmental groups should be aware of the deep meanings that gathering and harvesting natural resources hold for Eastern UP residents. From this data, it appears that Eastern UP residents may hold much in common with environmental groups members as to the importance of these resources in their lives. For this reason, environmental groups would do best to work with Eastern UP residents as opposed to using an adversarial approach which may assume that the natural environment holds little meaning for Eastern UP residents.

Resource managers can also use these results to understand the effect of setting aside natural areas in the Eastern UP. As shown by the oral history and focus group interviews, the large amount of public land in the Eastern UP is highly valued by residents in part because it allowed them greater access to land on which they could gather or harvest natural resources. In addition, especially when compared to the Lower Peninsula, the tradition of not posting 'no trespassing' signs on private property has allowed access to some of the private land in the Eastern UP. Today it appears that access to private property may be reduced by increased development and by increased posting as new residents arrive from other locations. As development and posting increases, Eastern UP residents may discover that they have fewer locations for gathering natural resource items. In light of the importance to which residents placed on having open and public land on which to gather and harvest natural resources, environmental groups which seek to preserve natural areas should strongly consider allowing public access for gathering and harvesting activities. Any large decreases in the ability of Eastern UP residents to

continue gathering or harvesting natural resources will most likely have a negative impact on the well-being of eastern UP residents.

APPENDICES

APPENDIX A

GENERAL HOUSEHOLD SURVEY

APPENDIX A- GENERAL HOUSEHOLD SURVEY



Eastern UP:
Chippewa
Luce
Mackinac

1997 Eastern Upper Peninsula Survey

We would like you as a seasonal or permanent resident to inform us about your perceptions and uses of the natural environment in the Eastern UP. We would like the adult member (18 years or older) of your household who most recently had his or her birthday to complete this survey. This survey will take you about 20 minutes to complete. Thank you for your cooperation!

Michigan State University
Departments of Forestry & Parks, Recreation, and Tourism

What is important to you?

1. The following is a list of things that people say they want out of their life. Please place a check mark next to the **THREE MOST IMPORTANT** items to you in your daily life, and also check the **THREE LEAST IMPORTANT** (making sure there are no items with both boxes checked).

	THREE MOST Important	THREE LEAST Important
Having freedom and independence	<input type="checkbox"/>	<input type="checkbox"/>
Scenic beauty	<input type="checkbox"/>	<input type="checkbox"/>
Being self sufficient	<input type="checkbox"/>	<input type="checkbox"/>
Peace, quiet, and tranquility	<input type="checkbox"/>	<input type="checkbox"/>
Warm relationships with others	<input type="checkbox"/>	<input type="checkbox"/>
Safety and security	<input type="checkbox"/>	<input type="checkbox"/>
Being close to nature	<input type="checkbox"/>	<input type="checkbox"/>
Being well respected	<input type="checkbox"/>	<input type="checkbox"/>
Enjoyment of life	<input type="checkbox"/>	<input type="checkbox"/>
Self respect	<input type="checkbox"/>	<input type="checkbox"/>
A sense of personal accomplishment	<input type="checkbox"/>	<input type="checkbox"/>
Family togetherness	<input type="checkbox"/>	<input type="checkbox"/>
Sense of belonging	<input type="checkbox"/>	<input type="checkbox"/>

2. We are interested in learning about what you think of particular characteristics of the Eastern UP (Chippewa, Luce, and Mackinac Counties). *(If you have no opinion on a certain subject, please leave the answer blank).*

- In Column A, please rate the following characteristics in terms of their IMPORTANCE to you.
- In Column B, tell us how SATISFIED you are currently with these characteristics. *(If you have no opinion on a certain subject, please leave the answer blank).*

Column A:

How IMPORTANT are these Eastern UP characteristics to you?

Very important Neutral Not at all important

Column B:

How SATISFIED are you with these characteristics in the Eastern UP?

Very satisfied Neutral Very dissatisfied

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Outdoor recreation opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Job opportunities in the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cost of living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Property taxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Crime rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shopping opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	School quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Climate and weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Health care facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Opportunities for involvement in local decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Friendliness of local residents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Access to public lands and waters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Scenic beauty of the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Please check how you believe each characteristic of the Eastern UP has changed over the past FIVE years.

	Increased	Stayed the same	Decreased	Don't know
Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishing quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to public lands & water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Population size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amount of traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seasonal home development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hotel/motel development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mall/shopping center development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harvesting trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scenic beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Please indicate your level of support or opposition for each of the following strategies for the future of the Eastern UP. (*Check one response on each line*).

	Strongly support	Somewhat support	Neutral	Somewhat oppose	Strongly oppose
Harvesting trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Processing wood products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tourism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casino gaming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attracting manufacturing firms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attracting prisons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More seasonal homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Setting aside natural areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More outdoor recreation opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attracting retirees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Local Control

5. How much power do you feel the following groups have to influence decisions that affect the natural environment in your county?

	Very high	High	Medium	Low	Very low	Don't know
Local government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Federal government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tribal government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forest and mining industries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Outdoor Activities

6. For the following list of outdoor activities, please check the activities in which **you personally** and/or **others in your household** have participated in the past 12 months.

	You personally	Others in your household		You personally	Others in your household
Camping	<input type="checkbox"/>	<input type="checkbox"/>	Wildlife watching (e.g. birds, deer)	<input type="checkbox"/>	<input type="checkbox"/>
Biking	<input type="checkbox"/>	<input type="checkbox"/>	Cutting firewood	<input type="checkbox"/>	<input type="checkbox"/>
Off road vehicles	<input type="checkbox"/>	<input type="checkbox"/>	Wild berry picking	<input type="checkbox"/>	<input type="checkbox"/>
Boating (including jet skiing)	<input type="checkbox"/>	<input type="checkbox"/>	Mushroom picking	<input type="checkbox"/>	<input type="checkbox"/>
Swimming	<input type="checkbox"/>	<input type="checkbox"/>	Tapping for maple syrup	<input type="checkbox"/>	<input type="checkbox"/>
Cross country skiing	<input type="checkbox"/>	<input type="checkbox"/>	Planting trees	<input type="checkbox"/>	<input type="checkbox"/>
Downhill skiing	<input type="checkbox"/>	<input type="checkbox"/>	Vegetable gardening	<input type="checkbox"/>	<input type="checkbox"/>
Skating, sledding, snowshoeing	<input type="checkbox"/>	<input type="checkbox"/>	Flower gardening	<input type="checkbox"/>	<input type="checkbox"/>
Snowmobiling	<input type="checkbox"/>	<input type="checkbox"/>	Other _____	<input type="checkbox"/>	<input type="checkbox"/>
Hunting	<input type="checkbox"/>	<input type="checkbox"/>			
Fishing	<input type="checkbox"/>	<input type="checkbox"/>			
Wildlife feeding (excluding baiting)	<input type="checkbox"/>	<input type="checkbox"/>			

7. Please list your 3 favorite outdoor activities. Indicate which type of land you usually use for this activity (*Please check only one box for each activity*):

Outdoor Activity:	usually on public land	usually on my own land	usually on other private land
A. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Where You Live

8. Where is your legal permanent residence (homestead)?

City/Township _____ Zipcode _____

9. Is your principal homestead/residence located in the Eastern UP? (*Chippewa, Mackinac, or Luce counties*)

☐ Yes (please go to question 10) ☐ No (please skip to question 15)

10. Do you own or rent this residence? ☐ Own ☐ Rent

11. Which of the following best describes this residence?

☐ House ☐ Apartment ☐ Cabin/Cottage ☐ Condominium
☐ Mobile Home/Trailer ☐ Other _____

12. Please describe your residence's setting in the Eastern UP (*check all that apply*).

☐ Small city ☐ Great lakes waterfront ☐ Forest setting
☐ Small town/Village ☐ Inland lakes waterfront ☐ Adjacent to public land
☐ Rural area ☐ River or stream frontage

13. How long have you been a resident of the Eastern UP?

☐ Less than one year ☐ 6-10 years ☐ 21-30 years ☐ All my life
☐ 1-5 years ☐ 11-20 years ☐ Over 30 years

14. How likely is it that you will move away from the Eastern UP within the next 5 years?

☐ Very likely ☐ Somewhat likely ☐ Somewhat unlikely ☐ Very unlikely

15. Do you own a second home or cottage either in the Eastern UP or elsewhere?

(A second home also includes hunting camps, cabins, condominiums, and trailers)

☐ Yes (please go to question 16) ☐ No (please skip to question 18)

16. Where is this second home located?

City/Township _____ Zipcode _____

17. Which of the following best describes this residence?

- ☐ House ☐ Apartment ☐ Cabin/Cottage ☐ Condominium
☐ Hunting camp ☐ Mobile Home/Trailer ☐ Other _____
-

18. Do you own one or more parcels of undeveloped land in the Eastern UP? Yes No
☐ ☐

19. If yes, approximately how many acres is this land?

- ☐ < 1 acre ☐ 1-5 acres ☐ 6-10 acres ☐ 11-20 acres ☐ > 20 acres

About You

20. Are you: ☐ Male ☐ Female

21. Your age group:

- ☐ 18-24 ☐ 45-54 ☐ 60-64 ☐ Over 75
☐ 25-44 ☐ 55-59 ☐ 65-74

22. In which type of residential setting did you grow up as a child/teenager?

- ☐ Large metropolitan area ☐ Small city ☐ Small town/Village ☐ Rural area
(incl. suburbs)

23. Educational status

- ☐ Less than 9th grade ☐ Associate's degree
☐ Some high school ☐ Bachelor's degree
☐ High school graduate ☐ Graduate or professional degree
☐ Some college

24. Are you or anyone else in your household retired? ☐ You ☐ Others

25. If you are not retired, in the past twelve months, were you

- ☐ all year full-time employed ☐ all year part-time employed ☐ seasonally employed
☐ unemployed, seeking work ☐ changing employment status ☐ Other _____

26. Indicate the number of *other* household members in the following age groups on each line (count only persons currently living with you). Please do not include yourself.

<5 5-17 18-24 25-44 45-54 55-59 60-64 65-74 >75

27. Indicate the number of individuals living in your household (including yourself) who hold the following kinds of jobs.

Forest-related Mining Commercial fishing Tourism-related
(e.g. hotels, restaurants)

28. Please check the category that best describes your 1996 total household income.

☐ Under \$15,000 ☐ \$25,000-34,999 ☐ \$50,000-74,999 ☐ Over \$100,000
☐ \$15,000-24,999 ☐ \$35,000-49,999 ☐ \$75,000-100,000

Thank you for participating in this survey! Please return the completed survey by mail in the enclosed, postage-paid business reply envelope.

APPENDIX B

GATHERING AND HARVESTING FOLLOW-UP SURVEY

APPENDIX B- GATHERING AND HARVESTING FOLLOW-UP SURVEY



Eastern UP:
Chippewa
Luce
Mackinac

Outdoor Gathering Activities

Thank you for completing the Eastern Upper Peninsula survey sent to you earlier this year! We would like to ask you some additional questions about the outdoor gathering activities that you do in the Eastern UP. Please have the same member of your household complete this survey as did the last one. This survey should take approximately 15 minutes to complete.

Thank you for your cooperation!

Your Outdoor Gathering or Harvesting Activities

1) Please indicate what items you personally and other people who live in your house have gathered or harvested in the past 12 months in the Eastern UP. Do not include items you have gathered as part of your occupation (for example, if you are a farmer, commercial logger, or commercial fisherman).

	You personally (check all that apply)	Other people in your house (check all that apply)
Game	<input type="checkbox"/>	<input type="checkbox"/>
Fish	<input type="checkbox"/>	<input type="checkbox"/>
Pelts	<input type="checkbox"/>	<input type="checkbox"/>
Wild berries	<input type="checkbox"/>	<input type="checkbox"/>
Mushrooms	<input type="checkbox"/>	<input type="checkbox"/>
Maple syrup	<input type="checkbox"/>	<input type="checkbox"/>
Wood (e.g. firewood, building materials)	<input type="checkbox"/>	<input type="checkbox"/>
Garden vegetables	<input type="checkbox"/>	<input type="checkbox"/>
Medicinal plants	<input type="checkbox"/>	<input type="checkbox"/>
Boughs, cones, or other craft materials	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>

#2) In the blanks next to Item 1, 2, 3, 4, please list the four most important gathering or harvesting items to you and other people living in your house that you checked in the previous question.

Next to “quantity”, please write in your best estimate of the amount of the item that you have obtained in the past 12 months from the Eastern UP. *(Use any unit such as quarts, pounds, cords, etc. that is associated with the item and please indicate the units that you are using)*

Then, please answer the questions below each item.
An example is shown in the shaded portion.

Item 1.	<u>hunting</u>	Quantity obtained	<u>1 deer, 4 ducks</u>
WHY do you gather this item? <i>(check all that apply)</i>	IMPORTANCE of gathering this item to you? <i>(check only one)</i>	WITH WHOM have you gathered this item? <i>(check all that apply)</i>	
<input type="checkbox"/> To save money <input type="checkbox"/> To be self-sufficient <input type="checkbox"/> Enjoy the activity <input type="checkbox"/> To be outdoors <input type="checkbox"/> Spend time with others <input type="checkbox"/> Sell for income <input type="checkbox"/> Give away to others <input type="checkbox"/> Can't buy item in stores <input type="checkbox"/> Other _____	<input type="checkbox"/> Very important <input type="checkbox"/> Somewhat important <input type="checkbox"/> Little importance <input type="checkbox"/> Not at all important	<input type="checkbox"/> Parents, grandparents <input type="checkbox"/> Children, grandchildren <input type="checkbox"/> Other relatives <input type="checkbox"/> Friends <input type="checkbox"/> Neighbors <input type="checkbox"/> Other _____	

Item 1.	_____	Quantity obtained	_____
WHY do you gather this item? <i>(check all that apply)</i>	IMPORTANCE of gathering this item to you? <i>(check only one)</i>	WITH WHOM have you gathered this item? <i>(check all that apply)</i>	
<input type="checkbox"/> To save money <input type="checkbox"/> To be self-sufficient <input type="checkbox"/> Enjoy the activity <input type="checkbox"/> To be outdoors <input type="checkbox"/> Spend time with others <input type="checkbox"/> Sell for income <input type="checkbox"/> Give away to others <input type="checkbox"/> Can't buy item in stores <input type="checkbox"/> Other _____	<input type="checkbox"/> Very important <input type="checkbox"/> Somewhat important <input type="checkbox"/> Little importance <input type="checkbox"/> Not at all important	<input type="checkbox"/> Parents, grandparents <input type="checkbox"/> Children, grandchildren <input type="checkbox"/> Other relatives <input type="checkbox"/> Friends <input type="checkbox"/> Neighbors <input type="checkbox"/> Other _____	

Item 2. _____ **Quantity obtained** _____

WHY do you gather
this item?

(check all that apply)

- ☐ To save money
- ☐ To be self-sufficient
- ☐ Enjoy the activity
- ☐ To be outdoors
- ☐ Spend time with others
- ☐ Sell for income
- ☐ Give away to others
- ☐ Can't buy item in stores
- ☐ Other _____

IMPORTANCE of gathering
this item to you?

(check only one)

- ☐ Very important
- ☐ Somewhat important
- ☐ Little importance
- ☐ Not at all important

WITH WHOM have you
gathered this item?

(check all that apply)

- ☐ Parents, grandparents
- ☐ Children, grandchildren
- ☐ Other relatives
- ☐ Friends
- ☐ Neighbors
- ☐ Other _____

Item 3. _____ **Quantity obtained** _____

WHY do you gather
this item?

(check all that apply)

- ☐ To save money
- ☐ To be self-sufficient
- ☐ Enjoy the activity
- ☐ To be outdoors
- ☐ Spend time with others
- ☐ Sell for income
- ☐ Give away to others
- ☐ Can't buy item in stores
- ☐ Other _____

IMPORTANCE of gathering
this item to you?

(check only one)

- ☐ Very important
- ☐ Somewhat important
- ☐ Little importance
- ☐ Not at all important

WITH WHOM have you
gathered this item?

(check all that apply)

- ☐ Parents, grandparents
- ☐ Children, grandchildren
- ☐ Other relatives
- ☐ Friends
- ☐ Neighbors
- ☐ Other _____

Item 4. _____ **Quantity obtained** _____

WHY do you gather
this item?

(check all that apply)

- ☐ To save money
- ☐ To be self-sufficient
- ☐ Enjoy the activity
- ☐ To be outdoors
- ☐ Spend time with others
- ☐ Sell for income
- ☐ Give away to others
- ☐ Can't buy item in stores
- ☐ Other _____

IMPORTANCE of gathering
this item to you?

(check only one)

- ☐ Very important
- ☐ Somewhat important
- ☐ Little importance
- ☐ Not at all important

WITH WHOM have you
gathered this item?

(check all that apply)

- ☐ Parents, grandparents
- ☐ Children, grandchildren
- ☐ Other relatives
- ☐ Friends
- ☐ Neighbors
- ☐ Other _____

Giving away or receiving gathered or harvested items

If anyone in your house has not GIVEN AWAY any gathered or harvested items, please skip to question # 4.

Next to item 1, 2, 3, 4, please list the four most important items that someone in your house has GIVEN AWAY in the past 12 months. These do *not* need to be items that you had listed as most important to you in question # 2, but should be items that were checked in question #1.

In the blank next to “quantity”, please write in your best estimate of the quantity of each item that was given away in the past 12 months. (Use any unit such as quarts, pounds, cords, etc. that is associated with the item and please indicate the units that you are using)

Then, please answer the questions below each activity.

An example has been shown in the shaded portion.

Item 1.	<u>Berries</u>	<u>Quantity given</u>	<u>5 quarts</u>
<u>To whom</u> have you given this item away? <i>(check all that apply)</i>		<u>For how many years</u> have you been giving this item away? <i>(check one box per horizontal line)</i>	
	Less than 5 yrs	6-15 yrs	16-30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#3) GIVING AWAY gathered or harvested items

Item 1.	Quantity given			
<u>To whom</u> have you given this item away? <i>(check all that apply)</i>	<u>For how many years</u> have you been giving this item away? <i>(check one box per horizontal line)</i>			
	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item 2. _____ **Quantity given** _____

To whom have you given this item away? *(check all that apply)* For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Item 3. _____ **Quantity given** _____

To whom have you given this item away? *(check all that apply)* For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Item 4. _____ **Quantity given** _____

To whom have you given this item away? *(check all that apply)* For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#4) RECEIVING gathered or harvested items

If no one in your house has received any gathered or harvested items in the past 12 months, please skip to question # 5.

Item 1. _____ Quantity received _____

To whom have you given this item away? *(check all that apply)*

For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Item 2. _____ Quantity received _____

To whom have you given this item away? *(check all that apply)*

For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Item 3. _____ Quantity received _____

To whom have you given this item away? *(check all that apply)*

For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item 4. _____

Quantity received _____

To whom have you given this item away? *(check all that apply)*

For how many years have you been giving this item away? *(check one box per horizontal line)*

	Less than 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs
<input type="checkbox"/> Parents, grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Children, grandchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Selling items

5) Do you or anyone else in your house ever sell any of the items gathered?

☐

Yes

☐

No (Skip to end of survey)

6) In the left hand column, please check all the items that someone in your house has sold in the past 12 months. Then for each item, please list the quantity of the item that was sold over the past 12 months and your best estimate of the cash value received.

ITEM SOLD	QUANTITY SOLD	ESTIMATED CASH RECEIVED
<input type="checkbox"/> Maple syrup	<u>2 gallons</u>	\$ <u>60</u>

ITEM SOLD	QUANTITY SOLD	ESTIMATED CASH RECEIVED
<input type="checkbox"/> Pelts	_____	\$ _____
<input type="checkbox"/> Wild berries	_____	\$ _____
<input type="checkbox"/> Mushrooms	_____	\$ _____
<input type="checkbox"/> Maple syrup	_____	\$ _____
<input type="checkbox"/> Wood	_____	\$ _____
<input type="checkbox"/> Garden vegetables	_____	\$ _____
<input type="checkbox"/> Medicinal plants	_____	\$ _____
<input type="checkbox"/> Boughs, cones	_____	\$ _____
<input type="checkbox"/> Other _____	_____	\$ _____

Thank you for participating in this survey! Please fold the completed survey in half and place in the enclosed business reply envelope.

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REFERENCES

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